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**Self-Assessment Report**

**of**

**MBBS Program**

**KMU Institute of Medical Sciences**

**Kohat**

**PT Members:**

|  |  |
| --- | --- |
| **Name & Designation** | **Chairman / PT Member** |
| Dr. Sohail Aziz Paracha (Professor KIMS) | PT Chairman (Anatomy ) |
| Dr. Umar Hayat (Professor, KIMS) | PT Member (Community Medicine) |
| Dr. Fahim Shah (Professor, KIMS) | PT Member(Medicine) |
| Dr. Arshad Farzooq (Professor, KIMS) | PT Member (ENT) |
| Dr. Muhammad Alam (Associate Professor, KIMS) | PT Member (EYE) |
| Dr. Tahira Atta (Associate Professor, KIMS) | PT Member (Pathology) |
| Dr Tauseef Raza (Assistant Professor, KIMS) | PT Member (Orthopaedic) |
| Dr. Alia Bibi (Assistant Professor, KIMS) | PT Member (Pediatric) |
| Dr Imtiaz Ahmad (Assistant Professor, KIMS) | PT Member (Surgery) |
| Dr. Zain Ul Abideen (Assistant Professor, KIMS) | PT Member (Physiology) |
| Dr. Beenish Samreen (Assistant Professor, KIMS) | PT Member (Gynae/Obs) |
| Dr Zakia Subhan (Assistant Professor, KIMS) | PT Member (Pharmacology) |
| (Assistant Professor, KIMS) | PT Member (Psychiatry) |
| Dr. Khurram Saidal ( Lecturer KIMS) | PT Member (Forensic Medicine) |
| Dr. Fouzia (Lecturer KIMS) | PT Member (Biochemistry) |

Prepared By:

Quality Enhancement Cell, Khyber Medical University

**KMU Institute of Medical Sciences Kohat**

**Introduction:**

Khyber Medical University Institute of Medical Sciences Kohat (KIMS), is one of the rapidly growing Public sector medical Institute of Khyber Pakhtunkhwa (KPK). It was created as KUST Institute of Medical Sciences and the inauguration of KIMS was performed on Thursday April 6, 2006 by the then Governor NWFP/Chancellor KUST, Mr. Khalil-ur-Rehman. It has developed from strength to strength in all departments including preclinical and clinical to provide quality education as well as health facilities. KMU Institute of Medical Sciences (KIMS) was recognized by PMDC on permanent basis for 50 students, and has now been recognized on permanent basis for 100 students. Initially it was a constituent institute of Kohat University of Science and Technology (KUST), Kohat but later on it was transferred and declared as a constituent college of KMU in 2012. At present, seven batches of students have passed final professional examination. Nursing education, paramedics and post graduate education are plans for the near future. The Institute is located in the most developed and modern area of Kohat Development Authority (KDA). KIMS is at one hour drive from KPK capital Peshawar. The Liaquat memorial (LMH) and Divisional Headquarter teaching hospitals (DHQTH) having 500 beds capacity has been declared as teaching hospitals for KIMS by the Government of KPK. Both the hospitals are well equipped having wards for different types of patients besides operation theaters, radiology and diagnostic Labs etc.

**Program (MBBS)**

**Introduction:**

**Please mention brief introduction of your Program when started and how many students enrolled etc**.

KMU institute of medical Sciences has program for Bachelor of Medicine and surgery (MBBS). First batch of students was inducted in 2006 and has passed out in 2012. Each year 100 students are inducted. MBBS program is a double bachelor degree program completed within 5 years plus mandatory 1 year internship. To complete the degree 13 different subjects are to be passed and the designed course is divided into **basic sciences** including Anatomy, Physiology and Biochemistry, **pre clinical sciences** including pharmacology, pathology, forensic medicine and community medicine while **Clinical sciences** comprising Medicine, Surgery, Gynae/Obst, ENT, Ophthalmology and Pediatrics. All these departments contribute to one degree program. At the end of 5 year after qualifying the examination in all the subjects, one year mandatory internship is completed before becoming eligible in practice in the field. All these departments contribute to one degree program. At the end of 5 year after qualifying the examination in all the subjects, one year mandatory internship is completed before becoming eligible in practice in the field.

**Criterion 1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES**

Each program must have a mission, measurable objectives and expected outcomes for graduates. Outcomes include competency and tasks graduates are expected to perform after completing the program. A strategic plan must be in place to achieve the program objectives. The extent to which these objectives are achieved through continuous assessment and improvements must be demonstrated.

**Standard 1-1: The program must have documented measurable objectives that support faculty / college and institution mission statements.**

* **Document institution, college and program mission statements**

**Vision:**

**Khyber Medical University will be the global leader in health sciences academics and research for efficient and compassionate health care.**

**Mission:**

To achieve excellence in quality medical education, health provision, innovation, research, ethics, professionalism and social accountable leadership through national and international collaboration.

**Program OBJECTIVES:**

1. **Medical knowledge**

To enable students to gain medical knowledge of:

* 1. Normal human structure and function at the molecular, genetic, cellular, tissue, organ-system and whole-body level.
  2. The mechanisms involved in the causation and treatment of human diseases and their influence on clinical presentation and therapy.
  3. The epidemiology of common diseases.
  4. The impact of social factors on health and disease.
  5. The basic scientific and ethical principles of clinical research.

1. **Patient care**
2. To enable students to apply scientific methods to the practice of medicine for the identification of problems, data collection, hypothesis formulation, and the application of deductive reasoning to problem solving, clinical reasoning, and decision-making.
3. To successfully integrate collected clinical information to carry out appropriate diagnostic and treatment plans for patients across the broad spectrum of acute and chronic conditions.
4. To perform basic risk assessments and formulate plans to promote patient wellbeing.
5. **Interpersonal and communication skills**
6. To affectively counsel and educate patients and their families.
7. To design diagnostic and treatment options in a manner that will help the participation of patients and their families in shared decision-making.
8. To effectively communicate with members, including both physician and non-physician professionals, of the health care team.
9. **Professionalism**

1. To exhibit high standards of professionalism and demonstrate an awareness of potential conflicts of interest.
2. To apply legal and ethical principles governing the physician-patient relationship to interactions with patients and their families.
3. To act in the patient's best interest and serve as a patient advocate.
4. To work collaboratively and effectively in inter-professional teams.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Program Mission** | Obj.1 | Obj.2 | Obj.3 | Obj.4 | Obj.5 | Obj.6 | Obj.7 | Obj.8 | Obj.9 | Obj.10 |
| **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| Obj.11 | Obj.12 | Obj.13 | Obj.14 | Obj.15 |  |  |  |  |  |
| **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |  |  |  |  |  |

* **Outline the main elements of the strategic plan to achieve the program mission and objectives.**

|  |  |  |  |
| --- | --- | --- | --- |
| **S#** | **Areas** | **Activities** | **Time period** |
| 1 | Curriculum | Integrated modular system with revised curriculum has been started for Ist & 2nd yr since last two years.but Moular system for third yto final year is in pipeline. | December 2022 |
| 2 | Laboratories | Adequately furnished laboratories with sufficient room to accommodate the students, will be available in new building being constructed in allocated land for college | December 2022 |
| 3 | Lecture theatres & Auditorium | Spacious and with teaching aids including multimedia facilities (video conferencing) will be available in new building being constructed in allocated land for college | December 2022 |
| 3 | Skilled and qualified faculty & other staff | Qualified Ph.D./ M Phil, FCPS faculty in the specific areas of basic medical science and FCPS faculty on clinical side(Advertisements and selection board are being conducted for vacant posts) | December 2022 |
| 4 | Libraries | Central library furnished with books and online digital resource access will be available in new building being constructed in allocated land for college. | December 2022 |
| 5 | Hospital | Teaching hospital of its (KMU) own (in dreams) | December 2025 |
| 6 | Research Cell | Establishment of research Cell | Established in 2018-2019 |

* **Provide for each objective how it was measured, when it was measured and improvements identified and made. Table 4.1 provides a format for program objectives assessment.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Objective** | **How measured** | **When measured** | **Improvement identified** | **Improvement made** |
| 1,2,3,4,5, | Assessments (SEQs, MCQs & OSPE) | 2019 | Needs thorough knowledge of SEQs and MCQs formation.  OSPE banks building | All faculty members completed certificate in department of medical education profession (CHPE). Faculty members are participating actively in OSPE formation |
| 6,7,8,9,10,11 | Assessments (OSCE) | 2019 | OSCE banks building | Faculty members are participating actively in OSCE formation. |
|  | Assignments/  Presentations | 2019 |  |  |
| 12-15 | Teachers evaluation survey **(Annex A)** | 2019 | Teaching methodology | Teaching methodology workshops need to be arranged for faculty |
| Other surveys | 2019 | Professionalism | Professionalism workshops need to be arranged for faculty |

**Table 4.1: Program objectives assessment**

**Standard 1-2: The program must have documented outcomes for graduating students. It must be demonstrated that the outcomes support the program objectives and that graduating students are capable of performing these outcomes.**

* **Describe how the program outcomes support the program objectives. In Table 4.2 show the outcomes that are aligned with each objective.**

**PROGRAM OUTCOMES**

Degree of knowledge, skill, attitude, research and community services that will reflect on their performance as doctors

1. Students shall have an ability to demonstrate respectful and effective verbal and non-verbal interpersonal communication skills with patients and their families from all socioeconomic and cultural backgrounds.
2. Students shall have an ability to obtain appropriate medical histories that include psychosocial and behavioral factors that influence health.
3. Students shall have an ability to perform accurate physical examinations.
4. Students shall have an ability to perform basic procedures necessary for the practice of medicine.
5. Students shall have an ability to demonstrate their ability to communicate effectively with members of the medical community.
6. Students shall have an ability to demonstrate the ability to provide appropriate patient care in a multidisciplinary setting for the promotion of health and treatment of health problems.
7. Students shall have an ability to demonstrate a commitment to professional responsibilities, adherence to ethical behaviors, interest for research and evidence based medicine and sensitivity to patients of diverse backgrounds.
8. Students shall have an ability to demonstrate an awareness of the larger context and system of health care and its impact on patients and the practice of medicine

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Program  Objectives | Outcomes | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 |  | √ | √ | √ |  | √ | √ | √ |
| 2 |  | √ | √ | √ | √ | √ | √ | √ |
| 3 | √ | √ |  |  | √ | √ |  | √ |
| 4 |  | √ |  |  | √ | √ | √ | √ |
| 5 |  |  |  |  | √ |  | √ | √ |
| 6 |  | √ | √ |  |  | √ | √ | √ |
| 7 |  | √ | √ | √ |  | √ | √ | √ |
| 8 | √ | √ | √ |  | √ | √ |  | √ |
| 9 | √ |  |  |  | √ | √ | √ | √ |
| 10 | √ |  |  |  | √ | √ | √ | √ |
| 11 | √ | √ | √ | √ | √ | √ | √ | √ |
| 12 | √ | √ | √ | √ | √ | √ | √ | √ |
| 13 | √ | √ | √ | √ | √ | √ | √ | √ |
| 14 |  |  | √ | √ | √ | √ | √ | √ |
| 15 | √ |  |  |  | √ | √ | √ | √ |

* + **Describe the means for assessing the extent to which graduates are performing the stated program outcomes/learning objectives.**

The graduating students survey Results and alumni survey results are given below.

**Graduating Students Survey**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Department/Institute: KIMS** |  |  |  |  | **Program: MBBS** | | | | | | |
|  |  | | | | | | | | | | | |
|  | **Batch: 2018-2019** | | | **Term/Semester:** | | | | | **Final Year** | | |  |
|  |  | | | **No. of respondents:** | | | | |  | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Key: A = Very Satisfied, B = Satisfied, C = Uncertain, D = Dissatisfied, E = Very Dissatisfied & F = Un marked | | | | | | | | | | | | |
|  |  | 5 |  | 4 |  | 3 |  | 2 |  | 1 |  | 0 |
|  |  | **A** | **%** | **B** | **%** | **C** | **%** | **D** | **%** | **E** | **%** | **F** |
| **Questions about Performance of Instructor/Teacher:** | |  |  |  |  |  |  |  |  |  |  |  |
| 1 | The work in the program is too heavy and induces a lot of pressure. |  |  |  |  |  |  |  |  |  |  |  |
| 2 | The program is effective in enhancing team-working abilities. |  |  |  |  |  |  |  |  |  |  |  |
| 3 | The program administration is effective in supporting learning. |  |  |  |  |  |  |  |  |  |  |  |
| 4 | The program is effective in developing analytical and problem solving skills. |  |  |  |  |  |  |  |  |  |  |  |
| 5 | The program is effective in developing independent thinking. |  |  |  |  |  |  |  |  |  |  |  |
| 6 | The program is effective in developing written communication skills. |  |  |  |  |  |  |  |  |  |  |  |
| 7 | The program is effective in developing planning abilities. |  |  |  |  |  |  |  |  |  |  |  |
| 8 | The objectives of the program have been fully achieved. |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Whether the contents of curriculum are advanced and meet program objectives. |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Faculty was able to meet the program objectives. |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Environment was conducive for learning. |  |  |  |  |  |  |  |  |  |  |  |
| 12 | Whether the Infrastructure of the department was good. |  |  |  |  |  |  |  |  |  |  |  |
| 13 | Whether the program was comprised of Co-curricular and extra-curricular activities. |  |  |  |  |  |  |  |  |  |  |  |
| 14 | Whether scholarships/ grants were available to students in case of hardship. |  |  |  |  |  |  |  |  |  |  |  |
| **Averages** | |  |  |  |  |  |  |  |  |  |  |  |
| **Summation of Responses** | |  |  |  |  |  |  |  |  |  |  |  |
| **Marks Obtained (out of 70)** | |  | |  | |  | |  | |  | |  |
| **Total Marks (out of 70)** | |  | | | | | | | | | | |
| **(Strengths): % Score Obtained =** | |  | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

**Comments**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Alumni Survey** | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| **Department/Institute: KMU Institute of Medical Sciences** | | | | | **Program: MBBS**  **2018-2019** | | | | | | | | |
|  |  | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  | |  |
| Key: A = Excellent, B = Very Good, C = Good, D = Fair & E = Poor | | | | | | | | | | | | | |
|  |  | 5 |  | 4 |  | 3 |  | 2 |  | 1 |  | 0 | |
|  |  | **A** | **%** | **B** | **%** | **C** | **%** | **D** | **%** | **E** | **%** | **F** | |
| **a:** | **Knowledge** |  |  |  |  |  |  |  |  |  |  |  | |
| 1 | Problem formulation and solving skills |  |  |  |  |  |  |  |  |  |  |  | |
| 2 | Collecting and analyzing appropriate data |  |  |  |  |  |  |  |  |  |  |  | |
| 3 | Ability to link theory to Practice |  |  |  |  |  |  |  |  |  |  |  | |
| 4 | Ability to design a system Component or Process |  |  |  |  |  |  |  |  |  |  |  | |
| 5 | IT Knowledge |  |  |  |  |  |  |  |  |  |  |  | |
| **b:** | **Communication Skills** |  |  |  |  |  |  |  |  |  |  |  | |
| 6 | Oral communication |  |  |  |  |  |  |  |  |  |  |  | |
| 7 | Report/Proposal writing |  |  |  |  |  |  |  |  |  |  |  | |
| 8 | Presentation skills |  |  |  |  |  |  |  |  |  |  |  | |
| **c:** | **Interpersonal Skills** |  |  |  |  |  |  |  |  |  |  |  | |
| 9 | Ability to work in teams |  |  |  |  |  |  |  |  |  |  |  | |
| 10 | Ability to work in arduous/challenging situations |  |  |  |  |  |  |  |  |  |  |  | |
| 11 | Independent thinking/working |  |  |  |  |  |  |  |  |  |  |  | |
| 12 | Appreciation of ethical values |  |  |  |  |  |  |  |  |  |  |  | |
| **d:** | **Management / Leadership Skills** |  |  |  |  |  |  |  |  |  |  |  | |
| 13 | Resource and Time management skills |  |  |  |  |  |  |  |  |  |  |  | |
| 14 | Judgment |  |  |  |  |  |  |  |  |  |  |  | |
| 15 | Discipline |  |  |  |  |  |  |  |  |  |  |  | |
| **e:** | **About the Institute** |  |  |  |  |  |  |  |  |  |  |  | |
| 16 | Infrastructure (Classroom, Labs etc.) |  |  |  |  |  |  |  |  |  |  |  | |
| 17 | Faculty (Number, competence, facilitation) |  |  |  |  |  |  |  |  |  |  |  | |
| 18 | Repute at National level |  |  |  |  |  |  |  |  |  |  |  | |
| 19 | Repute at international level |  |  |  |  |  |  |  |  |  |  |  | |
| **Averages** | |  |  |  |  |  |  |  |  |  |  |  | |
| **Summation of Responses** | |  |  |  |  |  |  |  |  |  |  |  | |
| **Marks Obtained (out of 95)** | |  | |  | |  | |  | |  | |  | |
| **Total Marks (out of 95)** | |  | | | | | | | | | | | |
| **(Strengths): % Score Obtained =** | |  | | | | | | | | | | | |
| Overall Assessment is divided in the following major Areas: | | | |  |  |  |  |  |  |  |  | |  |
|  | |  | | --- | | Knowledge | | 54.0% | |  |  |  |  |  |  |  |  | |  |
|  | Communication Skills | 59.2% | |  |  |  |  |  |  |  |  | |  |
|  | Interpersonal Skills | 46.3% | |  |  |  |  |  |  |  |  | |  |

**General Comments**

**Standard 1-3: The results of program’s assessment and the extent to which they are used to improve the program must be documented.**

* + **Describe the actions taken based on the results of periodic assessments.**

So far the survey has not been conducted in the last three years that is why remedial actions have not been taken yet.

**Standard 1-4: The department must assess its overall performance periodically using quantifiable measures.**

* + **Present students enrolment (undergraduate and graduate) during the last three years indicating percentages of honor students, student faculty ratio, average graduating grade point average per semester, average time for completing the undergraduate program and attrition rate.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Years (session)** | **No of enrolled students** | **No of graduates passed out** | **% of honor students** | **Student faculty ratio** |
| 2014-15 | 98 | Result awaited | **?** | 1:8/1:19.6-1:24.5  Basic/Clinical |
| 2013-14 | 98 | 98 | **?** | 1:9?/1:19.6-1:24.5  Basic/Clinical |
| 2012-13 | 103 | 103 | **?** | 1:8/1:20.6-1:25.75  Basic/Clinical |

Grade point average per semester not applicable for us.

* + **Indicate percentage of employers that are strongly satisfied with the performance of the department’s graduates. Use employer’s survey.**

Surveys are meant for employers of the hospitals where graduates from KIMS would work (which is not yet available)

* + **Indicate the median/average student evaluation for all courses and the % of faculty awarded excellence in teaching award.**

Not conducted so far.

Faculty is never awarded any excellence award.

* + **Present performance measures for research activities. These include journal publications, funded projects, and conference publications per faculty per year and indicate the % of faculty awarded excellence in research award.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Performance Measures/**  **Name of Teachers** | **Paper Published in International Journal (last three years, i.e. 2017-19)** | **Papers published in National Journals with impact factor**  **(last three years, i.e. 2017-19)** | **Research Projects approved** | **Conference attended**  **(2017—19)** |
| Dr Lal Muhammad | Nil | 4 | Nil | 13,  plus all conferences held in KMU |
| Dr Akhtar Sherin | 1 | 7 | Nil | 18 |
| Dr Fazal Ahmad | Nil | Nil | Nil | 5 |
| Dr Aziz Marjan | Nil | Nil | Nil | 5 |
| Dr Mussarat Jabeen | 3 | 3 | Nil | 6 |
| Dr Sohail Aziz Paracha | 5 | 2 | Nil | 1 |
| Dr Fahim Shah | 1 | 3 | Nil | Nil |
| Dr Fahad Naim | Nil | 1 | Nil | 3 |
| Dr Fouzia Gul | 1 | 4 | Nil | 9 |
| Dr Asmat Shaheen | 3 | 4 | Nil | Nil |
| Dr Ghazala Shaheen | Nil | 3 | Nil | Nil |
| Dr Asif ullah | Nil | 4 | Nil | Nil |
| Dr Muhammad Haris Ramzan | 1 | 2 | Nil | 6 |
| Dr Waqas Luqman | 1 | 1 | Nil | 1 |
| Dr Beenish Samreen | 2 | Nil | Nil | 2 |
| Dr Razia Bibi | Nil | 1 | Nil | 2 |
| Dr Shabab Hussain | Nil | 1 | Nil | Nil |
| Dr Amjad Mustafa | Nil | 3 | Nil | Nil |
| Dr Aziz Marjan | Nil | Nil | Nil | 5 |
| Dr Muhammad Noor Faraz | Nil | Nil | 2 | 2 |
| Dr Tahira Atta | Nil | 2 | Nil | Nil |
| Dr Tauseef Raza | 3 | Nil | 1 | 3 |
| Dr Aalia Bibi | 1 | 1 | Nil | Nil |
| Dr Irfan Ullah Shah | Nil | 4 | Nil | Nil |
| Dr Sajid Munir | Nil | 2 | Nil | 2 |
| Dr Muhammad Uzair | Nil | 3 | Nil | 2 |
| Dr Fozia | 3 | Nil | Nil | 1 |
| Average | Average per faculty | Average per faculty | Average per faculty | Average per faculty |

Details of Research Papers published by the faculty members of KIMS are attached as **Annex C**

**(To be filled up by QEC from KIMS faculty resume)**

* + **Present performance measures for community services. This may include number of short courses per year, workshops and seminars organized.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Workshops organized** | **Short courses/Trainings** | **Seminars** |
| 2019 | QEC workshop on SAR, Workshop on epilepsy,workshop on PPH skills & drills, Workshop on Social accountability & role of teachers, workshop on KP breast feeding & child nutrition | Nil | Nil |
| 2018 | Workshop on Research Methodology, Workshop on MCQ development | Nil | One day seminar on hypertension + new management |
| 2017 | Workshop for faculty on use of power point and medical teaching, Workshop on Research Methodology | Nil | Nil |

* + **Indicate faculty and students satisfaction regarding the administrative services offered by the department. (QEC to use faculty and students surveys).**

|  |  |
| --- | --- |
| **Faculty** | ? % |
| **Students** | ?% |

**Criterion 2: CURRICULUM DESIGN AND ORGANIZATION**

Provide the following information about the program’s curriculum:

**Title of degree**

* MBBS

**Duration**

* Five years

**Current status of degree plan**

MBBS program is of five year duration with annual system. Active session of each year is of 9 months including preparatory leave and 02 weeks examination. (Needs formulation based on modular system)

* + Course title MBBS
  + Course objectives and outcomes Criterion-1
  + Catalog description
  + Text book(s) and references Subject oriented
  + Syllabus breakdown in lectures
  + Computer usage Separate computer lab facilities for male &

Female students but insufficient and needs up gradation planned in newly constructed building

* + Laboratory Department labs don’t meet the minimum

Requirements laid down by regulatory & accreditation body (PMC and HEC) but in future will be fulfilled in newly constructed building

(Curriculum of MBBS subject wise is attached as Annex D)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No Of Contact Hours Across The Curriculum** | | | | | | | | | | | |
| **Subject** | **Year 1** | | **Year 2** | | **Year 3** | | **Year 4** | | **Year 5** | | **Sum** |
| **Theory** | **Practical** | **Theory** | **Practical** | **Theory** | **Practical** | **Theory** | **Practical** | **Theory** | **Practical** |  |
| **Anatomy** | 120 | 120 | 120 | 120 | 30 |  | 20 |  | 20 |  | 550 |
| **Physiology** | 100 | 100 | 110 | 110 | 15 |  | 10 |  | 5 |  | 450 |
| **Biochemistry** | 60 | 60 | 60 | 60 | 10 |  | 5 |  | 5 |  | 260 |
| **Pharmacology & Therapeutics** | 10 |  | 10 |  | 140 | 140 | 10 |  | 20 |  | 330 |
| **Pathology & Microbiology** | 15 |  | 25 |  | 100 | 130 | 100 | 130 | 20 |  | 520 |
| **Forensic Medicine & Toxicology** | 5 |  | 10 |  | 40 | 60 |  |  | 5 |  | 120 |
| **Community Medicine** | 5 |  | 5 |  | 10 |  | 60 | 90 |  |  | 170 |
| **Ent** |  |  | 5 |  | 15 | 30 | 30 | 70 |  |  | 150 |
| **Eye** |  |  | 5 |  | 15 | 30 | 30 | 70 |  |  | 150 |
| **Paediatrics** |  |  |  |  |  | 32 | 32 | 48 | 68 | 120 | 300 |
| **Gynaecology & Obstetrics** |  |  |  |  |  | 48 | 30 | 48 | 90 | 104 | 320 |
| **General Medicine** | 2 |  | 3 |  | 15 | 70 | 50 | 120 | 90 | 170 | 520 |
| **Psychiatry** |  |  |  |  |  |  | 3 |  | 12 | 35 | 50 |
| **Emergency Medicine** |  |  | 2 |  | 3 |  |  |  | 15 | 30 | 50 |
| **Dermatology** |  |  | 2 |  |  |  | 4 |  | 12 | 32 | 50 |
| **Cardiology** | 1 |  | 2 |  | 2 | 8 |  | 15 | 32 | 30 | 90 |
| **Pulmonology** | 1 |  | 3 |  | 3 | 8 |  | 15 | 30 | 30 | 90 |
| **Nephrology** | 1 |  | 3 |  | 2 |  | 16 | 18 |  | 20 | 60 |
| **Gastroenterology** |  |  | 3 |  | 2 | 10 | 3 | 20 | 12 | 30 | 80 |
| **Neurology** |  |  | 4 |  | 6 | 12 |  | 22 | 16 | 30 | 90 |
| **Surgery** | 1 |  | 4 |  | 20 | 90 | 60 | 40 | 90 | 200 | 505 |
| **Anaesthesia/Critical Care** |  |  |  |  | 2 |  | 6 | 10 | 12 | 20 | 50 |
| **Orthopaedics & Traumatology** |  |  |  |  | 5 |  | 10 | 15 | 20 | 45 | 95 |
| **Neurosurgery** |  |  | 3 |  | 2 |  | 5 | 10 | 10 | 20 | 50 |
| **Maxillofacial Surgery** |  |  | 3 |  | 2 |  | 5 | 10 | 10 | 20 | 50 |
| **PRIME/ Research Methodology** | 20 | 15 | 20 | 15 | 20 | 15 | 40 | 60 | 15 | 30 | 250 |
| **Self Directed Learning** | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 500 |
| **Infection Control** | 2 |  | 2 |  | 2 | 4 | 6 | 8 |  | 6 | 30 |
| **Total Contact Hours** |  |  |  |  |  |  |  |  |  |  | 5930 |

Table 4.3: Curriculum course requirements (No of contact hours across the curriculum)

**Standard 2-1: The curriculum must be consistent and support the program’s documented objectives.**

**1st Professional MBBS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.**  **#** | **Subject** | **Program Objectives** | | | | | | | | | | | | | | |
| **I** | | | | | **II** | | | **III** | | | **IV** | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| 1 | Anatomy-II | **√** |  |  |  | **√** |  |  |  |  |  |  | **√** |  |  | **√** |
| 2 | Physiology-II | **√** |  |  |  | **√** |  |  |  |  |  |  | **√** |  |  | **√** |
| 3 | Biochemistry-II | **√** |  |  |  | **√** |  |  |  |  |  |  | **√** |  |  | **√** |
| 4 | Pakistan studies |  |  |  |  |  |  |  |  |  |  |  | **√** |  |  |  |
| 5 | Islamiat |  |  |  |  |  |  |  |  |  |  |  | **√** |  |  |  |

**2ndProfessional MBBS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.**  **No** | **Subject** | **Program Objectives** | | | | | | | | | | | | | | |
| **I** | | | | | **II** | | | **III** | | | **IV** | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| 1 | Anatomy-II | **√** |  |  |  | **√** |  |  |  |  |  |  | **√** |  |  | **√** |
| 2 | Physiology-II | **√** |  |  |  | **√** |  |  |  |  |  |  | **√** |  |  | **√** |
| 3 | Biochemistry-II | **√** |  |  |  | **√** |  |  |  |  |  |  | **√** |  |  | **√** |
| 4 | Pakistan studies |  |  |  |  |  |  |  |  |  |  |  | **√** |  |  |  |
| 5 | Islamiat |  |  |  |  |  |  |  |  |  |  |  | **√** |  |  |  |

**3rdProfessional MBBS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.**  **No** | **Subject** | **Program Objectives** | | | | | | | | | | | | | | |
| **I** | | | | | **II** | | | **III** | | | **IV** | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| 1 | Pharmacology |  |  |  |  | **√** |  |  |  |  |  |  | **√** |  |  | **√** |
| 2 | Forensic Medicine |  |  |  |  | **√** |  |  |  |  |  |  | **√** | **√** |  | **√** |

**4thProfessional MBBS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.**  **No** | **Subject** | **Program Objectives** | | | | | | | | | | | | | | |
| **I** | | | | | **II** | | | **III** | | | **IV** | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| 1 | Pathology |  | **√** |  |  | **√** | **√** | **√** |  |  |  |  | **√** | **√** | **√** | **√** |
| 2 | Community Medicine |  | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |  |  | **√** |

**5thProfessional MBBS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.**  **No** | **Subject** | **Program Objectives** | | | | | | | | | | | | | | |
| **I** | | | | | **II** | | | **III** | | | **IV** | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| 1 | Medicine |  | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |
| 2 | Surgery |  | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |
| 3 | Gynaecology, Obstetrics |  | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |
| 4 | Eye |  | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |
| 5 | ENT |  | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |
| 6 | Paediatrics |  | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |

Table 4.4: Courses versus program outcomes

**Standard 2-2: Theoretical background, problems analysis and solution design must be stressed within the program’s core material.**

|  |  |  |
| --- | --- | --- |
| **Elements** | **Courses** | **Mode of Assessment** |
| Theoretical background | **Lectures & demonstrations** about,  -human body structure and function in basic sciences  -Structural, functional and biochemical changes in diseased states  -Structure, mechanism of action, effects and side-effects of drugs  -legal and ethical issues regarding medical practice  -Diagnosis and treatment of diseases  -awareness about ongoing research in medical field | Quarterly internal assessment  theory papers.  Carrying ten percent (10%) weightage.  Annual examination theory papers having ninety (90%) weightage.(MCQs,SEQs) |
| Problem analysis | Practicals in basic sciences  Clinical methods in clinical sciences, based on theoretical knowledge | OSPE  OSCE/ Short & long cases on patients |
| Solution design | Research Article writing  Dissertation writing | Assignments  Approval by standing committee |

**Table 4.5: Standard 2-2 requirement**

Note \*: it is important to note that the board of studies for MBBS shall be revised as per the approved rules & regulations of the KMU, and the guidelines of HEC, so that FCPS/Ph.D degree holders shall be the part of the relevant statutory bodies to revise the courses specifically, as the existing members of the related statutory bodies are not having PhD degrees.

**Standard 2-3: The curriculum must satisfy the core requirements for the program, as specified by the respective accreditation body.**

The curriculum is satisfying the core requirements for the program, as specified by the PMC (old PMDC). (To be seen on PMC website)

**Standard 2-4: The curriculum must satisfy the major requirements for the program as specified by the PMC, of the respective accreditation body/ councils.**

The curriculum is satisfying the core requirements for the program, as specified by PMC (old PMDC) (To be seen on PMC website)

**Standard 2-5: The curriculum must satisfy general education, arts, and professional and other discipline requirements for the program, as specified by the respective accreditation body / council.**

The curriculum is satisfying the core requirements for the program, as specified by the HEC & PMC old (PM&DC)

**Standard 2-6: Information technology component of the curriculum must be integrated throughout the program.**

* **Indicate the courses within the program that will satisfy the standard.**

Integration of following courses throughout the program should be incorporated:

* Microsoft Office
  + - MS- word
    - MS-power point
    - MS- excel
    - MS-access
* Literature search
* Network basics
* **Describe how they are applied and integrated throughout the program.**

Integration of information technology component of the curriculum in the program needs:

* Infrastructure including
  + space
  + computers
  + internet facility
* Subject (Information Technology) specialist
* Allocation of hours in the time table throughout the program

**Standard 2-7: Oral and written communication skills of the student must be developed and applied in the program.**

* **Indicate the courses within the program that will satisfy the standard.**

Workshops on communication skills are proposed in the respective years in the academic session.

* **Describe how they are applied.**

Above proposed workshops need to be incorporated in the curriculum.

**Criterion 3: LABORATORIES AND COMPUTING FACILITIES**

* **Describe the laboratory/ computer facilities that are available for use in the program under assessment. Indicate for each lab the following.**

Institute was established in 2006 and still to be well equipped. Laboratories in basic medical sciences are established in respective departments with detail given below (Assessed in PMDC visit, 2019)

**CRITERIA-3**

Lab and Computer facilities

**ANATOMY:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Infrastructure | Min requirement | Deficiency | Purpose built | Required |
| Laboratory | 500 sq.ft | Y/N | Y |  |
| Tutorial room | 250 sq.ft | Y/N | N | Required |
| Lecture hall |  | Y/N | N | Required |
| Departmental library |  | Y/N | Y |  |
| AV system |  | Y/N | N | Required |
| Maintenance /cleanliness |  | Y/N | Y |  |
| Fire & safety |  | Y/N | Y |  |
| Office  a)area | a) 500 sq.ft  provided to each faculty member | Y/N | Y |  |
| Computer & Net facility | provided to each faculty member | Y/N | N | Required  4computer system with net facility |
| Heating system |  | Y/N | N | 4 heaters required |
| Cooling system |  | Y/N | N | 4 AC required |

|  |  |  |  |
| --- | --- | --- | --- |
| Description | Required For  1 to 100 Student | Deficiency | Remarks |
| Dissection hall | 1 | Nil |  |
| Mortuary refrigerator of 6 capacity of human corps | 1 | Nil |  |
| Cadavers | 6 | 6 | Required |
| Cadavers tables | 6 | Nil |  |
| Appropriate dissecting instruments for 6 cadaver | 6 | Nil |  |
| Stools | 50 | Nil |  |
| **Histology Laboratory** |  |  |  |
| Binocular microscope | 15 | Nil |  |
| Slide projecting microscope | 1 | Camera deficient | Required |
| Refrigerator large | 1 | Nil |  |
| Computer with internet facility | 2 | 2 | Required |
| Scanner | 1 | Nil |  |
| Color laser printer | 1 | Nil |  |
| Stool | 30 | Nil |  |
| Cidar wood oil |  | Y | Required |
| Embryology slide set | 1 set | 1 set | Required |
| Neuro anatomy slide | 1 | 1 | Required |
| Histology slide sets | 3 | Nil |  |
| **Anatomy Museum** |  |  |  |
| Torso | 1 | Nil |  |
| Upper limb | 1 | Nil |  |
| lower limb | 1 | Nil |  |
| head & nick | 1 | Nil |  |
| Special senses | 1 | Nil |  |
| Brain | 1 | Nil |  |
| Histology models every system |  |  | Required |
| Embryology models every system | 1 | Y | Required |
| Loos bones (human) | 100 sets | 86 sets required | Required |
| Articulated skeleton | 2 | Nil |  |
| Articulated vertebral column | 1 | Nil |  |
| Anatomy chart every system | 1 | Nil |  |
| Cross sectional body | 1 | 1 | Required |
| Anatomy CDS | All systems required | Y | Required |
| Embryology slides sets | 1 | Y | Required |
| Neuro anatomy model sets | 1 | 1 | Required |
| **Teaching Aids** |  |  |  |
| Slide projector | 1 | 1 | Required |
| Overhead projector | 1 | 1 | Required |
| Multimedia | 1 | Nil |  |
| White boards | 5 | 3 | Required |

**Lab 2: Physiology lab**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S #** | **PHYSIOLOGY** | **Min Required Quantity For 100 Students** | **Deficiency** | **Remarks**  **Working/ Not Working/ Available** |
| 1 | Sphygmomanometer | 15 | 00 | 55 |
| 2 | Microscope Binocular | 10 | 01 | 09 |
| 3 | Haemocytometer | 20 | 00 | 20 |
| 4 | Hemoglobin meter | 15 | 00 | 15 |
| 5 | Spectrophotometer | 1 | 01 | 00 |
| 6 | Perimenter Complete | 10 | 00 | 11 |
| 7 | ESR Pipette | 25 | 00 | 25 |
| 8 | Percussion Hammers | 20 | 00 | 20 |
| 9 | Oxygen Cylinders | 2 | 00 | 02 |
| 10 | Thermometer Clinical | 30 | 00 | 30 |
| 11 | Stop watch | 15 | 02 | 13 |
| 12 | TunningForeps 100Hz | 15 | 04 | 11 |
| 13 | Sudents Kymograph | 5 | 00 | 05 |
| 14 | ECG Machines | 2 | 00 | 02 |
| 15 | Centrifuge laboratory | 1 | 00 | 02 |
| 16 | Microhaematocrit regular | 5 | 00 | 05 |
| 17 | Microhaeamatcrict centrifuge | 1 | 00 | 01 |
| 18 | Vision E type | 5 | 00 | 05 |
| 19 | Ishahara Chart | 5 | 00 | 05 |
| 20 | Vital graph compact. | 1 | 01 | 00 |
| 21 | Weighing machine | 2 | 00 | 06  (01Functional) |
| 22 | Stethoscope | 20 | 00 | 30 |
| 23 | pH meter clinical | 1 | 00 | 01 (Not Working) |
| 24 | Balance Analytical | 1 | 01 | 00 |
| 25 | Oven electric with Thermostat | 1 | 01 | 00 |
| 26 | Students spirometer | 5 | 02 | 03 (Not Working) |
| 27 | Frog’s Board (Trays SS12s 10,Trays,ELI 10, Dissecting forceps and plain scissors) | 5 | 05 | 00 |
| 28 | Data acquisition system (power lab) | 2 | 02 | 00 |
| 29 | Tred mill | 1 | 01 | 00 |
| 30 | Finger pulse oximeter | 1 | 01 | 00 |

**Lab 3 Biochemistry**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S NO** | **SPACE** | **PM&DC REQUIREMENTS** | **AVAILABLE QUANTITY** | **DEFICIENCY/ ADDITIONALLY REQUIRED** |
| 01 | Laboratory with Appropraite Size with Min Area 1400 sqft (Table top working Capacity for 50 Students) | 01 (Minimum area 1400 sq ft) | 02 (1800 sq.ft)  01 Research Lab. (100 sqft) | 564 sq. ft |
| 02 | Store with Cupboards & Racks | 01 | 01 (110 sq.ft) | Nil |
| 03 | Office of Prof with attached Bathroom (Min size 150 sq ft) with IT & Communication facility | 01 | 01 (100 sq.ft) | Nil |
| 04 | Office of Associate Prof with attached Bathroom (Min size 120 sq ft) with IT & Communication facility | 01 | 01 (100 sq.ft) | IT & Communication Facility |
| 05 | Office of Assistant Prof with attached Bathroom with IT & Communication facility | 01 | 01 (100 sqft) | IT & COMM Facility  Bath room |
| 06 | Staff Room for Male Lecturers with attached Bathroom with IT & Communication facility | 01 | 01 (100 sqft) | IT & COMM Facility  Bath room |
| 07 | Staff Room for  Female Lecturers with attached Bathroom with IT & Communication facility | 01 | Nil | 01 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NO** | **NAME AND DESCRIPTION OF ITEMS** | **MANDATORY REQUIRMENT** | **AVAILABLE** | **DEFICIENCY** | **REMARKS** |
| 01 | Spectronic 20 : Wave Length: 340 – 950nm  220 VOLTS. (50-60hz) | 02 | 01 | 01 | Urgently  Required |
| 02 | Photoelectric colorimeter : ERMA, AE – 11  China | 03 | 02 | Nil |  |
| 03 | pH Meter : 0 to 14, Res : 0.01, Temp : 5 C to 105 C, Cal : Max 3 Points, Buffer Group, 120 Volts | 05 | Nil | 05 | Urgently required |
| 04 | Incubator (large size) : Temp range : 60 C \_0.5 C, Stainless steel Interior 240 V | 01 | Nil | 01 | Urgently required |
| 05 | Water Distillation Appliance : Stainless Steel Distiller 220V, 5kW  China, 5 Litre | 01 | Nil | 01 | Urgently required |
| 06 | Water Bath : - 04 Hole, Temp : 37-100˚C, 220V, 50Hz, China  - Micro processor Controlled Waterbath | 02 | 05 | +3 |  |
| 07 | Binocular Microscope : Binocular 4X, 10X, 40X, 100X(Oil); 230volts | 05 | 02 | 03 | Urgently required |
| 08 | Analytical Electrical Balance Single : 115/230 V, 50/60 HZ, 80 mm pan(LXWXH) 340X210X345) mm | 02 | 02 | Nil |  |
| 09 | Balance Electric top loading : *AFD GF200* 0.01g to 200 g,  *AFD GF300* Electronic Balance 0.02g to 310g | 01 | Nil | 02 | Urgently required |
| 10 | Balance Electric H80 : China | 02 | Nil | 02 | Urgent required |
| 11 | Centrifuge : Power Supply: 220-240v, 50/60hz.  Max Capacity: 8 X 10 ml. | 02 | 02 | Nil |  |
| 12 | Stop Watch : One button operation,  0 – 30 min, 1/5 sec recorder,  13 jewels, metal case,  Anti magnetic, lever movement | 10 | Nil | 10 | Urgently required |
| 11 | Hot Box Oven : Temp sensitivity ±0.5 ˚C  Chamber Dimensions : 15.5’’ X 18.5’’ X 15’’ (390X470X380 mm)  Exterior Dimensions : 21.5’’ X 24’’ X 28’’ (550X610X715 mm)  Chamber Volume : 2.5cubic ft, (71.5 Lit) Power : 115 V, 1.2 kW, 10.4 A | 01 | Nil | 01 | Urgently required |
| 12 | Cell Homogenizor : Variable speed : 5000 – 30, 000 rpm. Volume : 0.03 – 1500 ml, 115 Volts | 01 | Nil | 01 | Urgently required |
| 13 | Gel Electrophoresis : Horizontal Unit.  Gel Dimension 10 X 7 Cm,  Complete System E UV Tray 10 X 7 cm.  One Comb For 10 Samples.  Thickness 1.00 mm and 0ne Comb For 15 Sample Thickness 1.00 With Leads.  Digital Voltage Ranges 10-300 V In 1 V Step, Current 4-400 mA In 1 mA Steps. 75 Watts. | 01 | Nil | 01 | Urgently required |
| 14 | Refractrometer : Auto Abbe Refractrometer :  Illuminations : 10 W, Tungnsten Halogen with 589 nm band pass,  Display direct reading LCD  Range disolve solid 0 – 85 %, Temperature 10 - 40˚C | 01 | Nil | 01 | Urgently required |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NO** | | **NAME AND DESCRIPTION OF ITEMS** | | **MANDATORY REQUIRMENT** | | **AVAILABLE** | | **DEFICIENCY** | | **REMARKS** |
| **GLASS WARES** | | | | | | | | | | |
| 1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18 | Beaker  500 ml  250 ml  100 ml  50 ml  Graduated Cylinders  2000 ml  1000 ml  250 ml  100 ml  25 ml  10 ml  Conical Flaks  500 ml  250 ml  100 ml  Pipette  10 ml  5 ml  2 ml  1 ml  Volumetric Flask  100 ml  Adustable Pipettes  5000µl  1000µl  100µl  Stainless Steel  Spirit Lamps  Glass Lamps  Burettes pyrex  Stirrers pyrex  Glass Lids Pyrex  Cappilary Tubes, Pyrex  Slides pyrex  CentrifugeTubes 1000ml  Reagent Bottles  125ml  60ml  Test Tubes  10’’ X 12’’ inches  6mm  Pestle & Morter 4 inch  Wash bottles plastic | | Adequate Amount | | 08  06  10  09  10  04  08  04  06  06  05  30  34  50  15  15  15  100  04  10  10  18  18  46  20  18  25  02 Packs  30  97  150  150  180  09  20 | | 03  02  02  03  03  03  02  03  01  01  02  ---  ---  ---  ---  ---  ---  ---  02  ---  ---  03  03  04  05  04  09  ---  05  20  10  ---  ---  03  --- | | Urgently Required | |

**Lab 4 Pharmacology**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S#** | **Name of article** | **Quantity** | **Page#** | **Remarks** |
|  | Kymograph for student | 8 | 1 |  |
|  | Kymograph printed chart 6x9 | 20 | 2 |  |
|  | Single tissue bath (organ bath) | 10 | 4 |  |
|  | Pharmacology stand | 10 | 5 |  |
|  | Reservoir holder | 10 | 6 |  |
|  | Constant head | 10 | 7 |  |
|  | Spatula stainless steel | 10 | 16 |  |
|  | Industrial balance with weight box 0.1 mg to 100 gm | 5 | 19 |  |
|  | Oxygen cylinder large | 2 | 20 |  |
|  | Oxygen gage | 2 | 21 |  |
|  | Copper tube 3 ways | 10 | 22 |  |
|  | Artery forceps 6” stainless steel | 20 | 23 |  |
|  | Simple forceps medium | 11 | 24 |  |
|  | Surgical blade | 2 box | 25 |  |
|  | Iron stand for oxygen cylinder | 2 | 26 |  |
|  | Scissor curved small | 10 | 27 |  |
|  | Scissor straight small | 10 | 27 |  |
|  | Scissor medium straight | 10 | 28 |  |
|  | B.P apparatus | 2 | 29 |  |
|  | Stethoscope | 25 | 30 |  |
|  | Examination couch | 1 | 33 |  |
|  | Sphygmomanometer mercurial | 2 | 36 |  |
|  | Injectable training arm | 1 | 40 |  |
|  | Digital water bath 4 holes | 1 | 46 |  |
|  | Test tube holder | 15 | 48 |  |
|  | Microscope Italy optika model B-180 s.no 243257 | 1 | 69 |  |
|  | Wooden boxes for rabbits | 12 | 74 |  |
|  | Water distiller stainless steel | 1 | 81 |  |
|  | Centrifuge digital 6 holes | 1 | 82 |  |
|  | Electric Heater | 1 | 85 |  |
|  | Steel cages | 13 | 91 |  |
|  | P.H meter portable | 1 | 92 |  |
|  | Electronic balance from 0.1gm to 400gm | 1 | 93 |  |

**FURNITURE & FIXTURE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S#** | **Name of article** | **Quantity** | **Page#** | **Remarks** |
|  | Office chairs executive | 2 | 76 |  |
|  | Office chair cane | 3 | 77 |  |
|  | Wooden stools | 25 | 78 |  |
|  | Iron table with 2 piece marble | 1 | 79 |  |
|  | White board (7x4) | 2 | 80 |  |
|  | Office table | 2 | 83 |  |
|  | Cupboard fixed in office | 1 | 84 |  |
|  | Science table with marble top Museum | 1 | 88 |  |
|  | Showcase fixed in museum wall (medicine) | 11 | 89 |  |
|  | Plastic chair | 2 | 90 |  |
|  | Lab rack wooden | 3 |  |  |
|  | Wooden shelves fixed in lab | 7 |  |  |
|  | Computer table in office | 1 |  |  |
|  | Wash basin | 4 |  |  |
|  | Marble shelves with iron stand with double wooden door | 3+10 marbles |  |  |
|  | Lab table marble with iron stand | Marble piece 13 iron stand 5 |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Part II Infrastructure** | **Min Requirement** | **Available Capacity** | **Deficiency** | **Purpose built** | **Remarks** |
| Laboratory | 500 Sq. ft | 320 sq.ft | 180 sq.ft | Y/N |  |
| Tutorial Room |  |  |  | Y/N | Demonstration  room |
| Lecture Hall |  |  |  | Y/N | Accommodating 50 Students |
| Departmental library |  | NIL |  | Y/N |  |
| AV System |  |  |  | Y/N | Multimedia available |
| Maintenance/cleanliness |  |  |  | Y/N | Satisfactory |
| Fire & safety |  | NIL |  | Y/N |  |
| Office(s)  a) area  b) Computer and net facility | a) 500 Sq. ft  b) Provided to each faculty member | a) 100 sq.ft  b) one computer for all faculty members | a) 400 sq.ft | Y/N  Y/N | Offices should be provided to each faculty member with internet facility |

|  |  |  |  |  |
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|  | **PHARMACOLOLGY & THERAPEUTICS** | **Required** | **Available** | **Deficiency** |
| 1 | Organ Bath | 5 | 10 | NIL |
| 2 | Oxygen Cylinders and Regulators | 3 | 2 | 1 |
| 3 | Animal Operation Tables | 1 | NIL | 1 |
| 4 | Respirators |  | NIL |  |
| 5 | Kymographs (2 channels) | 2 | 8 | NIL |
| 6 | Polygraphs complete (Two channels) |  | NIL |  |
| 7 | Audiovisual facility and experimental CD's of Pharmacology practicals. | 5 | NIL | 5 |
| 8 | Experimental Animal including Rabbits Forges, Guinea, Pigs and Dogs | 100 animal/year |  | Provided at the time of experiments |
| 9 | Freezer 14" | 1 | NIL | 1 |
| 10 | Electronic Balance | 1 | 1 | NIL |
| 11 | BP apparatus. | 5 | 15 | NIL |
| 12 | Stethoscope | 5 | 15 | NIL |
| 13 | Torches | 15 | NIL | 15 |
| 14 | Scissors | 15 | 15 | NIL |

**Lab 5 Pathology**

|  |  |
| --- | --- |
| **Laboratory Title** | Pathology |
| Location and Area. | KIMS |
| Objectives | To study pathological changes in human body |
| Adequacy for Instruction | Staff: deficient, Faculty and supporting both : Demand: Annexture-5a |
| Safety regulations | Partially available |
| Courses taught | MBBS III and IV YEAR, BDS II YEAR |
| Software available  If applicable | Not available (soft ware of teaching slides and videos, laboratory soft ware for data collection, compilation and reporting) |
| Major apparatus | Auto processor available (further requirement is submitted: Annexure– 5b) |
| Major Equipment | Multihead microscope, autoclave, incubator, Hot air oven available(further requirement is submitted: Annexure– 5b) |

Name of Department/Institute - PATHOLOGY DEPARTMENT

Name of Head of Department/Institute - PROFESSOR .DR AZIZ MARJAN PATHOLOGY DEPTT. KMU-IMS

Signature & Date - 25/01/2020

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.NO | | Item Name | Quantity | Specification if application | Location | No. of items those are in working condition | No. of items those are not in working condition | No. of items need be repaired | No. of items Condemn |
| 1 | | **Centrifuge digital** | 1 |  | Patho lab | 1 |  |  |  |
| 2 | | Binocular microscope | 31 |  | Patho lab | 31 |  |  |  |
| 3 | | Centrifuge | 4 |  | Patho lab | 4 |  |  |  |
| 4 | Sigma digital | 1 |  | Patho lab | 1 |  |  |  |
| 5 | Teaching microscop | 1 |  | Patho lab | 1 |  |  |  |
| 6 | Physical balance with wt.Box | 1 |  | Patho lab | 1 |  |  |  |
| 7 | Photo chlorimetar (Erma) | 1 |  | Patho lab | 1 |  |  |  |
| 8 | Digital water bath | 1 |  | Patho lab | 1 |  |  |  |
| 9 | Tissue processor | 1 |  | Patho lab | 1 |  |  |  |
| 10 | Steel mould | 5 |  | Patho lab | 5 |  |  |  |
| 11 | Digital weight machine | 2 |  | Patho lab | 2 |  |  |  |
| 12 | Trinocular microscop | 2 |  | Patho lab | 2 |  |  |  |
| 13 | Wire loop | 15 |  | Patho lab | 15 |  |  |  |
| 14 | Water distillation plant | 1 |  | Patho lab | 1 |  |  |  |
| 15 | Pel fridge | 1 |  | Patho lab | 1 |  |  |  |
| 16 | Microtone | 2 |  | Patho lab | 2 |  |  |  |
| 17 | Wise bath | 1 |  | Patho lab | 1 |  |  |  |
| 18 | ESR stand | 5 |  | Patho lab | 5 |  |  |  |
| 19 | Test tube rack | 5 |  | Patho lab | 5 |  |  |  |
| 20 | Pipette stand | 5 |  | Patho lab | 5 |  |  |  |
| 21 | Dropping bottles | 19 |  | Patho lab | 19 |  |  |  |
| 22 | Wood slide stnd | 4 |  | Patho lab | 4 |  |  |  |
| 23 | Slide tray | 9 |  | Patho lab | 9 |  |  |  |
| 24 | Scapel | 1 |  | Patho lab | 1 |  |  |  |
| 25 | Probe | 1 |  | Patho lab | 1 |  |  |  |
| 26 | Tissue forcep | 2 |  | Patho lab | 2 |  |  |  |

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| S.NO | Item Name | Quantity | Specification if application | Location | No. of items those are in working condition | No. of items those are not in working condition | No. of items need be repaired | No. of items Condemn |
| 27 | Seissors | 2 |  | Patho lab | 2 |  |  |  |
| 28 | Artory forceps | 1 |  | Patho lab | 1 |  |  |  |
| 29 | knives | 2 |  | Patho lab | 2 |  |  |  |
| 30 | Slide tray | 1 |  | Patho lab | 1 |  |  |  |
| 31 | L\_shap mould | 15 |  | Patho lab | 15 |  |  |  |
| 32 | Steplizar | 1 |  | Patho lab | 1 |  |  |  |
| 33 | Incubator | 2 |  | Patho lab | 2 |  |  |  |
| 34 | PH meter | 1 |  | Patho lab | 1 |  |  |  |
| 35 | Hot air oven | 2 |  | Patho lab | 2 |  |  |  |
| 36 | Water bath | 1 |  | Patho lab | 1 |  |  |  |
| 37 | Electric balance | 1 |  | Patho lab | 1 |  |  |  |
| 38 | Centrifuge (sigma 1-14) | 1 |  | Patho lab | 1 |  |  |  |
| 39 | Centrifuge machine (EB series) | 1 |  | Patho lab | 1 |  |  |  |
| 40 | Auto clove sterilizer | 2 |  | Patho lab | 2 |  |  |  |
| 41 | Pencil dimond | 1 |  | Patho lab | 1 |  |  |  |
| 42 | Ad Juster 10\_100 ul | 1 |  | Patho lab | 1 |  |  |  |
| 43 | Ad Juster 1ml | 1 |  | Patho lab | 1 |  |  |  |
| 44 | Hematology Analyzer | 1 |  | Patho lab | 1 |  |  |  |
| 45 | Florescent Microscope | 1 |  | Patho lab | 1 |  |  |  |
| 46 | UPS with batteries | 1 |  | Patho lab | 1 |  |  |  |

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| S.NO | Item Name | Quantity | Specification if application | Location | No. of items those are in working condition | No. of items those are not in working condition | No. of items need be repaired | No. of items Condemn |
| 1 | Computer complete Pentium 4 Seats | 3 |  | office | 3 |  |  |  |
| 2 | Telephone set | 1 |  | Office | 1 |  |  |  |
| 3 | HP printer | 1 |  | Office | 1 |  |  |  |
| 4 | Ext board | 1 |  | Office | 1 |  |  |  |
| 5 | Multi media | 1 |  | Lecture Hall3 | 1 |  |  |  |
| 6 | CPU with key board &mouse | 1 |  | Lecture Hall3 | 1 |  |  |  |
| 7 | Bell remote control | 1 |  | Office | 1 |  |  |  |
| 8 | Eleetric heater | 2 |  | office | 1 |  |  |  |
| 9 | HP Scaner | 1 |  | office | 1 |  |  |  |
| 10 | Split AC | 2 |  | Lab&tutorial 2 | 2 |  |  |  |
| 11 | A/c window | 1 |  | office | 1 |  |  |  |

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| S.NO | Item Name | Quantity | Specification if application | Location | No. of items those are in working condition | No. of items those are not in working condition | No. of items need be repaired | No. of items Condemn |
| 1 | Wooden stools | 32 |  | Patho lab |  |  |  |  |
| 2 | Sliding table | 1 |  | Patho lab |  |  |  |  |
| 3 | Woodes shelf | 1 |  | Patho lab |  |  |  |  |
| 4 | Fixed table | 7 |  | office |  |  |  |  |
| 5 | Office table 2.5\*5\*3 | 1 |  | office |  |  |  |  |
| 6 | Rolling chair | 1 |  | office |  |  |  | 1 |
| 7 | Chair cane | 6 |  | office |  |  |  |  |
| 8 | Sofa set | 3 |  | office |  |  |  |  |
| 9 | Table computer | 1 |  | office |  |  |  |  |
| 10 | Side table | 1 |  | office |  |  |  |  |
| 11 | Computer table large | 1 |  | office |  |  |  |  |
| 12 | Steel chair | 1 |  | Patho lab |  |  |  |  |
| 13 | Cupboard 65\_1(full lamination) | 8 |  | museum |  |  |  | 1 |
| 14 | Rostrum | 1 |  | Lecture hall |  |  |  |  |
| 15 | Office table small | 2 |  | office |  |  |  |  |
| 16 | Student chair | 33 |  | Lecture hall |  |  |  |  |
| 17 | Table Execttive | 1 |  | office |  |  |  |  |
| 18 | Office table 2.5 \*5 \*3 | 1 |  | office |  |  |  |  |
| 19 | Library almari | 2 |  | office |  |  |  |  |
| 20 | carpet | 1 |  | office |  |  |  | 1 |
| 21 | Executive Table Special with side Rack comm. computer table and,Book Showcase on Back Wall | 1 |  | office |  |  |  |  |
| 22 | Wooden shilf cupboard | 4 |  | offices |  |  |  |  |
| 23 | **Rolling chair Executive** | 2 |  | offices |  |  |  |  |

**PATHOLOGY LABORATORY REQUIREMENTS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **DETAILS OF ITEMS DEMANDED** | | | | | | | | |
| **S. No** | **Equipment/Name of item** | **Quantity** | | **Company / manufacturer** | **Unit Rate**  **(Rs.)** | | | **Total AMOUNT**  **(RS.)** |
|  | Microscope Binocular | 4 | | Nikon | 250000 | | | 1000000 |
|  | Microscope Trinocular with camera and TV display | 2 | | Nikon | 300000 | | | 600000 |
|  | Florescent Microscope | 1 | | Nikon | 300000 | | | 300000 |
|  | Centrifuge ordinary | 1 | | China | 4000 | | | 4000 |
|  | Centrifuge sigma digital | 1 | | Germany | 25000 | | | 25000 |
|  | Microcentrifuge | 1 | | Germany | 40000 | | | 40000 |
|  | Incubator | 1 | | Thiwan | 40000 | | | 40000 |
|  | Microwave Oven | 1 | | Thiwan | 10000 | | | 10000 |
|  | Refrigerator | 1 | | PEL | 45000 | | | 45000 |
|  | Digital Balance | 1 | | China | 4000 | | | 4000 |
|  | Water distillation plant | 4 | | Germany | 25000 | | | 50000 |
|  | Water bath | 1 | | China/Thiwan | 6000 | | | 6000 |
|  | Wise bath | 1 | | USA | 8000 | | | 8000 |
|  | Burner | 10 | | Local | 500 | | | 5000 |
|  | Wire loops | 20 | | Local | 200 | | | 4000 |
|  | Slide racks | 24 | | Local | 300 | | | 7200 |
|  | Slide boxes | 50 | | Local | 500 | | | 25000 |
|  | Test tubes small pyrex | 300 | | Pyrex | 10 | | | 3000 |
|  | Test tubes large pyrex | 100 | | Pyrex | 20 | | | 2000 |
|  | Large Test tubes racks | 12 | | Local | 50 | | | 600 |
|  | Small Test tubes racks | 12 | | Local | 70 | | | 8400 |
|  | Autoclaves | 2 | | China | 20000 | | | 40000 |
|  | PCR Machine | 1 | |  | 2500000 | | | 2500000 |
|  | ELISA strip reader | 1 | |  | 500000 | | | 500000 |
|  | UPS (2000 watts) | 2 | |  | 30000 | | | 60000 |
|  | Batteries for UPS (225 Amp) | 2 | |  | 15000 | | | 30000 |
|  | Hot plate | 1 | |  | 1000 | | | 1000 |
|  | Media shaker | 1 | |  | 1500 | | | 1500 |
|  | Lens hand held –magnifying -6 inch diameter | 2 | |  | 500 | | | 1000 |
|  | Voltage stabilizer regulator (7000 watts) | 1 | |  | 8000 | | | 8000 |
|  | Sphygmomonometer complete | 1 | |  | 1000 | | | 1000 |
|  | Thermometer 30-110 °C | 2 | |  | 100 | | | 200 |
|  | Anaerobic jars | 2 | |  | 500 | | | 1000 |
|  | Cover slip glass | 10 packs | |  | 1250 | | | 12500 |
|  | Culture swab sterile pkt of 100 | 5 | |  | 500 | | | 2500 |
|  | Gloves latex 8 size | 5 pkt | |  | 500 | | | 2500 |
|  | Plastic container plain 30 ml for urine R/E | 10 pkt | |  | 250 | | | 2500 |
|  | Plastic Container sterile 50 ml For Urine Culture | 10 pkt | |  | 500 | | | 5000 |
|  | Stool container-spoon and stopper | 50 | |  | 5 | | | 250 |
|  | Test tubes small Pyrex with screw cap | 50 | |  | 20 | | | 1000 |
|  | Test tubes medium Pyrex with screw cap | 200 | |  | 25 | | | 5000 |
|  | Test tubes large with screw cap | 50 | |  | 30 | | | 1500 |
|  | Conical flask 100 ml pyrex | 10 | |  | 500 | | | 5000 |
|  | Conical flask 500 ml pyrex | 2 | |  | 1000 | | | 2000 |
|  | Glass jars 500 ml capacity | 10 | |  | 1000 | | | 10000 |
|  | Hematology analyser (Sysmex KX21) | 1 | |  | 900000 | | | 900000 |
|  | Microlab 300 | 1 | |  | 400000 | | | 400000 |
|  | Westergren's tubes | 50 | |  | 100 | | | 5000 |
|  | Stands for Westergren's tubes | 10 | |  | 500 | | | 5000 |
|  | Bone marrow aspiration needles | 1 SETS | |  | 500 | | | 500 |
|  | Trephine needles | 1 | |  | 1000 | | | 1000 |
|  | Hb electrophoresis analyzer | 1 | |  | 300000 | | | 300000 |
|  | Scanner | 1 | |  | 6000 | | | 6000 |
|  | Computer table | 1 | |  | 10000 | | | 10000 |
| **KITS FOR PRACTICAL WORK** | | | | | | | | |
|  | HIV device (ICT) | 100 |  | | | 30 | 3000 | |
|  | H.Pylori device (ICT) | 100 |  | | | 80 | 8000 | |
|  | Anti-DNA (ANA/ANF) 50 test | 4 |  | | | 5000 | 20000 | |
|  | ASO Titre 50 tests kit | 10 |  | | | 1500 | 15000 | |
|  | Bruecella abortus/melitensis 100 tests kit | 2 |  | | | 1500 | 3000 | |
|  | Faecal occult blood –stool strip (50 strips pack) | 2 |  | | | 1000 | 2000 | |
|  | Multistix-urine 9 paramater (bottle) | 5 |  | | | 700 | 3500 | |
|  | VDRL (RPR) latex | 1 |  | | | 1600 | 1600 | |
|  | TPHA latex | 1 |  | | | 2000 | 2000 | |
|  | Toxoplasma latex kit of 50 | 1 |  | | | 3000 | 3000 | |
|  | Typhidot test devices pack | 2 |  | | | 3200 | 6400 | |
|  | Widal –AO antigen | 4 |  | | | 1000 | 4000 | |
|  | Widal –AH antigen | 4 |  | | | 8000 | 32000 | |
|  | Widal –BO antigen | 4 |  | | | 8000 | 32000 | |
|  | Widal –BH antigen | 4 |  | | | 8000 | 32000 | |
|  | Widal –CO antigen | 4 |  | | | 8000 | 32000 | |
|  | Widal –CH antigen | 4 |  | | | 8000 | 32000 | |
|  | Widal –TO antigen | 4 |  | | | 8000 | 32000 | |
|  | Widal –TH antigen | 4 |  | | | 8000 | 32000 | |
|  | Blood glucose kit | 1 |  | | | 1600 | 1600 | |
|  | Blood urea kit | 1 |  | | | 2000 | 2000 | |
|  | Creatinine kit | 1 |  | | | 2000 | 2000 | |

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| **CULTURE MEDIA AND SENSITIVITY DICS** | | | | | | |
|  | Blood Base Agar (500 gm) | | 10 |  | 1000 | 10000 |
|  | MacConkey agar (500 gm) | | 10 |  | 1000 | 10000 |
|  | MacConkey broth (50 mL) | | 20 |  | 1000 | 20000 |
|  | MacConkey with sorbitol agar (500 gm) | | 5 |  | 1000 | 5000 |
|  | Nutrient Agar (500 gm) | | 4 |  | 1000 | 4000 |
|  | CLED Agar (500 gm) | | 4 |  | 1000 | 4000 |
|  | TCBS Agar (500 gm) | | 2 |  | 3000 | 6000 |
|  | KIA (500 gm) | | 2 |  | 3000 | 6000 |
|  | Muller Hinton Agar (500 gm) | | 10 |  | 3000 | 30000 |
|  | Triptic Soya Broth Biphasic Medium for children (25ml) | | 10 |  | 3000 | 30000 |
|  | Triptic Soya Broth Biphasic Medium for Adult (50ml) | | 50 |  | 3000 | 150000 |
|  | Saboraud Dextrose Agar | | 2 |  | 3000 | 6000 |
|  | Amies Transport swab 100 | | 1 |  | 300 | 300 |
|  | Cary-Blair Transport Medium | | 50 |  | 300 | 15000 |
|  | Antibiotic disks ampicilin, augmentin,cefixime,cefotoxin, ceftrixone,azteronim,imipinem,carbenicillin vancomycin, erythrocin, clarathromycin,cotrimaxazole,trimethoprim,  Teyracyclin, doxycyclin, chloromycetin,macrodantin, fosfomycin,ofloxacin,ciprofloxacin,amikicin,  Gentamycin, Nalidixic acid, Macrodentinmetronidazole,Bcitracin,Novobiocin, (each cartridge of 50 discs) | | 100 |  | 5000 | 500000 |
|  | BACITRICINE DISK DIAGNOSTIC | | 10 |  | 5000 | 50000 |
|  | NOVOBICINE DISK | | 10 |  | 5000 | 50000 |
|  | OPTOCHIN DISK | | 10 |  | 5000 | 50000 |
|  | GETIFLOXACIN DISK | | 2 |  | 5000 | 10000 |
| **STAINS** | | | | | | |
|  | | Gram Stain readymade (kit of 4) | 16 |  | 2000 | 32000 |
|  | | Crystale violet 500 gm | 1 |  | 500 | 500 |
|  | | Potassium ioide 500 gm | 1 |  | 500 | 500 |
|  | | Stain iodine 500Gm | 1 |  | 400 | 400 |
|  | | Ethyle alcohol 2.5 litre | 2 |  | 650 | 1300 |
|  | | Methyl Alcohol 2.5 L | 1 |  | 800 | 800 |
|  | | Neutral red 100gm | 1 |  | 500 | 500 |
|  | | Z N Stain ready made (kit of 3) | 12 |  | 1000 | 12000 |
|  | | Basic fuchsin (bottle) | 1 |  | 800 | 800 |
|  | | Phenol (bottle) | 1 |  | 1000 | 1000 |
|  | | Malachite green 100gms | 2 |  | 500 | 1000 |
|  | | Albert stain ready made (kit of 2) | 4 |  | 2000 | 8000 |
|  | | Lactophenole blue stain | 2 bottles |  | 500 | 1000 |
|  | | Basic stains(leishman's) | 5 |  | 1500 | 7500 |
|  | | Special stains (PAS) | 1 |  | 500 | 500 |
| **CHEMICALS** | | | | | | |
|  | | Barium chloride for fouchets tests (standardization) | 1 bottle |  | 500 | 500 |
|  | | Benedict solution | 2 litres |  | 100 | 200 |
|  | | Beta lactamase touch sticks | 1 bottle |  | 400 | 400 |
|  | | Cedarwood oil | 3 bottle |  | 1000 | 3000 |
|  | | Hydrogen peroxide for catalase | 10 bottles |  | 200 | 2000 |
|  | | Oxidase reagent | 5 bottles |  | 2500 | 12500 |
|  | | Peptone powder | 1 bottle |  | 500 | 500 |
|  | | Potassium hydro-oxide (KOH) | 1 bottle |  | 500 | 500 |
|  | | Xylol –pure | 5 litre |  | 2000 | 10000 |
|  | | Formalin 2.5 L | 2 |  | 2000 | 4000 |
|  | | Anticoagulants (EDTA) | 1 |  | 5000 | 5000 |
|  | | Drabkin's solution | 1 |  | 3000 | 3000 |
|  | | Phenol/Bleach solution | 10 litres |  | 500 | 5000 |
|  | | KMnO4 crystals | 1 kg |  | 5000 | 5000 |
|  | | HCl pure 2.5 L | 2 |  | 1000 | 2000 |
|  | | KOH | 2 bottles |  | 1500 | 3000 |
|  | | Sulphuric acid pure 2.5 L | 2 |  | 2000 | 4000 |
| **Chemicals** | | | | | | |
|  | | Teaching slides of Histopathology for the following Headings | 10 slides for each practical |  | 500 per slide |  |
|  | | Gramuloma  Caseation necrosis  Plasmodia  L.D. bodies  Necrosis  Atrophy Testis  BPH  Calcification  Fatty change  Amyloidosis  Acute appendicitis  Chronic cholecystitis  Tuberculosis  Granulation tissue  Passive venous  congestion  Plasmodia  L.D. bodies  Lipoma  Adenoma breast  Squamous cell  carcinoma, Basal cell  carcinoma, Carcinoma  breast | 10  10  10  10  10  10  10  10  10  10  10  10  10  10  10  10  10  10  10  10  10  10  10 |  | 500  500  500  500  500  500  500  500  500  500  500  500  500  500  500  500  500  500  500  500  500  500  500 | 5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000  5000 |

**Grand Total=** **84,14,450/=**

**COMMUNITY MEDICINE**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.NO | Item Name | Quantity | Specification if application | Location | No. of items those are in working condition | No. of items those are not in working condition | No. of items need be repaired | No. of items Condemn |
|  | **LABORATORY EQUIPMENTS (GLASSWARE)** |  |  |  |  |  |  |  |
| 1 | Section Of Iron Oxide In Filtrated Lung | 01 Nos | -- | C. Medicine | 01 Nos | -- | -- |  |
| 2 | Typhoid Tongue | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 3 | Late Stage Of Syphilitic Gamma | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 4 | Keratotic Follicles & Scaliness | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 5 | Coal Miner’s Lung | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 6 | Eruption Due To Typhus | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 7 | Pustule Eruption In Small Pox | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 8 | Incinerator | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 9 | Squatting Seat With Cover Model | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 10 | In Sanitary Septic Tank | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 11 | Activated Sludge Process | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 12 | House Fly | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 13 | Bed Bug | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 14 | Life Cycle Of Malarial Parasite (P. Vivax) | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 15 | Life Cycle Of P. Falciparum | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 16 | Head House | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 17 | Early Stage Of Syphilitic Gamma | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 18 | Xerosis (Conjunctival) | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 19 | Anthrax Of Face | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 20 | X-Ray Of Dermatitis On Face | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 21 | Lead Line On Gum | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 22 | Typhoid Ulcer | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 23 | Entamoeba Histolytica | 01 ,, | -- | C. Medicine | 01 ,, | -- |  |  |
| 24 | Cutaneous Leishmaniasis, Ulcers On Forearm & Head | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 25 | Inflammation Of Large Intestine | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |

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| S.NO | Item Name | Quantity | Specification if application | Location | No. of items those are in working condition | No. of items those are not in working condition | No. of items need be repaired | No. of items Condemn |
| 26 | Septic Tank | 01 No | -- | C. Medicine | 01 No | -- | -- |  |
| 27 | Water Filtration | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 28 | Subterranean Water Level | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 29 | Pathogenic Amoeba | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 30 | Ill Baby | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 31 | Child With TB Lung | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 32 | Whopping Cough | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 33 | Scurvy | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 34 | Healthy Baby | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 35 | Various Types Of Traps Commodes (Sink) | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 36 | Tetanus | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 37 | Congenital syphilis | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 38 | Life Cycle Of Echinococcus Granulosus | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 39 | Tubectomy ()Female Sterilization | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 40 | Specimen Of Pathogenic Bacteria | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 41 | Rickets | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 42 | Poliomyelitis | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 43 | Measles | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 44 | Diphtheria-Advanced | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 45 | Leishmaniasis | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | **FURNITURE & FIXTURES** |  |  |  |  | -- | -- |  |
| 1 | Chair Office (Yellow Cushion) | 07 No | yellow cushion | C. Medicine | 07 No | -- | -- |  |
| 2 | Showcase For Models | 10 ,, | 6.5’ \* 3.0’ | C. Medicine | 10 ,, |  |  |  |
| 3 | Office Table | 01 ,, | 5’ \* 2.8’ | C. Medicine | 01 ,, |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.NO | Item Name | Quantity | Specification if application | Location | No. of items those are in working condition | No. of items those are not in working condition | No. of items need be repaired | No. of items Condemn |
| 4 | Computer Table | 01 No | -- | C. Medicine | 01 No |  |  |  |
| 5 | Student Chair | 14 ,, | Wooden | C. Medicine | 14 ,, | -- | -- |  |
| 6 | Chair Officer | 01 ,, | Executive | C. Medicine | 01 ,, | -- | -- |  |
| 7 | Library Almirah | 02 ,, | -- | C. Medicine | 02 ,, | -- | -- |  |
| 8 | Chair Green | 02 ,, | Executive | C. Medicine | 02 ,, | -- | -- |  |
| 9 | Chairs Cane | 02 ,, | -- | C. Medicine | 02 ,, | -- | -- |  |
| 10 | Sofa Set | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
|  |  |  |  |  |  |  |  |  |
|  | **IT/GENERAL EQUIPMENTS** |  |  |  |  |  |  |  |
| 1 | Computer Core 2Quard | 01 No | Complete set | C. Medicine | 01 No | -- | -- |  |
| 2 | Heater Electric | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
| 3 | Scanner | 01 ,, | Genx | C. Medicine | 01 ,, | -- | -- |  |
| 4 | Laptop | 01 ,, | -- | C. Medicine | 01 ,, | -- | -- |  |
|  |  |  | -- |  |  | -- | -- |  |
|  | **MEDICAL EQUIPMENTS** |  | -- |  |  | -- | -- |  |
| 1 | Microscope Binocular (China) | 01 ,, | XSZ107BN | C. Medicine | 01 ,, | -- | -- |  |
| 2 | Microscope Binocular (Italy) | 02 ,, | Model B182 Optika, S.No. 243254 & 243249 | C. Medicine | 02 ,, | -- | -- |  |
| 3 | PH Meter | 01 ,, | Model (pH-220L) ISTEK Ltd Korea, S.No.200L-07020 | C. Medicine | 01 ,, | -- | -- |  |
| 4 | Weight Scale | 02 ,, | Beaurer Germany Max. Wt=120kg | C. Medicine | 02 ,, | -- | -- |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.NO | Item Name | Quantity | Specification if application | Location | No. of items those are in working condition | No. of items those are not in working condition | No. of items need be repaired | No. of items Condemn |
| **5** | Filter Holding Assembly | 01 No | Model (TC2000VM), S.No.100460 | C. Medicine | 01 No | -- | -- |  |
| 6 | Centrifuge Machine | 01 ,, | UK Model (E22B8), centurion scientific UK, S.No.16364-7 | C. Medicine | 01 ,, | -- | -- |  |

**DEPARTMENT OF FORENSIC MEDICINE**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No** | **Item name** | **Available**  **Quantity** | **Condition** | | **No. of items needed to be REPAIRED** | **No. of items needed to be REPLACED** | **Requirements of new items,**  **if any** |
| **Working** | **Not Working** |
| **A)** | **LABORATORY EQUIPMENTS (GLASSWARE)** |  |  |  |  |  |  |
| 1 | Bulb Pipette | 11 No | 11 No | -- | -- | -- | -- |
| 2 | Pipette Stand | 05 | 04 | 01 No |  | 01 No | -- |
| 3 | Test Tube Stand | 5 | 05 | -- | -- | -- | -- |
| 4 | Test Tube Stand | 4 | 04 | -- | -- | -- | -- |
| 5 | Test Tube Stand | 5 | 05 | -- | -- | -- | -- |
| 6 | Reagent Bottle | 30 | 30 | -- | -- | -- | -- |
| 7 | Reagent Bottle | 24 | 24 | -- | -- | -- | -- |
| 8 | Reagent Bottle | 5 | 05 | -- | -- | -- | -- |
| 9 | Pipette | 10 | 10 | -- | -- | -- | -- |
| 10 | Pipette | 30 | 30 | -- | -- | -- | -- |
| 11 | Pipette | 10 | 09 | 01 | -- | 01 | -- |
| 12 | Pipette | 30 | 30 | -- | -- | -- | -- |
| 13 | Wire Gauze | 50 | 50 | -- | -- | -- | -- |
| 14 | China Dish | 20 | 20 | -- | -- | -- | -- |
| 15 | Pipette Pump | 12 | 12 | -- | -- | -- | -- |
| 16 | Test Tube Brush | 20 | 20 | -- | -- | -- | -- |
| 17 | Cover Slip(100 pieces) | 01 Pkt | 01 Pkt | -- | -- | -- | -- |
| 18 | Stirrer Glass | 10 No | 10 No | -- | -- | -- | -- |
| 19 | Filter Paper | 03 | 02 | 01 | -- | 01 |  |
| 20 | Test Tube Holder | 25 | 25 | -- | -- | -- | -- |
| 21 | Magnifying Glass | 10 | 10 | -- | -- | -- | -- |
| 22 | Magnifying Glass | 05 | 05 | -- | -- | -- | -- |
| 23 | Stopwatch | 05 | 05 | -- | -- | -- | -- |
| 24 | Clinical Thermometer | 06 | 05 | 01 | -- | 01 |  |
| 25 | Lab Thermometer | 02 | 02 | -- | -- | -- | -- |
| 26 | Beaker | 18 | 18 | -- | -- | -- | -- |
| 27 | Beaker | 20 | 20 | -- | -- | -- | -- |
| 28 | Beaker | 05 | 05 | -- | -- | -- | -- |
| 29 | Funnel | 20 | 20 | -- | -- | -- | -- |
| 30 | Funnel | 04 | 04 | -- | -- | -- | -- |
| 31 | Conical Flask | 20 | 20 | -- | -- | -- | -- |
| 32 | Conical Flask | 20 | 20 | -- | -- | -- | -- |
| 33 | Conical Flask | 05 | 05 | -- | -- | -- | -- |
| 34 | Round Bottom Flask | 05 | 05 | -- | -- | -- | -- |
| 35 | Volumetric Flask | 20 | 20 | -- | -- | -- | -- |
| 36 | Volumetric Flask | 05 | 05 | -- | -- | -- | -- |
| 37 | Flat Bottom Flask | 05 | 05 | -- | -- | -- | -- |
| 38 | Watch Glass | 07 | 04 | 03 | -- | 03 | -- |
| 39 | Burners | 20 | 20 | -- | -- | -- | -- |
| 40 | Tripod Stand | 20 | 18 | 02 | -- | 02 | -- |
| 41 | Test Tube | 300pcs | 300 pcs | -- | -- | -- | -- |
| 42 | Test Tube | 100 | 92 | 08 | -- | 08 | -- |
| 43 | Cylinder | 07 No | 07 No | -- | -- | -- | -- |
| 44 | Cylinder | 10 | 10 | -- | -- | -- | -- |
| 45 | Burette | 20 | 18 | 02 | -- | 02 | -- |
| 46 | Burette | 20 | 20 | -- | -- | -- | -- |
| 47 | Spirit Lamp | 10 | 09 | 01 | -- | 01 | -- |
| 48 | Plasticin | 10 | 10 | -- | -- | -- | -- |
| 49 | Wash Bottle | 10 | 10 | -- | -- | -- | -- |
| **B)** | **MEDICAL EQUIPMENTS (LABORATORY)** |  |  |  |  |  |  |
| 1 | Microscope Binocular | 03 | 03 | -- | -- | -- | -- |
| 2 | Electric Balance | 01 | 01 | -- | -- | -- | -- |
| 3 | Centrifuge Machine | 01 | 01 | -- | -- | -- | -- |
| 4 | Centrifuge Machine | 02 | 02 | -- | -- | -- | -- |
| 5 | Water Distillation Apparatus | 01 | 01 | -- | -- | -- | -- |
| 6 | Photoelectric Colorimeter | 01 | 01 | -- | -- | -- | -- |
| 7 | Slides (Toxicology & Serology) | -- | -- | -- | -- | -- | 20 |
| 8 | Ultraviolet Lamps (mounted) | -- | -- | -- | -- | -- | 01 |
|  | Ultraviolet Lamps (portable) | -- | -- | -- | -- | -- | 01 |
| 9 | Postmortem(Autopsy) Examination Set- complete | -- | -- | -- | -- | -- | 01 |
| 10 | Medicolegal X-Rays & Photographs | -- | -- | -- | -- | -- | 10 |
| **C)** | **FURNITURE** |  |  |  |  |  |  |
| 1 | Office Table | 01 | 01 | -- | -- | -- | -- |
| 2 | Side Table | 01 | 01 | -- | -- | -- | 01 |
| 3 | Computer Table | 01 | 01 | -- | -- | -- | -- |
| 4 | Foam Chair | 03 | -- | 03 | -- | 03 | -- |
| 5 | Executive chair | -- | -- |  | -- | -- | 01 |
| 6 | Cane Chair | 02 | 01 | 01 | -- | 01 | -- |
| 7 | Stools | 21 | 21 | -- | -- | -- | -- |
| 8 | Table Iron With Wood Piece (Museum) | 01 | 01 | -- | -- | -- | -- |
| 9 | Table With Marble Tops (Lab) | 04 | 04 | -- | -- | -- | -- |
| 10 | Marble Pieces | 10 | 10 | -- | -- | -- | -- |
| 11 | Glass door Locks | -- | -- | -- | -- | -- | 08 |
| 12 | Wooden Almirah/Cupboard (for display of museum specimens/torsos) | -- | -- | -- | -- | -- | 04 |
| **D)** | **FIXTURES** |  |  |  |  |  |  |
| 1 | Cupboard | 04 | 04 | -- | -- | -- | -- |
| 2 | Book Shelf (Office) | 01 | 01 | -- | -- | -- | -- |
| 3 | Book Shelf (Lab) | 05 | 05 | -- | -- | -- | -- |
| 4 | Sink With Water Supply | 04 | 04 | -- | -- | -- | -- |
| 5 | Ceiling Fan | 04 | 01 | 03 | -- | 03 | -- |
| 6 | Gas Heater | 03 | 03 | -- | -- | -- | -- |
| 7 | White Board | 01 | 01 | -- | -- | -- | -- |
| 8 | Shelf With Glass | 05 | -- | 05 | 05 | -- | -- |
| 9 | Shelf With Glass | 01 | -- | 01 | 01 | -- | -- |
| 10 | Exhaust Fan | 02 | -- | 02 | -- | 02 | 06 |
| 11 | Block Frame (Museum) | 19 | -- | 19 | 19 | -- | -- |
| 12 | Curtains(for doors) | -- | -- | -- | -- | -- | 08 |
| 13 | Curtains(for windows) | -- | -- | -- | -- | -- | 08 |
| 14 | Curtains(for wardrobes) | -- | -- | -- | -- | -- | 04 |
| **E)** | **ELECTRICAL** |  |  |  |  |  |  |
| 1 | Monitor | 01 | -- | 01 No | 01 | -- | -- |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | CPU | 01 | -- | 01 | 01 | -- | -- |
| 3 | Mouse | 01 | 01 | -- | -- | -- | -- |
| 4 | Keyboard | 01 | 01 | -- | -- | -- | -- |
| 5 | Extension Board | 03 | 03 | -- | -- | -- | 02 |
| 6 | Table lamps (for Laboratory) | -- | -- | -- | -- | -- | 04 |
| **F)** | **MUSEUM ITEMS**  **(MODELS)** |  |  |  |  |  |  |
| 1 | Mummified Body (Adult) | 01 | -- | 01 Nos | -- | 01 | -- |
| 2 | Lacerated Wound On Left Forehead | 01 | -- | 01 | -- | 01 | -- |
| 3 | Deep Chop Cuts Over Head, Face & Neck | 01 | -- | 01 | -- | 01 | -- |
| 4 | F.A. Entry Wound & Tattooing | 01 | -- | 01 | -- | 01 | -- |
| 5 | Shotgun Entry Wound On Face | 01 | -- | 01 | -- | 01 | -- |
| 6 | Contact F.A. Entry Wound On Left Temple | 01 | -- | 01 | -- | 01 | -- |
| 7 | F.A.Exit Wound On Rt Temple | 01 | -- | 01 | -- | 01 | -- |
| 8 | Distant F.A. Entry Wound On Forehead & Collar Of Abrasion | 01 | -- | 01 | -- | 01 | -- |
| 9 | Vitriolage Showing & Burns On Face, Neck & Upper Chest | 01 | -- | 01 | -- | 01 | -- |
| 10 | Homicidal Cut Throat Wounds | 01 | -- | 01 | -- | 01 | -- |
| 11 | Washerman’s Foot In Drowning | 01 | -- | 01 | -- | 01 | -- |
| 12 | Defense Cut Wound On Palmer Surface-Rt Hand | 01 | -- | 01 | -- | 01 | -- |
| 13 | Back Showing Postmortem Staining & Contact Flattening | 01 | -- | 01 | -- | 01 | -- |
| 14 | Back Showing Rail-Track Bruises | 01 | -- | 01 | -- | 01 | -- |
| 15 | Froth From Nose & Mouth In A Case Of Drowning | 01 | -- | 01 | -- | 01 | -- |
| 16 | Ligature Mark In Hanging | 01 | -- | 01 | -- | 01 | -- |
| 17 | Stab Wounds On Chest & Abdomen | 01 | -- | 01 | -- | 01 | -- |
| 18 | Ligature In Strangulation | 01 | -- | 01 | -- | 01 | -- |
| 19 | Suicidal Cut Throat & Tentative Cuts | 01 | -- | 01 | -- | 01 | -- |
| 20 | Wrist Suicidal Cuts & Tentative Cuts | 01 | -- | 01 | -- | 01 | -- |
| 21 | Rt Arm Showing Gaze Abrasions | 01 | -- | 01 | -- | 01 | -- |
| 22 | Male Upper Torso Showing Putrefaction | 01 | -- | 01 | -- | 01 | -- |
| 23 | Male Skeleton | 01 | 01 | -- | -- | -- | -- |
| 24 | Female Skeleton | 01 | 01 | -- | -- | -- | -- |
| 25 | Separate Bones | 01 set | 01 set | -- | -- | -- | -- |
| **G)** | **MUSEUM ITEMS**  **(FIREARMS)** |  |  |  |  |  |  |
| 1 | Rifle 7mm | 01 No | 01 No | -- | -- | -- | -- |
| 2 | Single Barrel Shotgun | 01 | 01 | -- | -- | -- | -- |
| 3 | Pistol With 1 Magazine (32 Bore) | 01 | -- | 01 | -- | -- | -- |
| 4 | Pistol With 2 Magazine (30 Bore) | 01 | -- | 01 | -- | -- | -- |
| 5 | AK47 Cartridge | 02 | 02 | -- | -- | -- | -- |
| 6 | Pistol 32 Bore Cartridge | 02 | 02 | -- | -- | -- | -- |
| 7 | Pistol 30 Bore Cartridge | 02 | 02 | -- | -- | -- | -- |
| 8 | Revolver 32 Bore Cartridge | 02 | 02 | -- | -- | -- | -- |
| 9 | Shotgun (SG) 12 Bore Cartridge | 02 | 02 | -- | -- | -- | -- |
| 10 | Shotgun (04No) 12 Bore Cartridge | 02 | 02 | -- | -- | -- | -- |
| 11 | 7mm Rifle Cartridge | 02 | 02 | -- | -- | -- | -- |
| 12 | 8mm Rifle Cartridge | 02 | 02 | -- | -- | -- | -- |
| 13 | Air Gun Pellets | 01 Pkt | 01 Pkt | -- | -- | -- | -- |
| 14 | Double Barrel | 01 No | 01 No | -- | -- | -- | -- |
| 15 | Pistol | 02 | 02 | -- | -- | -- | -- |
| 16 | Revolver | 02 | 02 | -- | -- | -- | -- |
| **H)** | **MUSEUM ITEMS**  **(SURGICAL ITEMS)** |  |  |  |  |  |  |
| 1 | Disposable Syringe | 02 | 02 | -- | -- | -- | -- |
| 2 | Stomach Tube | 01 | 01 | -- | -- | -- | -- |
| 3 | Foley’s Catheter | 01 | 01 | -- | -- | -- | -- |
| 4 | Orthopaedic Hammer | 01 | 01 | -- | -- | -- | -- |
| 5 | Surgical Saw | 01 | 01 | -- | -- | -- | -- |
| 6 | Chisel | 01 | 01 | -- | -- | -- | -- |
| 7 | Chisel | 01 | 01 | -- | -- | -- | -- |
| 8 | BP Holder | 02 | 02 | -- | -- | -- | -- |
| 9 | Surgical Blade | 05 | 05 | -- | -- | -- | -- |
| 10 | Silk | 01 | 01 | -- | -- | -- | -- |
| 11 | Surgical Needle | 01 Pkt | 01 Pkt | -- | -- | -- | -- |
| 12 | Needle Holder | 01 No | 01 No | -- | -- | -- | -- |
| 13 | Scissor | 01 | 01 | -- | -- | -- | -- |
| 14 | Scissor | 01 | 01 | -- | -- | -- | -- |
| 15 | Scissor | 02 | 02 | -- | -- | -- | -- |
| 16 | Scissor | 01 | 01 | -- | -- | -- | -- |
| **I)** | **MUSEUM ITEMS**  **(ASSAULT WEAPON)** |  |  |  |  |  |  |
| 1 | Baraf Sawa | 01 No | 01 No | -- | -- | -- | -- |
| 2 | Chain | 03 | 03 | -- | -- | -- | -- |
| 3 | Chopper | 01 | 01 | -- | -- | -- | -- |
| 4 | Knife | 01 | 01 | -- | -- | -- | -- |
| 5 | Knife | 01 | 01 | -- | -- | -- | -- |
| 6 | Knife | 01 | 01 | -- | -- | -- | -- |
| 7 | Dagger | 01 | 01 | -- | -- | -- | -- |
| 8 | Dagger | 01 | 01 | -- | -- | -- | -- |
| 9 | Cutter | 01 | 01 | -- | -- | -- | -- |
| 10 | Hammer | 01 | 01 | -- | -- | -- | -- |
| 11 | Skull | 01 | 01 | -- | -- | -- | -- |
| 12 | Axe | 01 | 01 | -- | -- | -- | -- |
| 13 | Screw Drivers | 02 | 02 | -- | -- | -- | -- |
| 14 | Rope | 01 | 01 | -- | -- | -- | -- |
| 15 | Wire | 01 | 01 | -- | -- | -- | -- |
| 16 | Iron Rod | 01 | 01 | -- | -- | -- | -- |
| 17 | Wheel Driver | 01 | 01 | -- | -- | -- | -- |
| 18 | Spade | 01 | 01 | -- | -- | -- | -- |
| 19 | Saw | 01 | 01 | -- | -- | -- | -- |
| 20 | Paper Weight | 02 | 02 | -- | -- | -- | -- |
| 21 | Shaving Blade | 01 Pkt | 01 Pkt | -- | -- | -- | -- |
| 22 | Showel | 01 No | 01 No | -- | -- | -- |  |
| **J)** | **MUSEUM ITEMS**  **(POISON)** |  |  |  |  |  |  |
| 1 | Surma | 01 No | 01 No | -- | -- | -- | -- |
| 2 | Neela Thotha | 01 | 01 | -- | -- | -- | -- |
| 3 | Chinese Refined Camphor | 01 | 01 | -- | -- | -- | -- |
| 4 | Coopex | 01 | 01 | -- | -- | -- | -- |
| 5 | Nux Vomica | 01 | 01 | -- | -- | -- | -- |
| 6 | Dhatura | 01 | 01 | -- | -- | -- | -- |
| 7 | Arsenic | 01 | 01 | -- | -- | -- | -- |
| 8 | Castor Oil (Pure) | 01 | 01 | -- | -- | -- | -- |
| 9 | Tannic Acid | 01 | 01 | -- | -- | -- | -- |
| 10 | Oxalic Acid | 01 | 01 | -- | -- | -- | -- |
| 11 | Act Charcoal | 01 | 01 | -- | -- | -- | -- |
| 12 | Ratti Seeds | 01 | 01 | -- | -- | -- | -- |
| 13 | Zinc Oxide | 01 | 01 | -- | -- | -- | -- |
| 14 | Mercury Nitrate | 01 | 01 | -- | -- | -- | -- |
| 15 | Pot Thiocyanate | 01 | 01 | -- | -- | -- | -- |
| 16 | Sandhoor | 01 | 01 | -- | -- | -- | -- |
| 17 | Poppy Seeds | 01 | 01 | -- | -- | -- | -- |
| 18 | Aspirin | 01 | 01 | -- | -- | -- | -- |
| 19 | Crayon (Chalk) | 01 | 01 | -- | -- | -- | -- |
| 20 | Marking Nut | 01 | 01 | -- | -- | -- | -- |
| 21 | Mercury | 01 | 01 | -- | -- | -- | -- |
| 22 | Opium Seeds | 01 | 01 | -- | -- | -- | -- |
| 23 | Croton Tiglium | 01 | 01 | -- | -- | -- | -- |
| 24 | Samad Bond | 01 | 01 | -- | -- | -- | -- |
| 25 | Snuff | 01 | 01 | -- | -- | -- | -- |
| 26 | Cigarette Packs | -- | -- | -- | -- | -- | -- |
| 27 | Shaving Cream | -- | -- | -- | -- | -- | -- |
| 28 | Tooth Paste | -- | -- | -- | -- | -- | -- |
| 29 | Detergent Powder | -- | -- | -- | -- | -- | -- |
| 30 | Tab Familla-28 | 01 | 01 | -- | -- | -- | -- |
| 31 | Tab Ativan | 01 | 01 | -- | -- | -- | -- |
| 32 | Tab Ativan | 01 | 01 | -- | -- | -- | -- |
| 33 | Tab Disprol | 01 | 01 | -- | -- | -- | -- |
| 34 | Tab Tofranil | 01 | 01 | -- | -- | -- | -- |
| 35 | Tab Disprin | 01 | 01 | -- | -- | -- | -- |
| 36 | Syp Phenobarbitone | 01 | 01 | -- | -- | -- | -- |
| 37 | Inj Valium | 01 | 01 | -- | -- | -- | -- |
| 38 | Inj Nalbin | 01 | 01 | -- | -- | -- | -- |
| --- | --- | --- | --- | --- | --- | --- | --- |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Teaching Hospital(s) Equipment Requirements** | | | | |
|  | **General Medicine** | | | |
|  | at least one defibrillator available, functional and in use | Yes |  |  |
|  | at least two ECG machine (at least Triple Channel) available, functional and in use. | 01 |  |  |
|  | at least one video endoscopic system with upper and lower sets available and in use | 00 |  |  |
|  | at least one Trolley for endoscopes available, functional and in use. | 00 |  |  |
|  | at least one echo cardiograph 2D with colour Doppler available, functional and in use | Yes |  |  |
|  | at least one ETT machine available, functional and in use. | Yes |  |  |
|  | at least four complete nebulizers available, functional and in use. | Yes |  |  |
|  | at least 10 BP apparatus available, functional and in use. | Yes |  |  |
|  | at least 10 stethoscopes available, functional and in use. | Yes |  |  |
|  | at least 4 pulse oximeters available, functional and in use. | Yes |  |  |
|  | at least 6 glucometers available, functional and in use. | 02 |  |  |
|  | at least 2 cardiac monitors available, functional and in use. | Yes |  |  |
|  | at least 10 thermometers available, functional and in use. | Yes |  |  |
|  | at least 3 torches available, functional and in use. | Yes |  |  |
|  | at least 3 measuring tapes available, functional and in use. | Yes |  |  |
|  | at least 4 hammers available, functional and in use. | Yes |  |  |
|  | at least 2 tuning forks (128Hz) available, functional and in use. | Yes |  |  |
|  | at least 5 examination couches available, functional and in use. | 02 |  |  |
|  | **Dermatology** | | | |
|  | at least 3 electrocautery machines available, functional and in use. | 00 |  |  |
|  | at least 15 magnifying glasses with fluorescent lamps available, functional and in use | 00 |  |  |
|  | at least 3 wood lamps available, functional and in use. | 00 |  |  |
|  | at least 1 PUVA machine available, functional and in use. | 00 |  |  |
|  | at least 1 UVB machine available, functional and in use. | 00 |  |  |
|  | at least 3 liquid nitrogen cylinders for cryo available, functional and in use. | 00 |  |  |
|  | at least 1 microscope with accessories available, functional and in use. | 00 |  |  |
|  | at least 6 biopsy sets available, functional and in use. | 00 |  |  |
|  | at least 6 BP apparatus available, functional and in use. | 00 |  |  |
|  | **Surgery** | | | |
|  | at least 8 basic standard surgical sets available, functional and in use. | Yes |  |  |
|  | at least 1 thoracic surgical set available, functional and in use. | ----- | No |  |
|  | at least 1 vascular surgical set available, functional and in use. | ----- | No |  |
|  | at least 1 paedsurg sets available, functional and in use. | yes |  |  |
|  | at least 1 plastic surgery set available, functional and in use | ----- | No |  |
|  | at least 2 surgical diathermies (Monopolar and Bipolar) machines available, | Yes |  |  |
|  | at least 1 harmonic/Ligature machine available, functional and in use. | ----- | No |  |
|  | at least 2 fibre optic colonoscope (Diagnostic and therapeutic) or flexible | ----- | No |  |
|  | at least 2 rigid sigmoidoscope and proctoscope available, functional and in use. | Yes | No | proctoscope |
|  | at least 2 complete laparoscopic surgical sets available, functional and in use. | 01 |  |  |
|  | at least 1 microsurgical instrument set available, functional and in use. | ----- | No |  |
|  | at least 1 transurethral resection of prostate surgical set available, functional and in use. | ----- | No |  |
|  | at least 2 cystoscopes (diagnostic and therapeutic) available, functional and in use. | 01 | No |  |
|  | at least one fibreopticoesophagoscope/gastroscope available, functional and in | ----- | No |  |
|  | at least 1 fibre optic bronchoscope available, functional and in use. | ----- | No |  |
|  | at least 1 portable X-ray machine, operation table, and radiographic film cassette facilities e.g. for per operative cholangiogram. Image intensifier with C-arm and double monitors available, functional and in use. | ----- | No |  |
|  | at least 3 suction machines available, functional and in use. | Yes |  |  |
|  | at least 1 defibrillator available, functional and in use. | Yes |  |  |
|  | **Obstetrics and Gynecology** | | | |
|  | at least 4 ultrasounds with linear, vaginal, section probes and punctures available, functional and in use. | Yes |  |  |
|  | at least 1 hysteroscope available, functional and in use. | ----- | No |  |
|  | at least 2 colposcope available, functional and in use. | ----- | No |  |
|  | at least 1 laparoscopic surgical sets with camera and monitors available, functional and in use. | ----- | No |  |
|  | at least 4 delivery table available, functional and in use. | Yes |  |  |
|  | at least 10 examination tables available, functional and in use. | Yes |  |  |
|  | at least 6 manual BP apparatus available, functional and in use.t all time? | Yes |  |  |
|  | at least 8 dyna-map available, functional and in use. | 03 |  |  |
|  | at least 6 pulse oximeters available, functional and in use. | 02 |  |  |
|  | at least 4 baby weighing scales hundred students available, functional and in use. | 03 |  |  |
|  | at least 10 pinnard stethoscopes/fetoscopes available, functional and in use. | Yes |  |  |
|  | at least 4 instrument sterilizers available, functional and in use. | 02 |  |  |
|  | at least 2 sonicaid available, functional and in use. | Yes |  |  |
|  | at least 4 CTG machines available, functional and in use. | 02 |  |  |
|  | at least 4 neonatal resuscitation trolley and heaters available, functional and in use. | 01 |  |  |
|  | at least 12 disposable delivery sets. | Yes |  |  |
|  | at least 20 Cusco’s speculum available, functional and in use. | Yes |  |  |
|  | at least 3 adult ambu bags and masks available, functional and in use. | 02 |  |  |
|  | at least 20 Sims speculum available, functional and in use. | 10 |  |  |
|  | at least 20 perineal/vaginal/cervical repair sets available, functional and in use. | 02 |  |  |
|  | at least 8 Caesarean section sets available, functional and in use. | Yes |  | 06 |
|  | at least 5 dilatation and Evacuation sets (D&C) available, functional and in use. | Yes |  | 04 |
|  | at least 6 manual vacuum aspirators available, functional and in use. | ----- | No | 10 |
|  | at least 6 vacuum ventuse cups available, functional and in use. | 02 |  |  |
|  | at least 6 outlet forceps available, functional and in use. | 03 |  |  |
|  | at least 6 infant laryngoscopes with spare bulbs available, functional and in use. | 02 |  |  |
|  | at least 6 suction machines available, functional and in use. | 03 |  |  |
|  | at least 4 teaching dummies and anatomical pelvis models available, functional and in use. | Yes |  |  |
|  | at least 2 dummies for pelvic examination available, functional and in use. | Yes |  |  |
|  | at least 1 adequate equipment for family planning available, functional and in use. | Yes |  | Family planning centre |
|  | **Basic Surgery Sets in main Operating Theatre** | | | |
|  | at least 1 sterilizer (>300L capacity) available, functional and in use. | Yes |  |  |
|  | sufficient instrument boxes, scalpel handles of various sizes, May-Heggar Needle holders of various sizes, artery forceps, Halstead (non-serrated and curved ) various sizes, surgical dissecting scissors, metzembaum (Curved) of various sizes, Kocher’s forceps (toothed, straight, haemostatic) of various sizes, Probes of various sizes, Dissecting forceps with and without teeth of various sizes, Haemostatic forceps (Collin and Chaput) of various sizes, towel clips and galipots of various sizes for hundred students available, functional and in use. | Yes |  |  |
|  | Farabeuf retractors, short, self-retaining retractors for thoracic, abdominal and minor procedures etc. available, functional and in use. | Yes |  |  |
|  | **Out-Patient:** | | | |
|  | 1 stethoscope per clinic available, functional and in use. | Yes |  |  |
|  | 1 fetal/paediatric stethoscope per respective clinics available, functional and in | ----- | No |  |
|  | BP apparatus per clinic available, functional and in use. | Yes |  |  |
|  | one thermometer (Oral/armpit) and sufficient rectal thermometers available, functional and in use. | Yes |  |  |
|  | light source (battery type), tongue depressors, tape measures (Flexible, soft), Snellen chart (including for uneducated patients), hammers, head mirrors/head lights, mirror laryngeal sets, otoscopes, and Collyer pelvimeters, examination tables, available, functional and in use. | Yes |  |  |
|  | laryngoscopes available, functional and in use. | 02 |  |  |
|  | stretchers (folding type) available, functional and in use. | ----- | No |  |
|  | ambu bags for infants, paediatric patients and adult patients available, functional and in use. | 01 |  | Deficient |
|  | suction machines available, functional and in use. | 02 |  | Deficient |
|  | consumables like gloves, Endo tracheal tubes of various sizes, IV cannulas of various sizes, masks etc. available, functional and in use. | Yes |  |  |
|  | **Pediatrics Department** | | | |
|  | 1 weighing scale available, functional and in use. | Yes |  |  |
|  | 1 length/height measuring scale available, functional and in use. | ----- | No |  |
|  | 2 ultrasonic nebulizers available, functional and in use. | Yes |  |  |
|  | 1 paediatric ventilator available, functional and in use. | Yes |  |  |
|  | 1 neonatal ventilator available, functional and in use. | ----- | No |  |
|  | 1 pulse oximeter available, functional and in use. | Yes |  |  |
|  | 3 infusion pumps available, functional and in use. | ----- | No |  |
|  | 1 cardiac monitor available, functional and in use. | ----- | No |  |
|  | 1 transport incubator available, functional and in use. | ----- | No |  |
|  | 1 neonatal resuscitator available, functional and in use. | Yes |  |  |
|  | 1 low grade suction apparatus available, functional and in use. | ----- | No |  |
|  | 1 resuscitator (infant/child), manual available, functional and in use. | Yes |  |  |
|  | 1 suction machine (dual operation with tubes) available, functional and in use. | Yes |  |  |
|  | 2 otoscopes with infant diagnostic heads available, functional and in use. | ----- | No |  |
|  | 2 forceps, splinter/repilation, and spring available, functional and in use. | Yes |  |  |
|  | 2 paediatric nasal speculums available, functional and in use. | ----- | No |  |
|  | 1 scale for infants available, functional and in use. | Yes |  |  |
|  | 1 height measuring scale for infants available, functional and in use. | Yes |  |  |
|  | 6 oral/armpit thermometers available, functional and in use. | Yes |  |  |
|  | 5 BP apparatus (new born, neonatal, paediatric, cuffs) available, functional and in | Yes |  |  |
|  | one paediatric BLS mannequin. |  |  |  |
|  | **Ophthalmology Department** | | | |
|  | 1 Autorefracto/Keratometer available, functional and in use. | Yes |  |  |
|  | 1 Ultrasound A-scan bio-meter available, functional and in use. | Yes |  |  |
|  | 1 Ultrasound B-scan available, functional and in use. | Yes |  |  |
|  | 1 Keratometer (Manual) available, functional and in use. | Yes |  |  |
|  | 1 Application Tonometer (Hand held) available, functional and in use. | Yes |  |  |
|  | 1 Phacoemulsification unit available, functional and in use. | Yes |  |  |
|  | 1 Slitlamp with applanation tonometer available, functional and in use. | Yes |  |  |
|  | 1 Autolensometer available, functional and in use. | Yes |  |  |
|  | 1 Lensometer manual available, functional and in use. | Yes |  |  |
|  | 1 Operating microscope available, functional and in use. | Yes |  |  |
|  | 1 indirect ophthalmoscope available, functional and in use. | Yes |  |  |
|  | 1 direct ophthalmoscope available, functional and in use. | Yes |  |  |
|  | 1 Retinoscope available, functional and in use. | Yes |  |  |
|  | 1 Tiral lens set with trial frame available, functional and in use. | Yes |  |  |
|  | 1 Prism bars (Horizontal & vertical) available, functional and in use. | Yes |  |  |
|  | 1 Manual visual field analyzer Bjerrum screen) available, functional and in use. | Yes |  |  |
|  | 1 Hess screen available, functional and in use. | Yes |  |  |
|  | 1 electrosurgical diathermy unit (Mono/Biploar) available, functional and in use. | Yes |  |  |
|  | 1 Portable surgical light available, functional and in use. | Yes |  |  |
|  | **ENT Department** | | | |
|  | 1 OPD instrument set available, functional and in use. | Yes |  |  |
|  | 1 Auroscope available, functional and in use. | Yes |  |  |
|  | 1 Ultrasound B-scan available, functional and in use. |  | No |  |
|  | 1 microscope for O.T available, functional and in use. | Yes |  |  |
|  | 1 rigid endoscopes with all accessories available, functional and in use. |  | No |  |
|  | 1 Audiometer available, functional and in use. | Yes |  | Not in Use |
|  | 1 Impedance Audiometer available, functional and in use. |  | No |  |
|  | 1 BERA available, functional and in use. |  | No |  |
|  | 1 Minor OT dressing/Examination set available, functional and in use. | Yes |  |  |
|  | 1 General Set for OT available, functional and in use. |  | No |  |
|  | 1 Microscope instrument set for maxioidectormy available, functional and in use. | Yes |  | Incomplete |
|  | 1 Microscope instrument set for tympanoplasty available, functional and in use. | Yes |  |  |
|  | 1 Microcope instrument set for Stapedectomy available, functional and in use. | Yes |  | Incomplete |
|  | 1 Set for tonsillectomy available, functional and in use. | Yes |  |  |
|  | 1 Set for Rhinoplasty available, functional and in use. | Yes |  |  |
|  | 1 Set for FESS available, functional and in use. |  | No |  |
|  | 1 Air Drill with all accessories available, functional and in use. | Yes |  | Incomplete |
|  | **Accident and Emergency Department** | | | |
|  | 2 beds with monitoring facilities available, functional and in use. | Yes |  |  |
|  | 1 minor operating theatre available, functional and in use. | Yes |  |  |
|  | 1 pharmacy in emergency area available, functional and in use. | Yes |  |  |
|  | 1 facility for resuscitation including crash cart (Defibrillator) and a cubicle for patient with central oxygen, suction and monitoring facilities stay available, functional and in use.(essential) | Yes |  |  |
|  | **Operating Rooms** | | | |
|  | five fully equipped operating rooms available, functional and in use. | ----- | No |  |
|  | appropriately furnished Pre-aesthesia area available, functional and in use. | Yes |  |  |
|  | recovery area with central oxygen and suction and monitoring facilities available, | Yes |  |  |
|  | monitoring facilities per OR available, functional and in use. | Yes |  |  |
|  | 1 image intensifier available, functional and in use. | Yes |  |  |
|  | facilities for resuscitation available, functional and in use. | Yes |  |  |
|  | 5 anaesthesia work stations available, functional and in use. | Yes |  |  |
|  | 1 diathermy machine per theatre (Monopolar and bipolar) available, functional and | Yes |  |  |
|  | adequate OT Waste disposal method available, functional and in use. | ----- | No |  |
|  | **Critical care beds with isolation facilities as a part of intensive care, coronary care and neonatal care & HDU** | | | |
|  | ten medical ICU beds (Essential) available, functional and in use. | Yes |  |  |
|  | ten surgical ICU beds (Mandatory) available, functional and in use. | Yes |  |  |
|  | ten separate paediatric & neonatal intensive care beds available, functional and in use | Yes |  |  |
|  | implementation of sanitation & isolation protocols available, functional and in use. | Yes |  |  |
|  | **Central Sterilization and Storage Department** | | | |
|  | Instrument washing area available, functional and in use. | ----- | No |  |
|  | linen washing area available, functional and in use. | ----- | No |  |
|  | 1 washer and disinfector available, functional and in use. | ----- | No |  |
|  | 2 steam autoclaves with 134 degrees’ temperature (500L) available, functional and in use | ----- | No |  |
|  | 1 Ethylene oxide/ Formaldehyde gas / plasma sterilizer available, functional and in use | ----- | No |  |
|  | 1 sealant machine available, functional and in use. | ----- | No |  |
|  | chemical based high level disinfection/sterilization facilities available, functional and in use | ----- | No |  |
|  | storage and distribution counter available, functional and in use. | ----- | No |  |
|  | separate path for collection of dirty linen and instruments available, functional and in use | ----- | No |  |
|  | **Radiology Services with all imaging modalities** | | | |
|  | **X-Ray Machines:** | | | |
|  | 3 Fluoroscopy/image intensifiers (500mA) available, functional and in use. | Yes |  |  |
|  | 1 stationary Bucky table (300mA) available, functional and in use. | Yes |  |  |
|  | 1 stationary Bucky Stand (300mA) available, functional and in use. | Yes |  |  |
|  | 1 portable X-ray (100mA) available, functional and in use. | Yes |  |  |
|  | Ultrasound: | | | |
|  | 2 probe grey scale (3.5 MHz) available, functional and in use. | Yes |  |  |
|  | 2 probe portable grey scale (3.5 MHz) available, functional and in use. | yes |  |  |
|  | 1 colour Doppler (with multi frequency probes) available, functional and in use. | No |  | Partial |
|  | 2 biopsy probes available, functional and in use. | No |  |  |
|  | **Other Equipment:** | | | |
|  | 1 CT Scan 16 slices or above available, functional and in use. | No |  | |
|  | or have access to 1 MRI (1.5Tesla or above) available, functional and in use or 0.4 tesla Open MRI. | No |
|  | 1 Mammography available, functional and in use. | No |
|  | 1 Orthopantomogram (OPG) available, functional and in use. | No |
|  | **Safety Equipment:** | | | |
|  | 7 lead aprons available, functional and in use. | Yes |  |  |
|  | 2 TLDs available, functional and in use. | Yes |  |  |
|  | 4 lead shields/partitions available, functional and in use | Yes |  |  |
|  | one film badge/radiation detector per staff member and available, functional and in use. | No |  |  |
|  | **Hospital Laboratory Services** | | | |
|  | **Hematology Instrument:** | | | |
|  | 3/5 part automated differential counter available, functional and in use. | Yes |  |  |
|  | 2 microscopes available, functional and in use. | Yes |  |  |
|  | one basic staining facilities including for reticulocytes available, functional and in use | Yes | Retic stain | |
|  | 1 fridge to keep samples available, functional and in use. | Yes |  |  |
|  | Blood Bank |  |  |  |
|  | 1 serofuge available, functional and in use. | Yes |  | Not in use |
|  | 1 agglutination viewer available, functional and in use. | No |  |  |
|  | 1 blood bank fridge available, functional and in use. | Yes |  |  |
|  | 1 microscope and 1 water bath/heat block available, functional and in use. | Yes |  |  |
|  | 1 platelet rotator with incubator available, functional and in use. | Rotator available | | |
|  | 1 minus thirty-degree refrigerator for storage available, functional and in use. | Yes |  |  |
|  | Chemical Pathology: | | | |
|  | 1 automated chemistry analyser available, functional and in use. | Yes |  |  |
|  | 1 immuno-assay analyser available, functional and in use. | Yes | Kits unavailable | |
|  | 1 electrolyte analyser available, functional and in use. | Yes | Available in 344 | |
|  | 1 blood gas analyser (either in department or in ICU) available, functional and in use | Yes | Kits unavailable | |
|  | 1 fridge and 1 minus-twenty degree freezer for lab available, functional and in use. | Yes | -20 separate not available | |
|  | Microbiology: | | | |
|  | 1 incubator (37 degrees) available, functional and in use | Yes | Patho dept | |
|  | 1 basic staining facilities available, functional and in use | Yes |  | |
|  | 1 refrigerator available, functional and in use. | No |  | |
|  | 2 microscopes available, functional and in use. | No |  | |
|  | 1 safety hood available, functional and in use. | No |  |  |

Inventry list of IT department KIMS 2020

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No** | **ITEMS NAME** | **Quantity** | **REMARKS** | **LOCATION** |
| 1 | Computers Core i3 (Dell) | 23 | Serviceable | **Complete seat**  library =05(complete )  Student Affairs=01(complete)  **Only CPU**  Conference room=01(CPU)  Establishment Shabir=01(CPU)  IT LABS=15  **LCD/LED handover**  Community medicine  Umar Hayat(LED)=01  Principle office =01  IT LAB LCD/LED=09 |
| 2 | Computers Core 2duo(old computer)  -One Lenovo core i3 computer -replaced with one old dell core 2duo computer Anatomy section(Dr.Sahib Khan)  -One Dell core i3- replacement with old CPU P4 Shabir Establishment | 7+1+1 | -Serviceable | **Computer complete sets hand over**  Student Affairs(complete set)=01  Student Affairs =01(CPU)  IT Labs=07  **CPU set hand over**  BDS Lecture hall =01  **LCD/LED handover**  Pathology Haseeb(LCD)=01 |
| 3 | Computer Corei3 Lenovo | 10 | Serviceable | **Computer complete sets hand over**  Principal office=01  Biometric attendance =01  Pharmacology =01  Anatomy =01  Admin Office=01  KMU for data=01(CPU)  IT LABS=04 |
| 04 | Computer Corei3 Dell (NEW ) | 06 | Serviceable | New Lecture hall=01  Audtorum,Lecture hall1,2=03  Anatomy lecture halls=02 |
|  | Scanners | 02 | 01=Serviceable  01=Unserviceable = | IT LAB |
| 5 | Server Computer | 01 | Serviceable | IT LAB |
| 6 | DVD Player | 01 | Serviceable | IT LAB |
| 7 | Sonny Cyber Shot Digital Camera | 01 | Serviceable | IT LAB |
| 8 | Handy came Camera | 01 | Serviceable | IT LAB |
| 9 | Hub/Switch 5 ports | 02 | Serviceable | IT LAB |
| 10 | Switch 16 port(2 old & 3 new) | 05 | Serviceable =03  Unserviceable=02 | IT lab=02  IT store=03 |
| 11 | PTCL DSL Connection | 01 | serviceable | IT LAB |
| 12 | RT V-Wireless Set | 04 | serviceable | IT Lab |
| 13 | WLAN Adapter | 13 | serviceable | IT LAB |
| 14 | Clipping tools | 02 | Serviceable=01  Unserviceable=01 | IT LAB |
| 15 | Projector Screen | 03+1 wall screen | Serviceable | Block 2=01  Community medicine=01  IT LAB=01  Dr.Fazal Ahmad hospital=01 |
| 16 | Projectors | 09 old+6 Cannon | Serviceable = 11 Unserviceable =04 | IT Lab=05  Lecture hall4(Can)=01  Auditorium,  Lecture hall 1,2(can)=03  Anatomy(can) =01  New lecture hall(benq) =01  Block 2(sonny) =01  Pharmacology(Acer) =01  CommunityMedicine benq= 01  Surgery Deptt.=01 |
| 17 | Access Points | 03 old + 4 LB Link | Serviceable=05  Unserviceable=02 | IT LAB=04  Principal office=01  IT Store=02 |
| 18 | TV Cards | 02 | Serviceable | IT LAB |
| 19 | Overhead Projector | 01 | Serviceable | IT LAB |
| 20 | DVD Rams | 01 | Serviceable | IT LAB |
| 21 | Hub/Switch 8 ports | 10 | Serviceable=05  Unserviceable=05 | IT LAB& STORE=09  Physiology Deptt=01 |
| 22 | Web Cam | 01 | Serviceable | IT LAB |
| 23 | Headphone | 01 | Serviceable | IT LAB |
| 24 | Name plate | 01 | Serviceable | IT LAB |
| 25 | Counter Table | 01 | Serviceable | IT LAB |
| 26 | Computer Carrel Tables | 05 | Serviceable | IT LAB |
| 27 | Office Table | 01 | Serviceable | IT LAB |
| 28 | Library Almari | 01 | Serviceable | IT LAB |
| 29 | Computer Table Large | 01 | Serviceable | IT LAB |
| 30 | Computer Tables Double | 07 | Serviceable | IT LAB |
| 31 | CDs Cupboards | 02 | Serviceable | IT LAB |
| 32 | Extension Boards | 13 | Serviceable=06  Unserviceable=07 | Library Deptt=02  Conference Room=01  IT LAB& STORE=10  Establishment shabir=01 |
| 33 | Memory Card | 01 | Serviceable | IT LAB |
| 34 | HDMI Cable | 06 | Serviceable=05  Unserviceable =01 | New Lecture hall=01  IT LABs=02  Audtorum,lecture hall1,2=03 |
| 35 | Stand Mice | 01 | Serviceable | IT LAB |
| 36 | Split & PEL AC | 02 | Serviceable | IT LABs |
| 37 | Computer Chairs | 25 | Serviceable | IT LABs |
| 38 | Speaker for lecture halls & Conference Room | 03 | Serviceable | BDS LECTURE HALLS=01  Lecture hall 1=01  Conference Room =01 |
| 39 | Card Less | 02 | Serviceable | BDS LECTURE HALLS =01  Lecture hall1 yasir=01 |
| 40 | Microphone | 03 | Serviceable | Conference room=02  IT lab=01 |
| 41 | Amplifier | 02 | Serviceable | Conference Room=01  IT LAB =01 |
| 42 | Mikes | 08 old +5 new | 13 Serviceable | IT Lab=03  Conference Room=10 |
| 43 | Blower | 01 | Serviceable | IT LAB |
| 44 | Slide changer | 01 | Serviceable | IT LAB |
| 45 | Bluetooth mic | 01 | Serviceable | Lecture hall 2 janzaib |
| 46 | USB 16GB | 01 | unserviceable | IT LAB |
| 47 | CCTV Camera Dom 360 | 05 | Serviceable | Auditorium Lecture halls |

**Standard 3-1: Laboratory manuals/documentation/instructions for experiments must be available and readily accessible to faculty and students.**

* **Explain how students and faculty have adequate and timely access to the manuals/documentation and instructions.**

Laboratory manuals/documentation/instructions for experiments are available of different author’s as a template in which there is contribution of faculty from this college. The availability of which is readily accessible to faculty and students on market prices. For each new session the manual among best one is followed as per practical schedule of course template.

Departmental own manuals have not been developed due to non-availability of computer assistant and other resources.

* **Benchmark with similar departments in reputable institutions to identify short comings in laboratory.**

Laboratory should be divided into four fully equipped sections as Microbiology, Histopathology, Hematology and chemical Pathology along with demonstration room and copious space for students’ practical performance. Separate portions of diagnostic and reporting sections are mandatory as part of services to community and material of samples for teaching. Reporting on clinical specimen not only important for teaching adds it also generates fund for section concerned. Khyber medical College is example of space and development but as KIMS is being run in a portion of hospital, hence we are facing acute shortage of space for expansion.

Our section Pathology is short in apparatus which is demanded and the block is also deficient with internet services and offices for faculty.

**Standard 3-2**: **There must be adequate support personnel for instruction and maintaining the laboratories.**

* **Indicate for each laboratory, support personnel, level of support, nature and extent of instructional support.**

There are qualified technicians in the laboratories: 50% of the requirement available as minimum level.

All laboratories are being looked after by Lab assistant as well as supported by class IV staff.

Supporting staff is required and has been demanded.

**Standard 3-3: The University computing infrastructure and facilities must be adequate to support program’s objectives.**

* **Describe how the computing facilities support the computing component of your program.**

The computer lab is not sufficient enough to accommodate the students. As only 20 seating arrangements in male and female sections. While there are five classes of MBBS of 100 intake and 4 classes of BDS each of 50 intake per year.

KMU has its own website. http//www.kmu.edu.pk along with KIMS segment and is functional. Internet facilities need improvement in all departments. Access to some reputable journals’ publishers like Elsevier; Science finder shall be facilitated by the HEC.

* **Benchmark with similar departments in reputable institutions to identify short comings in computing infrastructure and facilities if any**.

The benchmarks are provided by PMC for all similar institutions in Pakistan and all medical institutions are bound to comply with. Every institution including KIMS has to meet the set standards i.e.

* + Provision of Internet and e-mail facility for faculty, students & staff
  + Development of MIS System.
  + A Digital Library, which will provide an efficient, broader and faster approach to the concept of medical/health education and research.
  + Human resource development through extensive IT training programs for faculty, management, staff and students.
  + Should provide multiple operating systems (i.e. Linux, Unix, WindowsXP, 98, 2000, NT and Novell Netware) facilities to a user.
  + The lab should provide facilities of scanners, HP laser jet printers, CD writer, Internet etc.

**Criterion 4: STUDENT SUPPORT AND ADVISING**

Student must have adequate support to complete the program in a timely manner and must have ample opportunity to interact with their instructors and receive in time advice about program requirements and career alternatives**.** To meet this criterion the standards in this section must be satisfied.

**Standard 4-1: Courses must be offered with sufficient frequency and number for students to complete the program in a timely manner.**

MBBS program is offered to 108 students annually for 05 years medical training plus one year on job internship. The courses included in program are based on yearly basis professional examination and curriculum in form of predesigned structure by PMC (old PMDC). Courses’ contents are delivered in the form of lectures, practicals & clinical sessions in the college and hospital wards.

Course is delivered according to the weekly time table decided at institution level by the faculty members to complete the course in specified time fixed by PMC.

We have started modular system for first year and second year MBBS graduates in 2018. For each module the total duration, timetable and related faculty is priorly shared with students when they are enrolled.

* **Provide the department’s strategy for course offerings.**

Main subjects taught in first two years through modular system are anatomy, physiology and biochemistry (Basic sciences). Assessment of every module is done at end of each module and its weightage is included in final exam. Main chunk of the module is from basic sciences but some selected topics from other preclinical subjects like pathology, pharmacology and forensic medicine, behavioral science and some relevant clinical topics are also included in each module. From third year onward we follow the annual professional examination system. In third year the subjects of general pathology, forensic medicine and pharmacology are included. In the fourth year, special pathology, community medicine, eye and ENT are taught. Surgery, medicine, Gyne/Obs, pediatrics, orthopedics, anesthesia and radiology are partially taught in 3rd and fourth year but taught fully in fifth year as final course for annual examination. Hence these clinical departments jointly contribute to MBBS courses.

Each department has faculty and teaching arrangements as per PMC criteria but most of our departments are currently deficient in space and faculty.

* **Explain how often required courses are offered.**

Each year a new batch of 108 students (now the quota for FATA is doubled so the number of students will increase to 118) is taken for MBBS program and then by professional annual examination, that batch is promoted to next class. Each batch is thus passed forward but no interim courses are offered in between.

* **Explain how often elective courses are offered.**

In addition to the courses of subjects given above, Pakistan studies and Islamiat are taught in first and second year respectively. Along with mentioned compulsory courses, the subject of behavioral sciences(PRIME module) is also taught.

* **Explain how required courses outside the department are managed to be offered in sufficient number and frequency.**

The courses offered are compulsory and taught by the core faculty. Promotion to next class is getting through all subjects separately for theoretical and practical parts for each academic year. In Ist two professional exams, subjects taught by modular system approach is imparted through large group discussions (LGDs) and small group discussions (SGDs) for which sufficient faculty, plus rooms, multi medias, assistants and stationary are required.

In 3rd, 4th and final year there is an integrated system consisting of three terms followed by annual examination. Each term is followed by evaluation through MCQs, SEQs and OSPE/OSCE/CBA which require sufficient faculty, stationary and photocopying facility.

**Standard 4-2: Courses in the major area of study must be structured to ensure effective interaction between students, faculty and teaching assistants.**

* + **Describe how you achieve effective student / faculty interaction in courses taught by more than one person such as two faculty members, a faculty member and a teaching assistant or a lecturer.**

Any course, in which more than one faculty member is involved then the course instructors mutually coordinate and plan their contents distribution and schedules. In order to develop student teacher interaction tutorial are arranged in the time table. Annual planner consisting of time table and course content is priorly provided to the students and the faculty in the beginning of each academic year.

**Standard 4-3: Guidance on how to complete the program must be available to all students and access to academic advising must be available to make course decisions and career choices.**

* + **Describe how students are informed about program requirements.**

MBBS program is a 05 years academic activity with compulsory subject’s distribution framed by PMC for each year. No optional decision on behalf of student is required. Students come to know the courses included in MBBS program through college prospectus.

1. There should be one or two academic advisor in KIMS so that the students are properly and timely guided about their courses and relevant standard text books.
2. There should be career counseling committee which should arrange one or two seminars per year for student career counseling.
   * **Describe the advising system and indicate how its effectiveness is measured**.

No advising system is currently available so it is needed to be developed.

* + **Describe the student counseling system and how students get professional counseling when needed**.

There is a counseling cell in KIMS for students for psychological and moral counseling support. There is no professional counseling system in KIMS for which we need a proper academic counselor. It is provided to the students on their need basis by the faculty members. However, frequently tutorial periods are also arranged at the institute for the same purpose.

* + **Indicate if students have access to professional counseling; when necessary.**

The faculty members of MBBS program respond to student’s queries regarding professional counseling during teaching in wards, OT procedures and OPD.

* + **Describe opportunities available for students to interact with practitioners, and to have membership in technical and professional societies.**

Clinical work is carried out in hospital vicinity on daily basis for 04 hours for final year students, 05 days a week for 4th year students and 04 days for 3rd year. Instructors (physicians , surgeons and other clinicians) usually provide opportunity to the students to interact with practitioners, patients and general community. We need sufficient clinical faculty to properly fulfill the teacher student ratio as approved by PMC.

Medical graduates should be enrolled in different societies so that they can participate in different activities organized by these societies.

**Criterion 5: PROCESS CONTROL**

The processes by which major functions are delivered must be in place, controlled, periodically reviewed, evaluated and continuously improved. To meet this criterion a set of standards must be satisfied.

**Standard 5-1: The process by which students are admitted to the program must be based on quantitative and qualitative criteria and clearly documented. This process must be periodically evaluated to ensure that it is meeting its objectives.**

* **Describe the program admission criteria at the institutional level, faculty or department if applicable.**

Program admission criteria is based upon Khyber Medical university admission Regulations,2008 in terms of 28(1)(c) of Khyber Medical University Act, 2006 NWFP ACT no.1 of 2007 as written in KMU-IMS prospectus.

**Weightage**: 50% F.Sc and 50 % ETEA.

This process should be made more transparent by constituting counter and audit committee which evaluate the process of admission. Moreover, the admission committee should be given incentives at par with other medical colleges.

* **Describe policy regarding program/credit transfer.**

We have annual system, and migration of student is allowed after first two years only.

* **Indicate how frequently the admission criteria are evaluated and if the evaluation results are used to improve the process.**

It is based on the already laid down criteria by KMU as mentioned above. However, the admission process should be monitored and evaluated annually. E- System should be established to register the data of applicants of MBBS Program, record of which should be evaluated by admission committee.

**Standard 5-2: The process by which students are registered in the program and monitoring of students’ progress to ensure timely completion of the program must be documented this process must be periodically evaluated to ensure that it is meeting its objectives.**

* **Describe how students are registered in the program.**

Each candidate applies for admission to MBBS program in response to an advertisement by the university on the prescribed form along with documents specified in the form.

**Eligibility for admission in MBBS**

To be eligible for admission in MBBS, a candidate should possess;

**Weightage:**  50% F.Sc and 50 % ETEA and other documents and requirements as per guidelines in prospectus. Those candidates who are able to achieve 120 marks out of 200 (60%) are eligible for getting the prospectus for MBBS program.

* **Describe how students’ academic progress is monitored and how their program of study is verified to adhere to the degree requirements.**

Modular system for 1st year and 2nd year MBBS and annual system for 3rd year, 4th year and final year professional examinations including term assessment for internal evaluation carrying 10 % weightage and end of year assessment carrying 90 % marks.

* + **Indicate how frequently the process of registration and monitoring are evaluated and if the evaluation results are used to improve the process.**

There is no policy for the evaluation and monitoring. There should be a committee for the evaluation and monitoring of the above mentioned policies.

**Standard 5-3: The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation, promotion must be consistent with institution mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives.**

* + **Describe the process used to ensure that highly qualified faculty is recruited to the program.**

The service statutes are available on the KMU web sites. Demand for the staff along with the expertise details are sent to the KMU administration for advertisement in leading national newspapers. The applications received are processed by the academic directorate i.e. to scrutinize and short list the applicants, organizing interviews and recommend the suitable candidates for appointment. All the faculty members are appointed as per Higher Education commission/PMC eligibility criteria through the university selection board.Wide publicity and broad based selection criteria is employed to hire/recruit highly qualified faculty

At the moment, the university is running the KIMS with minimum required faculty. University should advertise all the vacant posts at the earliest.

* + **Indicate methods used to retain excellent faculty members.**

No proper system of incentives is currently available for faculty to retain excellent faculty members.

Following are suggestions to retain excellent faculty members:

* 1. Faculty members should be benefited with incentives like pension fund, endowment fund, house requisition, teaching allowance, other allowances allowed in other medical colleges and health professional allowance. However, faculty members are not informed about their pension contributions and its investment or as the case may be, about the gratuity and provident fund, Furthermore, provision of medical coverage facilities to the faculty and their near relatives is permissible under the rules.
  2. Endowment funds should be invested.
  3. Healthy working environment should be provided to the faculty with computer system, internet, telephone and Labs. Facilitation for establishment of well-equipped laboratories shall be there.
  4. Monetary benefit to the faculty members should be provided upon publications of their work as it is in practice in other HEC chartered universities.
  5. Allowances and incentives admissible to KIMS employees by KUST should be restored.
  6. Clinical faculty should be given some extra incentives for hospital work.
  7. Residential houses should be constructed for faculty members near to newly proposed college building.
  8. At least 03 Quota seats for KIM-IMS employee children for admission in medical college should be decided.
  9. University should maintain and communicate the service record of each faculty/employee in transparent way.
  10. Safe environment should be provided to the college and faculty.
  11. Promotions of faculty should be structured and transparent.
  + **Indicate how evaluation and promotion processes are in line with institution mission statement.**

1. Some of the present faculty fulfilling the criteria for promotion should be promoted and vacant posts be filled at the earliest to fulfill the requirements of increased numbers of students.
2. Promotion structure of faculty has inherent fault due to which some of the faculty get more chances of professional growth and promotion while others are stopped despite of having required experience and qualification for the promotion. It needs evaluation and reconsideration to give just and fair chance of professional growth and promotion to all eligible and qualified faculty members of KIMS, Kohat.

**Standard 5-4: The process and procedures used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.**

* + **Describe the process and procedures used to ensure that teaching and delivery of course material is effective and focus on students learning**.

Teacher’s evaluation survey is conducted by Quality Enhancement Cell and teachers get feedback about their performance and quality of delivery through students’ feedback. However the teacher’s evaluation by the students sometimes leaves the impression of biasness, and should be made crystal clear.

* + **Indicate how frequently this process is evaluated and if the evaluation results are used to improve the process.**

Teachers receive their teaching feedback yearly on their Email IDs with strengths and weakness (if any) with proper suggestions by QEC which help to improve the process.

**Standard 5-5: The process that ensures that graduates have completed the requirements of the program must be based on standards, effective and clearly documented procedures. This process must be periodically evaluated to ensure that it is meeting its objectives.**

* + **Describe the procedures used to ensure that graduates meet the program requirements.**

The intake of students for the program is according to present criteria set by PMC. For the certification of graduates, FIVE professional university examinations are conducted duly supervised by senior faculty and examiners (Internal and External) in a prescribed manner on annual basis. It includes theory and practical examination. The results of all professionals are combined together to award final degree.

* + **Describe when this procedure is evaluated and whether the results of this evaluation are used to improve the process**

The program and procedure both are evaluated by the University annually.

**Criterion 6: FACULTY**

Faculty members must be current and active in their discipline and have the necessary technical depth and breadth to support the program. There must be enough faculty members to provide continuity and stability, to cover the curriculum adequately and effectively, and to allow for scholarly activities.

To meet this criterion the standards in this section must be satisfied.

**Standard 6-1: There must be enough full time faculty who are committed to the program to provide adequate coverage of the program areas/courses with continuity and stability. The interests and qualifications of all faculty members must be sufficient to teach all courses, plan, modify and update courses and curricula. All faculty members must have a level of competence that would normally be obtained through graduate work in the discipline. The majority of the faculty must hold a Ph.D. in the discipline.**

* + **Complete the following table indicating program areas and number of faculty in each area.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Program area of specialization** | **Courses in the area and average number of sections per year** | **Number of faculty members in each area** | **Number of faculty with Ph.D. degree/ FCPS** | **Faculty Deficient** |
| Area 1.  Anatomy Year1 | 250 Hrs | 04 | FCPS=01  FCPS, PhD=1 | 02 Asst Professors  02 lecturers /demonstrators |
| Anatomy Year 2 | 250 Hrs |
| Area 2.  Physiology Year 1 | 250 Hrs | 06 | 03 M Phil | 01 Professor  01 Assist Prof  04 Lecturer/ Demonstrator |
| Physiology year 2 | 250 Hrs |
| Area 3.  Biochemistry year 1 | 100 Hrs  100 Hrs | 04 | 01 Ph D  2 M Phil | 01 Asso Prof  01 Assist Prof  02 Lecturer/ Demonstrator |
| Biochemistry year 2 |
| Area 4. Forensic medicine | 100 hrs | 03 | 01 DMJ | 01 Lecturer/ Demonstrator |
| Area5  Pharmacology | 300 Hrs | 06 | 03 M phil | 01 Professor  01 Asso Prof  02 Lecturer/ Demonstrator |
| Area 6  Pathology Year1 General | 280 Hrs | 06 | 02 M Phil | 01 Professor  01 Asso Prof  04 Assist Prof  06 Lecturer/ Demonstrator |
| Pathology Year 2 Special | 220 Hrs |
| Area 7. Community Medicine | 250 Hrs | 07 | 04 M Phil/MPH | 01 Asso Prof  02 Demonstrator |
| Area 8: Medicine & Allied | 800 Hrs | 05 | 05 FCPS | 01 Professor  02 Associate Professor  01 Assist Prof |
| Area 9: Pediatric  Medicine | 300 Hrs | 02 | 02 FCPS | 01 Professor  01 Assistant Prof |
| Area 10  **Psychiatry** |  | 02 | 02 FCPS | Nil |
| Area 11  Surgery & Allied | 800 Hrs | 05 | 05 FCPS/01Ph D | 01 Professor  01 Asso Prof |
| Area 12  Radiology |  | 02 | 01 | 01 |
| Area 13  Obstetrics & Gynecology | 300 Hrs | 07 | 06 FCPS  01 MRCOG | 01 Associate Professor |
| Area 14 Ophthalmology | 100 Hrs | 05 | 05 FCPS | Nil |
| Area 15  ENT | 100 hrs | 02 | 02 FCPS | 01 Asso Prof |
| **Total** |  |  |  |  |

* + **Each faculty member should complete a resume, prepared in a format included in Appendix B.**

**Standard 6-2: All faculty members must remain current in the discipline and sufficient time must be provided for scholarly activities and professional development. Also, effective programs for faculty development must be in place.**

* + **Describe the criteria for faculty to be deemed current in the discipline and based on these criteria and information in the faculty member’s resumes, what percentage of them is current.**

Criteria for recruitment in the relevant discipline/department has been framed by PMC and is available at their Website.The same criteria is adopted by KMU while recruiting the new faculty for the relevant subjects.

(Percentage has to be filled by QEC after reviewing the faculty resume of KIMS)

* + **Describe the means for ensuring that full time faculty members have sufficient time for scholarly and professional development.**

Due to the working time table i.e. number of classes per week and due to faculty deficiency, most of the faculty members cannot get enough time for research scholarly activities. On average each faculty member has 03-05 hours of teaching/ day.

Clinical faculty is facing shortage of time for the research and other professional development activities due to lack of support from the health department employees, deficit in minimum required faculty and lack of proper job description which doesn’t allocate separate dedicated hours for the clinical and teaching duties.

* + **Describe existing faculty development programs at the departmental and university level.**

Different workshops on HRD have been arranged and conducted in the institution. Besides, faculty members are encouraged and facilitated to participate in relevant workshop from time to time inside and outside the institution. Our medical education department does contribute in the process.

Moreover, workshops on heath research and medical education should be offered frequently to excel in the foresaid fields.

* + **Demonstrate their effectiveness in achieving faculty development**.

The results of these workshops are reflected in professional examinations and results of the students. MCQs, SEQs and curriculum planning are key features of HRD. Faculty development is a constant evolutionary process and is reflected by the better achievements of the students in examination in each year.

* + **Indicate how frequently faculty development programs are evaluated and if the evaluation results are used for improvement**.

At present the faculty development programs are not regularly evaluated and therefore, no results of programs evaluation is provided as such. Necessary actions are required.

**Standard 6-3: All faculty members should be motivated and have job satisfaction to excel in their profession.**

* + **Describe programs and processes in place for faculty motivation.**

1. Maximum required faculty should be provided for each department.
2. Faculty should be hired on regular basis, to enhance the job satisfaction and working efficacy.
3. Facilitation of postgraduate programs for the faculty, like M.Phil, PhD, MPH, MHPE, MHR and DMJ should be provided along with the paid study leave.
4. Salary and incentive should be at par with the other relevant institutions of the province.
5. Residential problem should be sorted by making houses for the faculty, near the new college building.
6. Rights of the faculty (to have leaves, deputation etc.) should be respected.
7. Overtime/ incentives should be paid for extra work.
8. Accreditation with national and international universities as a part of quality enhancement of the faculty.
9. Well-equipped departmental lab (Functionalized and operationalized).
10. Prompt medical facilities to employees instead of old, delayed ways. Entitlement with quality hospitals should be considered, like that of KUST.
11. Complete support for Kids education instead of current support started by KMU, which is just a “drop to thirsty”.
12. There should be day care facilities for the working mothers.
13. Sense of ownership, respect and dignity of faculty should be maintained.
14. Basic requirements and needs should be provided to faculty like neat & clean office with computer & internet facility, well equipped class rooms & labs.
15. Access to the HEC Digital Library within the premises of Institute
    * Obtain faculty input using faculty survey (Appendix C) on programs for faculty motivation and job satisfaction.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Faculty Survey** | | | | | | | | | | |  |
|  |  |
|  | **Department/Institute: KMU Institute of Medical Sciences** | | | | | | **Programs: MBBS** | | | | | |
|  |  | | | | | | | | | | | |
| **Year:** | | | | **No. of respondents:** | | | | |  | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Key: A = Very Satisfied, B = Satisfied, C = Neutral, D = Dissatisfied, E = Very Dissatisfied & F = Un marked | | | | | | | | | | | | |
|  |  | 5 |  | 4 |  | 3 |  | 2 |  | 1 |  | 0 |
|  |  | **A** | **%** | **B** | **%** | **C** | **%** | **D** | **%** | **E** | **%** | **F** |
|  | |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Your mix of research, teaching and community service |  |  |  |  |  |  |  |  |  |  |  |
| 2 | The intellectual stimulation of your work |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Type of teaching/research you currently do |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Your interaction with students |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Cooperation you receive from colleagues |  |  |  |  |  |  |  |  |  |  |  |
| 6 | The mentoring available to you |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Administrative support from the department |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Providing clarity about the faculty promotion process |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Your prospects for advancement and progress through ranks |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Salary and compensation package |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Job security and stability at the department |  |  |  |  |  |  |  |  |  |  |  |
| 12 | Amount of time you have for yourself and family |  |  |  |  |  |  |  |  |  |  |  |
| 13 | The over all climate at the department |  |  |  |  |  |  |  |  |  |  |  |
| **Averages** | |  |  |  |  |  |  |  |  |  |  |  |
| **Summation of Responses** | |  |  |  |  |  |  |  |  |  |  |  |
| **Marks Obtained (out of 65)** | |  | |  | |  | |  | |  | |  |
| **Total Marks (out of 65)** | |  | | | | | | | | | | |
| **(Faculty Satisfaction): % Score Obtained =** | |  | | | | | | | | | | |

* Indicate how effective these programs are.

Criterion 7: INSTITUTIONAL FACILITIES

Institutional facilities, including library, classrooms and offices must be adequate to support the objective of the program. To satisfy this criterion a number of standards must be met.

**Standard 7-1: The institution must have the infrastructure to support new trends in learning such as e-learning.**

• **Describe infrastructure and facilities that support new trends in learning**.

Presently KIMS has been established in hired building which lacks purpose built class rooms, faculty offices and advanced facilities. Once the college will be shifted to the newly purpose built building when completed, the deficiencies would be rectified.

Class rooms should have adequate space, sound system; multimedia and electricity back up in case of power failure.

There should be digital library to accommodate updated books, journals/other teaching material and faculty members /students should have easy access to avail library facilities.

• **Indicate how adequate the facilities are.**

|  |  |  |
| --- | --- | --- |
| **Area** | **Available** | **Required** |
| Classroom | 05 | 05 |

**TEACHING STAFF AND TECHNICAL STAFF (Anatomy)**

|  |  |  |  |
| --- | --- | --- | --- |
| **DESIGNATION OF TEACHING STAFF** | **REQUIRED** | **AVAILABLE CAPACITY** | **DEFICIENCY** |
| PROFESSOR | 1 | 1 | 0 |
| ASSOCIATE PROFESSOR | 1 | 1 | 0 |
| ASSISTANT PROFESSOR | 2 | 0 | 2 |
| DEMONSTRATER | 6 | 4 | 2 |
| DISSECTION HALL ATTENDENT | 2 | 1 | 1 |
| CURATOR OF MUSEUM | 1 | 0 | 1 |
| LAB TECHNICIANS/ASSISTANT | 2 | 2 | 0 |
| STENOGRAPHER/ COMPUTER OPERATER | 1 | 0 | 1 |

**TEACHING STAFF AND TECHNICAL STAFF (Physiology)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation of Teaching staff** | **Required** | **Available** | **Deficiency** |
| Professor | 1 | 0 | 1 |
| Associate Professor | 01 | 1 | 0 |
| Assistant Professor | 02 | 1 | 1 |
| Lecturer | 06 | 04 | 02 |
| Lab Technicians/Assistant | 2 | 02 | 0 |
| Stenographer / Computer operator | 1 | 00 | 01 |
| Store Keeper | 1 | 00 | 01 |

**TEACHING STAFF AND TECHNICAL STAFF (Biochemistry)**

|  |  |  |  |
| --- | --- | --- | --- |
| **FACULTY** | **PM&DC REQUIREMENTS** | **AVAILABLE** | **DEFICIENCY/ ADDITIONALLY REQUIRED** |
| Professor | 01 | 01 | Nil |
| AssociateProfessor | 01 | 0 | 01 |
| Assistant Professor | 02 | 01 | 01 |
| Lecturers | 04 | 02 | 02 |
| Lab technician/ Assistant | 02 | 02 | 0 |
| Stenographer/ computer operator | 01 | 0 | 01 |
| Store Keeper | 01 | 0 | O1 |

**TEACHING STAFF AND TECHNICAL STAFF (PHARMACOLOGY)**

|  |  |  |  |
| --- | --- | --- | --- |
| Designation of Teaching staff | Required | Available | Deficiency |
| Professor | 01 | 0 | 01 |
| Associate Professor | 01 | 0 | 01 |
| Assistant Professor | 02 | 02 | NIL |
| Demonstrator | 06 | 04 | 02 |
| Lab Technician/assistant | 02 | 02 | NIL |
| Store Keeper | 01 | 0 | 01 |
| Stenographer / Computer operator | 01 | 0 | 01 |

**TEACHING STAFF AND TECHNICAL STAFF (PATHOLOGY)**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation** | **Required** | **Available** | **Deficient** |
| Professors | 02 | 01 | 01 |
| Associate Professors | 02 | 01 | 01 |
| Assistant Professor | 04 | 0 | 04 |
| Lecturer | 08 | 02 | 06 |
| Laboratory Technician | 03 | 3 | 0 |
| Computer operator | 1 | 0 | 01 |
| Store keeper | 1 | 0 | 1 |
| Lab Assistant/lecture attendant | 01 | 04 | 0 |

**TEACHING STAFF AND TECHNICAL STAFF (FORENSIC medicine)**

|  |  |  |  |
| --- | --- | --- | --- |
| Designation | Required | Available | Deficiency |
| Professor/  Associate Professor/  Assistant Professor | 01 ( any one among prof, associate or assistant) | 01 Assistant Professor  (Re designated) | 0 |
| Lecturer/ Demonstrator | 03 | 02 | 01 |
| Lab technician | 01 | 01 | 0 |
| Computer operator | 01 | 0 | 01 |
| Store keeper | 01 | 0 | 01 |

**TEACHING STAFF AND TECHNICAL STAFF (Community Medicine)**

|  |  |  |  |
| --- | --- | --- | --- |
| Designation of Teaching staff | Required | Available | Deficiency |
| Professor | 01 | 01 | 0 |
| Associate Professor | 01 | 0 | 01 |
| Assistant Professor | 01 | 01 | NIL |
| Demonstrator | 04 | 02 | 02 |
| Stenographer / Computer operator | 01 | 0 | 01 |

**TEACHING STAFF AND TECHNICAL STAFF (Eye)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation of Teaching staff** | **Required** | **Available** | **Deficiency** |
| Professor | 01 | 01 | 0 |
| Associate Professor | 01 | 01 | 0 |
| Assistant Professor | 01 | 01 | NIL |

**TEACHING STAFF AND TECHNICAL STAFF (ENT)**

|  |  |  |  |
| --- | --- | --- | --- |
| Designation of Teaching staff | Required | Available | Deficiency |
| Professor | 01 | 01 | 0 |
| Associate Professor | 01 | 0 | 01 |
| Assistant Professor | 01 | 01 | NIL |

**TEACHING STAFF AND TECHNICAL STAFF (Psychiatry)**

|  |  |  |  |
| --- | --- | --- | --- |
| Designation of Teaching staff | Required | Available | Deficiency |
| Professor | 01 | 01 | 0 |
| Associate Professor | 01 | 0 | 01 |
| Assistant Professor | 01 | 01 | NIL |

**Teaching staff and Technical staff (Medicine)**

|  |  |  |  |
| --- | --- | --- | --- |
| Designation of Teaching staff | Required | Available | Deficiency |
| Professor | 03 | 02 | 01 |
| Associate Professor | 03 | 01 | 02 |
| Assistant Professor | 03 | 02 | 01 |

**Teaching staff and Technical staff (Surgery)**

|  |  |  |  |
| --- | --- | --- | --- |
| Designation of Teaching staff | Required | Available | Deficiency |
| Professor | 02 | 01 | 01 |
| Associate Professor | 02 | 1 | 01 |
| Assistant Professor | 02 | 02 | NIL |

**Teaching staff and Technical staff (Obs/Gynae)**

|  |  |  |  |
| --- | --- | --- | --- |
| Designation of Teaching staff | Required | Available | Deficiency |
| Professor | 02 | 02 | 0 |
| Associate Professor | 02 | 01 | 01 |
| Assistant Professor | 02 | 03 | NIL |

**Teaching staff and Technical staff (Peads)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation of Teaching staff** | **Required** | **Available** | **Deficiency** |
| Professor | 01 | 0 | 01 |
| Associate Professor | 01 | 01 | 0 |
| Assistant Professor | 01 | 01 | NIL |

**Standard 7-2: The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.**

• **Describe the adequacy of the library’s technical collection**.

College has established a central library having good collection of books but still there is need for more updated books and journals. IT facilities are sufficient within the existing setup and deficiencies would be rectified in the newly built building.

Students and teachers have easy access to library.

**Standard 7-3: Class-rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.**

• **Describe the adequacy of the classrooms.**

Though classrooms are sufficient in number (five class rooms) but some of these are not purpose built to have two entrances and exits, unable to accommodate 150 students. Class rooms are equipped with good sound system and multimedia.

The new building will cover the deficiency.

•  **Describe the adequacy of faculty offices**

There are only few faculty offices in the existing college building for basic sciences departments only. The clinical departments are facing difficulties in performing their daily academic and research activities as most of them do not have offices neither in college nor in hospitals. There should be separate offices for faculty members with adequate IT facilities and time to carry out academic & research work.

**Criterion 8: INSTITUTIONAL SUPPORT**

The institution’s support and the financial resources for the program must be sufficient to provide an environment in which the program can achieve its objectives and retain its strength.

**Standard 8-1: There must be sufficient support and financial resources to attract and retain high quality faculty and provide the means for them to maintain competence as teachers and scholars.**

* **Describe how your program meets this standard. If it does not, explain the main causes and plans to rectify the situation**

KMU is working on the same mentioned standard, in phase wise manner which will be implemented as and when the resources permit. Presently, most of the faculty qualifying for the higher posts is still waiting for promotion and at the pay package does not include some allowances which the health department faculty is getting since long. Because of these deficiencies we are lacking behind to attract qualified faculty. Moreover, college must have its own financial support program provided by university in the form of petty cash etc. to meet the financial requirement of each department smoothly.

* **Describe how your program meets this standard. If it does not explain the main causes and plans to rectify the situation.**

We still don’t have purpose-built building, shortage of faculty staff offices and deficient laboratory space with inadequate equipment and non-availability of baby’s daycare facility. These problems are great hurdles in achieving the ideal standards.The new building will rectify most of the infrastructure deficiencies.

* **Describe the level of adequacy of secretarial support, technical staff and office equipment**.

We are working with bare minimum and SNE has been submitted to KMU many times. Currently, there is deficiency of teaching and technical staff members in most of the departments. Processing and approval of the mentioned demands from F and PC should be done and the vacant posts be filled on urgent basis which will enable us to work with ideal zest and strength.

**Standard 8-2: There must be an adequate number of high-quality graduate students, research assistants and Ph.D. students.**

* **Provide the number of graduate students, research assistants and Ph. D students for the last three years.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PASSED OUT STUDENTS STATUS 2005-06 to 2014-15** | | | | | | | | | |
| **S.No** | **Admission Year** | | **Male Students** | | | **Female Students** | | **Total** | **Remarks** |
| 1 | 2005-06 | | 22 | | | 19 | | 41 | Passed Out |
| 2 | 2006-07 | | 28 | | | 16 | | 44 | Passed Out |
| 3 | 2007-08 | | 21 | | | 41 | | 62 | Passed Out |
| 4 | 2008-09 | | 29 | | | 18 | | 47 | Passed Out |
| 5 | 2009-10 | | 30 | | | 17 | | 47 | Passed Out |
| 6 | 2010-11 | | 29 | | | 18 | | 47 | Passed Out |
| 7 | 2011-12 | | 35 | | | 16 | | 51 | Passed Out |
| 8 | 2012-13 | | 63 | | | 40 | | 103 | Passed Out |
| 9 | 2013-14 | | 59 | | | 39 | | 98 | Passed Out |
| 10 | 2014-15 | | 57 | | | 41 | | 98 | Result awaited |
| **Total** | | | **373** | | | **265** | | **638** |  |
| **Number of graduate students for the last three years** | | | | | | | | | |
| **S.No** | | **Session** | | **Year** | **Male** | | **Female** | | **Total** |
| 1 | | 2012-13 | | 2017 | 63 | | 40 | | 103 |
| 2 | | 2013-14 | | 2018 | 59 | | 39 | | 98 |
| 3 | | 2014-15 | | 2019 | 57 | | 41 | | 98 |
| **Grand Total** | | | | | **179** | | **110** | | **299** |

**Number of enrolled & graduate students for the last three years.**

|  |  |  |
| --- | --- | --- |
| **Years** | **No of enrolled students** | **No of graduates** |
| 2017 | 98 | 103 |
| 2018 | 102 | 98 |
| 2019 | 111 | 98 |

**Provide the faculty: graduate student ratio for the last three years.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Years** | **No of faculty** | **Graduate** | **Faculty: graduate ratio** |
| 2017 | 65 | 511 | 1:8/1:19.6-1:24.5  Basic/Clinical |
| 2018 | 58 | 498 | 1:9?/1:19.6-1:24.5  Basic/Clinical |
| 2019 | 62 | 499 | 1:8/1:20.6-1:25.75  Basic/Clinical |

**Standard 8-3: Financial resources must be provided to acquire and maintain Library holdings, laboratories and computing facilities.**

* **Describe the resources available for the library**

The college library has only 50 seating capacity with limited number of text and reference books. E library has only 7 seats for student having very poor networking access. All these shortcomings would be rectified as per PMC criteria in newly built building.

* **Describe the resources available for laboratories**.

Presently, our laboratories barely fulfill criterion for 50 students. There is deficiency of various laboratory equipments in many departments which need rectification as per PMC criterai. Furthermore, newly built building will recify the infrastructure deficiencies.

* **Describe the resources available for computing facilities**.

We have only 20 computers with very poor networking. So adequate IT networking and computing facilities should be provided throughout KIMS. A proper modern well equipped digital IT laboratory should be provided. Furthermore, basic IT tutorials should be taught and included in curriculum.

**Annex A**

**Teachers’ ranking within KMU Institute of Medical Sciences**

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| **S #** | **Teacher Name** | **Score %** |
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**Annex B**

**Year wise Teachers Evaluation Results?**

**Program: MBBS**

**Year: 1st**

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| **S #** | **Teacher Name** | **Course** | **Score %** |
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**Year: 2nd**

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| **S #** | **Teacher Name** | **Course** | **Score %** |
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**Year: 3rd**

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**Year: 4th**

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| **S #** | **Teacher Name** | **Course** | **Score %** |
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**Year: 5th**

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| **S #** | **Teacher Name** | **Course** | **Score %** |
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**Annex C**

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| **Sr#** | **Name of Author** | **Title of Paper** | **Name of Journal** | **Impact Factor of the Journal** | **Vol./issue** | **Date** | **Page #** |
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**Annex D**

**Foundation Module**

**First Professional Year MBBS**

**6 Weeks**

**General Learning Outcomes**

By the end of this module the students should be able to;

**Knowledge**

1. Familiarize with the MBBS system based curriculum
2. Recognize the role of different disciplines in studying human body and its diseases.
3. Describe the structure, function and biochemical composition of cell.
4. Describe the cell division, its types and genetic material along with its clinical correlation.
5. Describe the basic organization of human body.
6. Explain the maintenance of homeostatic mechanism.
7. Describe the various stages of pre embryonic human development and correlate them with various malformations.
8. Describe the importance of buffer and PH system.
9. Describe various cellular adaptations during cell growth, differentiation and cell injury.

**Skills**

1. Describe the basic laboratory techniques and use of microscope.
2. Follow the basic laboratory protocols.
3. Perform biochemical analysis of carbohydrates.

**Attitude**

1. Follow the basic laboratory protocols.
2. Participate in class and practical work efficiently.
3. Maintain discipline of the college.
4. Follow the norms of the college properly.
5. Communicate effectively in a team with colleagues and teachers.
6. Demonstrate professionalism and ethical values in dealing with patients, cadavers, colleagues and teachers.
7. Communicate effectively in a team with colleagues and teachers.
8. Demonstrate the ability to reflect on the performance.

**THEMES FOR FOUNDATION MODULE**

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| **SNO** | **Theme** | **Duration** |
| 1 | Orientation | 1 week |
| 2 | Cell | 1 week |
| 3 | Growth & Development of Human Body | 2 weeks |
| 4 | Human Body tissues, bones & joints | 2 weeks |

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| **FOUNDATION MODULE** |
| **THEME – I** |
| **ORIENTATIN** |

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| **SNO** | **Topic** | **Learning Outcomes** |
| **ANATOMY** | | |
| 1 | Anatomy and its sub branches | * Define anatomy and its branches * Describe purpose of study of anatomy and its branches |
| **PHYSIOLOGY** | | |
| 2 | Physiology and its sub branches | * Enumerate the branches of physiology |
| **BIOCHEMISTRY** | | |
| 3 | Introduction to biochemistry and its implication in medicine | * Define biochemistry * Discuss the role of biochemistry in medicine. |
| **PATHOLOGY** | | |
| 4 | Introduction to pathology and its implication in medicine | * Define pathology * Enumerate the different branches of pathology in medicine. * Identify different sampling n processing techniques in different branches of pathology. |
| **PHARMACOLOGY** | | |
| 5 | Introduction to pharmacology and its role in modern medicine | * Define pharmacology and role of pharmacology in medicine. * Define the pharmaco dynamics and pharmacokinetics |
| **COMMUNITY MEDICINE** | | |
| 6 | Introduction to community Medicine and its implication | * Describe Role of community medicine/public health in health care system. |
| **FORENSIC MEDICINE** | | |
| 7 | Introduction to Forensic Medicine and Toxicology | * Define Forensic Medicine, forensic pathology and state Medicine. * Identify the Branches of Forensic Medicine. * Describe the History of Forensic Medicine. * Discuss the scope of Forensic Medicine. * Identify the essential facilities for medico legal investigation. * Define Medical Jurisprudence (not included for assessment in foundation module first year MBBS) |
| 8 | Pakistan Medical & Dental Council, Consent. | * Describe the structure and functions of Pakistan Medical and Dental Council. |
| **MEDICAL EDUCATION** | | |
| 9 | Curriculum structure  Teaching learning strategies | * Discuss the curriculum and modules. * Describe the use of study guides.(not to be assessed) * Differentiate between various teaching & learning strategies. * Enlist various assessment tools & assessment policy. (Not to be assessed). |
| **IT Skills** | | |
| 10 | Importance of IT skills | * Define IT and its importance |
| 11 | MS word skills  PowerPoint skills  Excel sheet | * Prepare the assignment on MS word * Prepare the presentation on power point * Use the excel sheet |
| **Library** | | |
| 12 | Literature search and library resources | * Literature search skills |

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| **FOUNDATION MODULE** |
| **THEME –II** |
| **CELL** |

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| **SNO.** | **Topic** | **Learning Outcomes** |
| **ANATOMY** | | |
| 13 | Cell structure and its Organelles | * Describe the cell as a living unit of body * Describe the structure of cell and its organelles. * Describe the structure of cytoplasmic organelles of the cell & correlate it with their functions. |
| 14 | Nuclear structure & components | Describe the structure of the nucleus, nucleolus & chromosome and their functions in cell integrity. |
| 15 | Cell division  Mitosis | Explain the process of cell division. |
| 16 | Meiosis | * Explain the process of Meiosis * Describe karyotyping. * Explain the non-disjunction of chromosomes. * Correlate the process of non-disjunction with chromosomal abnormalities |
| **PHYSIOLOGY** | | |
| 17 | Cell membrane physiology | * Explain Intra cellular and extra cellular environment. * Correlate cytoplasmic organelles with their functions. |
| 18 | Homeostasis | * Define homeostasis. * Describe the Homeostatic mechanism of major functional systems. * Describe the characteristics of control systems with examples |
| 19 | Membrane potential | * Define membrane potential * Describe ionic conc. differences across cell membrane * Explain the Nernst equation. * Explain origin of normal resting membrane potential |
| 20 | Movements of cell | * Explain the amoeboid movement of cells. * Describe the ciliary movements |
| 21 | Depolarization & Repolarization | * Explain the role of voltage gated Na+ and K+ channels in action potentials. * Discuss the changes in conductance of Na and K channels with changes in membrane potentials |
| **BIOCHEMISTRY** | | |
| 22 | Biochemical structure of cell  Bio chemical structure of Mitochondria | Explain the Bio-chemical composition of cell organelles and cytoplasm   * Describe the chemical structure of mitochondrial membrane.   Explain the biochemical importance of mitochondrial membrane. |
| 23 | Active & passive transport mechanism | * Describe Bio-chemical structure of nuclear membrane and its functions. |
| 24 | RNA & DNA | * Define and explain nucleotides and nucleosides. * Describe the components of nucleotides * Describe the functions of Nucleotides * Describe the types of nucleic acids * Differentiate between RNA and DNA.. |
| 25 | Genetics | * Describe the process of DNA Replication * Describe the process of RNA Replication * Describe the process of Translation |
| 26 | Buffer | * Define Buffer and its role in maintenance of body PH * Define colloidal state and Henderson Hasselbalch equation. * Define adsorption and how it occurs. * Explain ion exchange resin * Explain movement of material across cell membrane(osmosis, active transport , passive transport, diffusion) |
| 27 | Cellular membrane transport mechanism | * Explain membrane transport. * Discuss passive diffusion, active transport, and facilitated transport via a channel or carrier. * Describe and evaluate the role of ion gradients, co transporters, and ATP in active transport mechanisms. |
| **PATHOLOGY** | | |
| 28 | Cell injury | * Classify the various causes of cell injury. * Describe the response of a normal cell to stimuli. * Describe the mechanism of cell injury. * Describe mechanisms of cellular adaptations |
| **PHARMACOLOGY** | | |
| 29 | Routes of administration of drugs | * Enlist the routes of administration of a drug. |
| 30 | TRANSMEMBRANE DRUG TRANSPORT | * Explain how drugs are transported across cell membrane and factors affecting it |
| 31 | Receptor and cellular basis | Enlist the types of drug receptors |
| **LAB WORK** | | |
| 32 | The Microscope | * Identify parts of microscope. * Demonstrate operation of microscope. * Describe the method of focusing slide at different magnifications. * Follow the specified norms of lab work. |
| 33 | Lab Equipments | Introduction to lab techniques  Identify the equipments used in lab work |
| 34 | PH and buffer solutions | Define normal solution  Define standard solution.  Prepare of 0.9% NaCl.  PH of buffers  Measure the PH of given solution (practical). |

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| **FOUNDATION MODULE** |
| **THEME –II** |
| **CELL** |

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| **SNO.** | **Topic** | **Learning Outcomes** |
| **ANATOMY** | | |
| 13 | Cell structure and its Organelles | * Describe the cell as a living unit of body * Describe the structure of cell and its organelles. * Describe the structure of cytoplasmic organelles of the cell & correlate it with their functions. |
| 14 | Nuclear structure & components | Describe the structure of the nucleus, nucleolus & chromosome and their functions in cell integrity. |
| 15 | Cell division  Mitosis | Explain the process of cell division. |
| 16 | Meiosis | * Explain the process of Meiosis * Describe karyotyping. * Explain the non-disjunction of chromosomes. * Correlate the process of non-disjunction with chromosomal abnormalities |
| **PHYSIOLOGY** | | |
| 17 | Cell membrane physiology | * Explain Intra cellular and extra cellular environment. * Correlate cytoplasmic organelles with their functions. |
| 18 | Homeostasis | * Define homeostasis. * Describe the Homeostatic mechanism of major functional systems. * Describe the characteristics of control systems with examples |
| 19 | Membrane potential | * Define membrane potential * Describe ionic conc. differences across cell membrane * Explain the Nernst equation. * Explain origin of normal resting membrane potential |
| 20 | Movements of cell | * Explain the amoeboid movement of cells. * Describe the ciliary movements |
| 21 | Depolarization & Repolarization | * Explain the role of voltage gated Na+ and K+ channels in action potentials. * Discuss the changes in conductance of Na and K channels with changes in membrane potentials |
| **BIOCHEMISTRY** | | |
| 22 | Biochemical structure of cell  Bio chemical structure of Mitochondria | Explain the Bio-chemical composition of cell organelles and cytoplasm   * Describe the chemical structure of mitochondrial membrane.   Explain the biochemical importance of mitochondrial membrane. |
| 23 | Active & passive transport mechanism | * Describe Bio-chemical structure of nuclear membrane and its functions. |
| 24 | RNA & DNA | * Define and explain nucleotides and nucleosides. * Describe the components of nucleotides * Describe the functions of Nucleotides * Describe the types of nucleic acids * Differentiate between RNA and DNA.. |
| 25 | Genetics | * Describe the process of DNA Replication * Describe the process of RNA Replication * Describe the process of Translation |
| 26 | Buffer | * Define Buffer and its role in maintenance of body PH * Define colloidal state and Henderson Hasselbalch equation. * Define adsorption and how it occurs. * Explain ion exchange resin * Explain movement of material across cell membrane(osmosis, active transport , passive transport, diffusion) |
| 27 | Cellular membrane transport mechanism | * Explain membrane transport. * Discuss passive diffusion, active transport, and facilitated transport via a channel or carrier. * Describe and evaluate the role of ion gradients, co transporters, and ATP in active transport mechanisms. |
| **PATHOLOGY** | | |
| 28 | Cell injury | * Classify the various causes of cell injury. * Describe the response of a normal cell to stimuli. * Describe the mechanism of cell injury. * Describe mechanisms of cellular adaptations |
| **PHARMACOLOGY** | | |
| 29 | Routes of administration of drugs | * Enlist the routes of administration of a drug. |
| 30 | TRANSMEMBRANE DRUG TRANSPORT | * Explain how drugs are transported across cell membrane and factors affecting it |
| 31 | Receptor and cellular basis | Enlist the types of drug receptors |
| **LAB WORK** | | |
| 32 | The Microscope | * Identify parts of microscope. * Demonstrate operation of microscope. * Describe the method of focusing slide at different magnifications. * Follow the specified norms of lab work. |
| 33 | Lab Equipments | Introduction to lab techniques  Identify the equipments used in lab work |
| 34 | PH and buffer solutions | Define normal solution  Define standard solution.  Prepare of 0.9% NaCl.  PH of buffers  Measure the PH of given solution (practical). |

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| **FOUNDATION MODULE** |
| **THEME –III** |
| **GROWTH & DEVELOPMENT OF HUMAN BODY** |

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| **SNO** | **Topic** | | **Learning Outcome** |
| 35 | Introduction To Embryology | | * Describe the developmental periods. * Discuss embryologic terminology. * Explain significance of embryology. |
| 36 | Spermato-Genesis | | * Describe the process of spermatogenesis. * Enlist the differences between spermiogenesis and spermatogenesis. * Describe the morphological changes during maturation of gametes. |
| 37 | Oogenesis | | * Describe oogenesis and its correlation with meiosis. * Compare the male and female gametes. |
| 38 | Transport Of Gametes | | * Discus the transport of gametes. * Describe the transport of sperms. * Describe the oocyte transport. * Explain the maturation of sperms. |
| 39 | Female reproductive cycle | | * Describe the ovarian cycle. * Discuss the process of follicular development * Explain the process of ovulation. * Correlate with the phases of menstrual cycle. |
| 40 | Fertilization –Events | | * Define fertilization. * Describe the process of fertilization. * Explain assisted reproductive technologies like In-vitro fertilization (IVF), assisted IVF and intra cytoplasmic sperm injection (ICSI). |
| 41 | Fertilization –Clinical Correlates Cleavage & Blastocyst Formation | | * Discuss the clinical correlation of the fertilization. * Describe the process of cleavage of zygote. * Discuss the formation of blastocyst. * Summarize the events of first week of development. |
| 42 | Implantation & Its Abnormalities | | * Discuss the process of implantation. * Enumerate the sites of implantation. * Discuss clinical correlations of the implantation process. |
| 43 | Amniotic cavity | | * Describe the formation of amniotic cavity * Discuss the development of embryonic disc * Discuss the development of umbilical vesicle. * Explain the development of Chorionic sac. |
| 44 | Events Of 2nd Week Of Development | | * Summarize the events of second week of development. * Discuss the clinical correlates of the second week of development. |
| 45 | Events of 3rd Week Of Development | | * Describe the process of gastrulation. * Explain the process of Neurulation. * Explain the development of somites. * Discuss the development of intra-embryonic coelom. |
| 46 | Derivatives of germ layers | | Describe briefly derivatives of germ layers   * Ectoderm * Mesoderm * Endoderm |
| **BIOCHEMISTRY** | | | |
| 47 | Chemistry of Acids and Bases | | * Define acids, bases, strong acids and weak acids. * List different types and sources of acids and bases in our body * Describe the mechanism of their normal balance and biochemical importance |
| 48 | Importance of surface tension and viscosity in our body | | * Explain surface tension, viscosity, vapor pressure, normal boiling point and capillary action |
| 49 | Carbohydrates -I | | * Explain carbohydrate and its Bio-chemical structure. * Classify carbohydrate and give their Bio-chemical importance. * Relate the structure of polysaccharides with its clinical importance. * List the functions of carbohydrates in cell membrane, energy provision and nutrition supply to different parts of body. |
| 50 | Carbohydrates -II | | * Describe the different isomers of monosaccharides.e.g. Galactose, mannose, fructose, dextrose. * Describe the role of dextrose in I/V infusion. * Describe the role of mannitol in cerebral edema. |
| 51 | Carbohydrates -III | | * Describe the structure of disaccharides and oligosaccharides. |
| 52 | Enzymes | | * Define Enzymes * Define activation energy * Define Gibbs Free energy * Explain the general structure of enzymes * Define co-factors * Explain the function of co-factors * Enlist different types of co-factors * Define different parts and forms of enzymes * Describe the factors involved in structure of enzymes * Describe the mechanism of Enzyme activity * Define catalysis * Explain different mechanism of catalysis * Explain the Principals for Nomenclature of enzymes * Classification of Enzymes on the basis of functions * Enlist the factors affecting the activity of enzymes * Describe roles of factors affecting enzyme activity * Define enzyme kinetics * Explain different areas of enzyme kinetics * Describe the role of Km in Enzyme kinetics * Define Isoenzymes (Isozymes) * Explain Factors affecting the properties of isozymes * Explain the role of enzymes as a diagnostic tools |
| **COMMUNITY MEDICINE** | | | |
| 53 | Determinants of health | * Define health * Enlist Determinants of Health | |
| 54 | Disease causation | * Describe Spectrum of Disease * Explain Natural History of Disease * Explain Theories of Disease Causation. * Differentiate between Disease Elimination and Eradication. | |
| 55 | Chain of infection | * Describe reservoirs of infection & chain of infection | |
| 56 | Levels of prevention | * Discuss /describe Levels of Prevention | |
| **LAB WORK** | | | |
| 57 | Sterilization | * Explain the process of sterilization * Enumerate the different methods of sterilization * Observe the process of autoclaving in the laboratory | |
| 58 | Oral temperature | Demonstrate how to take oral temperature. | |
| 59 | Capillary Blood Sampling | * Obtain capillary blood sample for hematological investigations through prick method * Identify the sites for obtaining blood sample with different methods and list the indications for their use. | |
| 60 | **Detection of Polysaccharides in a given Solution** | * Define Polysaccharides. * Discuss structures and types of Polysaccharides * Perform Iodine test | |
| 61 | **Detection of Monosaccharide’s** | * Define Monosaccharide’s * Discuss structure and types * Perform Barfoed’s Test | |
| 62 | **Detecting of Reducing and non-reducing Sugars** | * Define reducing sugars, types. * Discuss structure and types of reducing sugars * Perform Benedicts test | |
| 63 | **Detection of Polysaccharides in a given Solution** | * Define Polysaccharides. * Discuss structures and types of Polysaccharides * Perform Iodine test | |

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| **FOUNDATION MODULE** |
| **THEME –IV** |
| **HUMAN BODY TISSUES, BONES & JOINTS** |

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| **SN0** | **Topic** | **Learning Outcome** |
| **ANATOMY** | | |
| 64 | Organization of human body | * Describe the levels of organization of human body |
| 65 | Anatomical terms | * Describe the anatomical terms for planes, position and movements |
| 66 | Classification of Bones | Describe the structure and function of bone  Classify bones on the basis of length and shape.  Identify the markings on bone |
| 67 | Cartilage | Describe the anatomical types of cartilages |
| 68 | Introduction to Joints | Classify joints on the basis of structure.  Describe the mechanism of movements of   joint |
| 69 | Muscles | Describe various muscle types along with structure. |
| 70 | Skin / Integumentary system  Skin (dermis & epidermis) Skin creases, Nails, Hairs, Glands (Sebaceous & sweat) | Discuss the anatomical structures of Skin / Integumentary system |
| 71 | Lymphatic system  Lymphatic system composition (lymph vessels, lymphatic tissue), Movement of lymph | Describe the organization and functions of lymphatic system |
| 72 | Nervous system  Divisions (central & peripheral and somatic & autonomic), Cranial & spinal nerves, Dermatomes & Myotome Formation of a spinal nerve, Plexus | Define the organization of nervous system    Define the formation of spinal nerve and concept/idea of dermatome and myotome |
| 73 | Autonomic Nervous system Sympathetic. parasympathetic nervous system | Define the organization of autonomic nervous system |
| 74 | Membranes  Mucous membranes Serous membranes | Describe the structure of membranes of human body |
| **HISTOLOGY** | | |
| 75 | Basic Body tissue  Definition of tissue  Epithelial tissue  Connective tissue  Muscular tissue  Nervous tissue | * Define tissue and describe the basic tissues in human body |
| 76 | Epithelial tissues  Classification of epithelium  General characteristics and Functions of epithelium | Classify epithelium and describe their general features  Discuss the specialized functions of different types of epithelial cells  Describe the structure of main types of cell junctions |
| 77 | Glandular Epithelium | * Enlist glandular epithelia * Classify them on the basis of morphology, nature of secretion and mode of secretion * Differentiate between exocrine & endocrine glands on the basis of structure and function. |
| 78 | Epithelial Cell Surface Specialization | * Describe the surface specialization of epithelia * Correlate their structure, with their location and function |
| 79 | Structure & Function Of Basement Membrane | * Describe the structure of basement membrane & correlate it with its function. |
| 80 | Connective tissue | * Define connective tissue. * Classify connective tissues. * Explain the different types of Connective tissues |
| **PATHOLOGY** | | |
| 81 | Necrosis | * Discuss the Process of necrosis * Explain the process of apoptosis * Differentiate between apoptosis and necrosis |
| 82 | Inflammation | * Describe events of acute inflammation * Describe chronic inflammation |
| **FORENSIC MEDICINE** | | |
| 83 | Death | * Define death. * Describe stages of death.   Describe medico legal importance of stages of death. |
| **LAB WORK** | | |
| 84 | Tissue Preparation | Describe the process of tissue preparation for histological examination Perform H & E staining of tissue slides under supervision in the laboratory |
| 85 | Anatomical terms | * Demonstrate anatomical terms for planes, position and movements.   Demonstrate standard anatomical position and its application. |
| 86 | H& E staining | Perform H & E staining of tissue slides under supervision in the laboratory |
| 87 | Simple Epithelia | Identify and describe simple epithelia under M/S. |
| 88 | Stratified Epithelia | Identify and describe stratified epithelia under M/S. |
| 89 | Glands | Identify different types of glands under M/S. |

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| **Time Table: Theme I – Orientation (Week 1)** | | | | | | | |
| Days | **0800-0900** | **0900-1000** | **1000-1030** | **1030-1200** | **1200-1300** | | **1300-1400** |
| Mon 30/10/17 | Welcome speech by the Dean  White Coat Ceremony | | B  R  E  A  K | Visit of college departments | Peer Mentorship Program  Activity 1 | | |
| Tues  31/10/17 | ME ORIENT  Curriculum structure  Dr. Naheed Mahsood | (ANA ORIENT)  intro to anatomy  Dr. Mohamad Niaz | Library Resources  Mr. Sajad | PRIME  Introduction  Dr. Naveed Afzal | | PRIME  Communication 1  (Admin) |
| Wed 1/11/17 | BIO ORIENT  Intro to Biochemistry  Dr. Amin ul haq | (PHY ORIENT)  Intro to physiology  Dr. Zubia Shah | PRIME  Research 1  Dr. Naheed Mahsood | ME  Learning Strategies  Dr. Naveed Afzal | | SDL |
| Thurs 2/11/17 | BS  Psychological boundaries in doctor-patient relationship | PRIME  Professionalism 1 | PRIME  IT skills orientation  Ms. Afshan | Peer Mentorship Program  Activity 2 | | |
| Fri 3/11/17 | Clinical departments orientation, Hospital Visit | | | | Jumma Prayers | | |
| Sat 4/11/17 | PRIME  Ethics 1  CM | (ME ORIENT) Learning objectives  Dr. Naheed M |  | PRIME  Communication 2  (feedback) | PRIME  Islamiyat | PRIME  Pak Studies | |

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| **Time Table: Theme II – Cell (Week 2)** | | | | | | | |
| Days | **0800-0900** | **0900-1000** | **1000-1030** | **1030-1200** | | **1200-1300** | **1300-1400** |
| Mon | ANA  Cell Structure & Organelles –I  Dr. Shahab | BIO  PH, Buffers & Acid and base  Dr. Kulsoom | B  R  E  A  K | Batch A = Operating microscope  Batch B = Physio instruments  Batch C = IT lab  Batch D = PH & Buffers | | ANA  Cell Structure & Organelles –II  Dr. Shahab | PHY  Cell Membrane Physiology  Dr. Riffat Sultana |
| Tues | BIO  Biochemical structure  of Cell  Dr. Kalsoom | ANA  Nucleus structure  Dr. Najma | Batch A = PH & Buffers  Batch B = Operating microscope  Batch C = Physio instruments  Batch D = IT lab | | BIO  Nucleic Acids, Nuclocides & nucleotides  Dr. Nabila Sher | BIO  Bio chem Structure of Mitochondria  Dr. Kulsoom |
| Wed | BIO  Structure of DNA  Dr. Nabila Sher | PHY  Cell Membrane Potential  Dr. Riffat Sultana | Batch A = IT lab  Batch B = PH & Buffers  Batch C = Operating microscope  Batch D = Physio instruments | | ANA  Mitosis  Dr. Ibrar Wazir | ANA  Meiosis  Dr. Ibrar Wazir |
| Thurs | PHY  Movements of Cell  Ciliary movement  Dr. Riffat Sultana | BIO  Structure of RNA  Dr. Nabila Sher | Lab-Work  Batch A = Physio instruments  Batch B = IT lab  Batch C = PH & Buffers  Batch D =microscope | | BIO  Cellular Membrane Transport | PRIME  Reflection  Dr. Naveed Afzal |
| Fri | PHY  Cell Repolarization & Depolarization  Dr. Riffat Sultana | | BIO  DNA Replication  Dr. Kulsoom | | PHY  Homeostasis  Dr. Riffat Sultana | Jumma Prayers | |
| Sat | BIO  RNA Replication  Dr. Kulsoom | BIO  Process of Translation  Dr. Kulsoom |  | PATHO  Cell Injury  Dr. Anjum  Dr. Khalid | | PHARMA  Drug receptors, Routes of administration & and transmembrane drug transport Dr. Fahad dr. Ayesha | |

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| **Time Table : Theme III- Growth & Development of Human Body (week 3)** | | | | | | |
| Days | **0800-0900** | **0900-1000** | **1000-1030** | **1030-1200** | **1200-1300** | **1300-1400** |
| Mon | EMB  Introduction to Embryology  Dr. Niaz | BIO  Carbohydrates-I  Dr. Anum | B  R  E  A  K | A = BIOC Carbohydrates detection  B = PATHO Sterilization  C = Phys Smear preparation  D = IT Lab | CM  Determinants of Health  Dr. Raheela | PRIME  Pak studies |
| Tues | BIO  Carbohydrates –II  Dr. Anum | EMB  Spermato-Genesis  Dr. Shahab | A = PATHO Sterilization  B = Smear preparation  C = IT Lab  D = BIOC Carbohydrates detection | CM  Disease causation  Dr. Shaista kanwal | |
| Wed | BS  Introduction to mental health act.  Dr. Wajid | BIO  Carbohydrates –III  Dr. Anum | A = Smear preparation  B = IT Lab  C = BIOC Carbohydrates detection  D = PATHO Sterilization | EMB  Oogenesis  Dr. Najma | PRIME  Research 2  Dr. Naheed Mahsood |
| Thurs | EMB  Female reproductive cycle  Dr. Bareerah | CM  Chain of infections  Dr. Shakila Asif | A = IT Lab  B = BIOC Carbohydrates detection  C = PATHO Sterilization  D = Smear preparation | PRIME  Assessment strategies  Dr. Naheed Mahsood | |
| Fri | EMB  Transport of gametes  Dr. Zahid | CM 204  Levels of prevention  Dr. Alia Qazi | EMB 206 & EMB 207  Fertilization events & Clinical Correlates  Dr. Niaz | | Jumma Prayers | |
| Sat | EMB  Cleavage & blastocyst formation  Dr. Gulsanga | EMB  Implantation & its abnormalities  Dr. Tariq |  | BS  Thinking & Cognition  Dr Amer Abbas | DSL  (Reflection of week) | |

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| **Time Table : Theme III- Growth & Development of Human Body (week 4)** | | | | | | | |
| Days | **0800-0900** | **0900-1000** | **1000-1030** | **1030-1200** | | **1200-1300** | **1300-1400** |
| Mon | EMB  Amniotic cavity  Dr. Niaz | BIO  Carbohydrates IV  Dr. Anum | B  R  E  A  K | A = Bio Carbohydrate detection 2  B = SDL  C = Physio Oil immersion lens  D = IT Skills | | EMB  Events of 2nd week of development  Dr. Niaz | BIO  Carbohydrates V  Dr. Anum |
| Tues | EMB  Clinical correlates  SGD  Dr. Shimi, Dr. Najma, Dr. Qaiser | | A = SDL  B = Physio Oil immersion lens  C = IT Skills  D = Bio Carbohydrate detection 2 | | PRIME  Ethics 2  Dr. Naveed | |
| Wed | EMB  Events of 3rd week of development  Dr. Shahab | BIO  Enzymes –I  Dr. Bella | A = Physio Oil immersion lens  B = IT Skills  C = Bio Carbohydrate detection 2  D = SDL | | BIO  Enzymes –II  Dr. Bella | PRIME  Professionalism 2  Dr. Naheed M |
| Thurs | BIO  Enzymes –III  Dr. Bella | PRIME  Professionalism 3 | A = IT Skills  B = Bio Carbohydrate detection 2  C = SDL  D = Physio Oil immersion lens | | PERMIT  Workings of memory  Dr. Naveed | SDL |
| Fri | BIO  Enzymes –IV  Dr. Bella | Bio  Importance of surface tension and viscosity in our body  Dr. Kalsoom | PERMIT  Leadership 1 | | Bio  Osmosis  Dr Kalsoom | Jumma Prayers | |
| Sat | BIO  Chemistry of acids and bases (acidosis & Alkalosis)  Dr. Amin Ul Haq | EMB  Development of placenta  Dr. Tariq |  | BS  Intelligence  Dr Amer Abbas | | DSL  (Reflection) | |

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| **Time Table : Theme IV- Human Body tissues, bones & joints (week 5)** | | | | | | | |
| Days | **0800-0900** | **0900-1000** | **1000-1030** | **1030-1200** | | **1200-1300** | **1300-1400** |
| Mon | HISTO  Intro to body tissues  Dr. Shahab | HISTO  Overview of epithelium  Dr. Shahab | B  R  E  A  K | A = IT Skills  B = Patho tissue preparation  C = Research  D = Histo Identify Epithelium | | ANA  Organization of human body  Dr. Shimi | ANA  Anatomical Terms  Dr. Qaiser |
| Tues | ANA  Cartilage and its types  Dr. Shahab | ANA  Classification of bones  Parts of bones  Dr. Qaiser | A = Patho tissue preparation  B = Research  C = Histo Identify Epithelium  D = IT Skills | | PATHO  Apoptosis & Necrosis  Dr. Munir | PRIME  Pak studies |
| Wed | PATHO  Events of acute inflammation  Dr. Arshad | ANA  Intro to joints  Dr. Qaiser | A = Research  B = D = Histo Identify Epithelium  C = IT Skills  D = Patho tissue preparation | | SDL | PRIME  Islamiyat |
| Thurs | ANA  Movements of joints  Dr. Shimi | ANA  Membranes of the body (Serous & mucous)  Dr. Ibrar | A = Histo Identify Epithelium  B = IT Skills  C = Patho tissue preparation  D = Research | | HISTO  Epithelial cell surface  Dr. Gulsanga | |
| Fri | HISTO  Structure & function of basement membrane  Dr. Najma hameed | ANA  Synovial joints  Dr. Qaiser | PRIME  Leadership 2 | | HISTO  Lateral cell surface  Dr. Gulsanga | Jumma Prayers | |
| Sat | ANA  Muscles  Dr. Shahab | HISTO  Connective tissue  Dr. Ibrar |  | PATHO  chronic  Inflammation | | DSL  (reflection) | |

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| **Time Table : Theme IV- Human Body tissues, bones & joints (week 6)** | | | | | | |
| Days | **0800-0900** | **0900-1000** | **1000-1030** | **1030-1200** | **1200-1300** | **1300-1400** |
| Mon | BS 401  Psychological defense mechanism  Dr. wajid | HISTO 303  Glandular Epi  Dr. Shahab | B  R  E  A  K | A = IT Skills  B = PHYSIO Neubauer chamber  C = ME Learning styles  D = Histo Identify Epithelium | FM  PMDC  Dr. Naheed S | ANA  Integumentary System  Dr. Zahid |
| Tues | ANA 404  Nervous system  Dr. Triq | | A = PHYSIO Neubauer chamber  B = ME Learning styles  C = Histo Identify Epithelium  D = IT Skills | ANA  Lymphatic system  Dr. Gulsanga | F.M  Death  Dr. Asad Jahanger |
| Wed | ANA  Sympathetic  Parasympathetic  Dr. Tariq, Dr. Ibrar, Dr. Gulsanga | | A = ME Learning styles  B = Histo Identify Epithelium  C = IT Skills  D = PHYSIO Neubauer chamber | Phys  Autonomic nervous system  Dr. Zubia shah | PERMIT  Islamiyat |
| Thurs | PRIME  Professionalism 4 | | A = Histo Identify Epithelium  B = IT Skills  C = PHYSIO Neubauer chamber  D = ME Learning styles | DSL  Reflection | |
| Fri |  | | | | Jumma Prayers | |
| Sat | **Module Paper** | | | | | |

**Blood Module**

**First Professional Year MBBS**

**6 Weeks**

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KMU - Central Curriculum Committee

**LIST OF TEAM MEMBERS**

|  |  |
| --- | --- |
| Prof.Dr.Fouzia Gul  Dean HPER | Khyber Medical University |
| Dr.Usman Mahboob  Incharge/Assistant Professor  Dr.Brekhna Jamil, Assistant Prof  Dr.Ahsan Sethi  Assistant Professor | Institute of Health Professions Education & Research, KMU |
| Dr.Naheed Mahsood  Assistant Professor | Khyber Girls Medical College |
| Dr.Farooq Ahmed  Director Medical Education | Khyber Medical College |
| Dr.Aisha Ayyub  Assistant Professor | KMU Institute of Medical Sciences |
| Dr.Iqbal Wahid  Assistant Professor  Dr.Danish Ali  Assistant Professor | Northwest School of Medicine |

**General Learning Outcomes**

**COGNITIVE DOMAIN**

**By the end of this module, First year MBBS students shall be able:**

1. Identify & describe the various cellular and non-cellular components of blood in relation to its Anatomy, Physiology & Biochemistry
2. Describe structure, synthesis and degradation of Hemoglobin
3. Describe the regulatory mechanisms of normal hemostasis and coagulation
4. Describe the conditions associated with dysfunction of cellular and non-cellular components of blood
5. Describe the basic characteristics of immune system.
6. Discuss the structure, functions and biochemical aspects of the Lympho-reticular system.
7. Explain the principles and clinical significance of ABO/RH blood grouping system
8. Explain the pathophysiology of various bleeding disorders
9. Identify the role of pharmacology in anemia and bleeding disorders.

**PSYCHOMOTOR DOMAIN**

Description of the psychomotor skills to be developed and the level of performance required:

**By the end of BLOOD Module, the student should be able to:**

1. Carry out practical work as instructed in an organized and safe manner
2. Make and record observations accurately.
3. Identify slide of Lymph node, thymus, tonsils and spleen under microscope
4. Identify slide of Gut associated lymphoid tissue
5. Determine percentage of formed blood elements.
6. Identify RBC and should be able to do its counting on counting chamber and to know normal values. And also classify Anemia morphologically.
7. Determine the Hemoglobin with the apparatus and have knowledge of normal and abnormal value.
8. Identify WBC morphology and its different types, should be able to count them on counting chamber and to know the normal values. Diagnostic importance of each WBC.
9. Identify Platelets and should be able to do its counting on counting chamber and to know normal values. Its diagnostic importance in relation to bleeding disorders
10. Perform bleeding time and clotting time and to know normal values and its diagnostic importance in relation to bleeding disorders.
11. Perform Blood groups typing and Rh factor.
12. Perform ESR and to know its normal value and prognostic importance.
13. Detect blood, bile pigments & bile salts in the given sample of urine

**ATTITUDE AND BEHAVIOUR:**

**By the end of BLOOD Module the student shall gain the ability and carry responsibility to:**

1. Demonstrate ability to give and receive feedback, respect for self and peers.
2. Demonstrate empathy and care to patients.
3. Develop respect for the individuality and values of others - (including having respect for oneself) patients, colleagues and other health professionals
4. Organize& distribute tasks
5. Exchange opinion & knowledge
6. Develop communication skills and etiquette with sense of responsibility.
7. To equip themselves for teamwork
8. Regularly attend the classes
9. Demonstrate good laboratory practices

**THEMES FOR BLOOD MODULE**

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| **SNO** | **Theme** | **Duration** |
| 1 | Pallor and swelling | 2 weeks |
| 2 | Fever (Infection and Immunity) | 2 weeks |
| 3 | Excessive bleeding & Transfusion Reaction | 1 week |

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| **BLOOD MODULE** |
| **THEME –I** |
| **Pallor and Swelling** |
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| **SNO** | **Topic** | **Learning Outcomes** |
| **ANATOMY** | | |
| 1 | **Introduction to hematopoietic system** | 1. Describe various components of hematopoietic system including their locations and their functions 2. Describe surface anatomy and applied anatomy of main organs of hematopoietic system 3. Define and classify lymphoid organs and lymphoid tissues |
| **PHYSIOLOGY** | | |
| 2 | **Introduction to Blood** | 1. Describe the composition and functions of blood 2. Define Hematocrit 3. Enlist the components of plasma 4. Explain the difference between Serum and plasma |
| 3 | **Red Blood Cells** | 1. Describe the structure, function, life span and normal count of Red Blood Cells. 2. Define Haemopoiesis 3. Classify haematopoitic stem cells 4. Summarize the erythropoiesis sites during pre-natal and post-natal periods. |
| 4 | **Red Blood Cells Genesis** Erythropoiesis | 1. Illustrate the stages of RBC development from pluripotent hematopoietic stem cells to a mature RBC. 2. Describe the erythropoiesis and factors regulating erythropoiesis 3. Describe the role of Vitamin B12 and Folic acid in RBC maturation. 4. Describe the effects of deficiency of Vita- min B12 and Folic acid on RBC maturation. |
| 5 | **Erythropoitin** | 1. Describe source, control / regulation and functions of Erythropoitin 2. Explain the role of Erythropoietin in RBC production. 3. Describe the effects of high altitude and exercise on RBC production. |
| 6 | **Anemia** | 1. Define and describe the different types of anemia 2. Define hemolysis 3. Describe the various red cell indices 4. Interpret the diagnosis of anemia by using red cell indices 5. Describe the effects of anemia on functions of circulatory system / human body |
| 7 | **Polycythemia** | 1. Define and classify polycythemia 2. Differentiate between primary and secondary Polycythemia |
| **BIOCHEMISTRY** | | |
| 8 | **Introduction of Porphyrins** | 1. Define Porphyrins 2. Describe Chemistry of Porphyrins 3. Enlist the types, metabolic causes and clinical presentation of different types of Porphyrias. |
| 9 | **Iron metabolism** | 1. Describe the iron metabolism |
| 10 | **Introduction to heme synthesis and degradation** | 1. Define heme and Describe its structure and functions 2. Describe the biochemical features of the hemoglobin molecules 3. Describe Heme Synthesis on cellular and molecular level 4. Describe Heme Degradation 5. Describe the Regulation of Heme Synthesis. 6. Describe the concept of Oxygen binding with hemoglobin |
| 11 | **Hemoglobinopathies** | 1. Define Hemoglobinopathies and enlist the variants of hemoglobin 2. Describe causes of Hemoglobinopathies 3. Describe two major categories of hemoglobinopathies 4. Describe the amino acid substitution in sickle cell disease. 5. Define and Classify thalassemias. 6. Explain the genetic defects in α and β thalassemias. 7. Enlist the clinical features of α and β thalassemias |
| 12 | **Proteins** | 1. Define proteins, 2. Describe the Biomedical importance of Proteins 3. Classify proteins based on Physiochemical properties, Functions, Nutrition 4. Explain Structure of proteins 5. Describe the significance of Proteins |
| 13 | **Amino Acids** | 1. Define Amino acids, 2. Describe their structure, properties & functions 3. Classify Amino Acid 4. Describe nutritional significance of amino acids 5. Describe Dissociation, titration and importance of amino acid in pH maintenance |
| **14** | **Proteins** | 1. Explain Separation of proteins e.g. salting out, ELISA, Electrophoresis, Chromatography, Centrifugation |
| 15 | **Proteins** | 1. Explain Separation of proteins e.g. Chromatography, Centrifugation |
| 16 | **Plasma Proteins** | 1. Classify and describe the physical, chemical and electro-phoretic properties of plasma proteins. 2. Illustrate the production of plasma proteins and the factors affecting plasma protein synthesis. 3. Describe clinical significance of Plasma proteins 4. Explain Globulin proteins and Albumin with their functions 5. Explain gamma Globulin proteins and Albumin with their functions |
| **PATHOLOGY** | | |
| 17 | * **Anemia’s of diminished erythropoiesis** | 1. define anemia 2. List the factors for regulation of erythropoiesis 3. Enlist the types of anemia |
| 18 | * **Hemolytic anemia’s** | 1. Define hemolytic anemia. 2. Enlist types of hemolytic anemia. |
| **PHARMACOLOGY** | | |
| 19 | **Drug treatment of anemia’s** | 1. Enlist the drugs used in the treatment of iron deficiency & Megaloblastic anemia 2. Describe the pharmacological basis/ role of iron in iron deficiency anemia 3. Describe the pharmacological basis/ role of vit B12 and folic acid in megaloblastic anemia 4. Describe the role of Erythropoietin in the treatment of Anemia |
| **COMMUNITY MEDICINE** | | |
| 20 | **Epidemiology of blood borne diseases** | 1. Describe Epidemiology of Iron Deficiency Anemia 2. Describe prevention of different types of anemia’s in community |

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| **LAB WORK** | | |
| **ANATOMY PRACTICAL (HISTOLOGY)** | | |
| 21 | **Histology** | 76. Identify and describe the microscopic anatomy of lymph node, thymus, bone marrow and spleen under microscope  77. Compare the histological features of lymph node, thymus and spleen  78. Identify and describe various blood cells under microscope. |
| **PHYSIOLOGY PRACTICAL** | | |
| 22 | **Hemoglobin determination** | 1. Assist in phlebotomy while practicing aseptic procedure. 2. Determine the hemoglobin (Hb) concentration in the given sample 3. Estimation of hemoglobin by Sahli's method 4. Determination of packed cell volume |
| 23 | **RBC count** | 1. Determine the red blood cell (RBC) count in the given sample and calculate RBC indices |
| **BIOCHEMISTRY PRACTICAL** | | |
| 24 | **Estimation of plasma proteins in serum** | 1. Estimate plasma proteins in serum. |
| 25 | **Preparation of protein free filtrate** | 1. Prepare protein free filtrate |

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| **BLOOD MODULE** |
| **THEME –II** |
| **Fever (Infection and Immunology)** |

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| **SNO.** | **Topic** | **Learning Outcomes** |
| **ANATOMY** | | |
| 26 | **Gross anatomy of hematopoietic system** | 1. Locate, identify and describe the main gross external features of spleen, lymph node, thymus and tonsils 2. Describe neurovascular supply of the mentioned structures 3. Outline the surface anatomy of main lymph nodes, spleen, thymus and tonsils 4. Enlist the causes of splenic injuries |
| 27 | **Histology of lymphoid tissues** | 1. Describe the overview of lymphatic tissue including MALT 2. Identify and describe the histological features and functions of Lymph node 3. Identify and describe the histological features and functions of Thymus 4. Identify the locations of tonsils and describe the histological features and functions of Tonsils 5. Describe the histological features and functions of spleen. |
| 28 | **Embryology/ Developmental Anatomy of lymphoid tissue** | 1. Describe the development of lymphoid organs including lymph nodes, tonsils, thymus and spleen |
| **PHYSIOLOGY** | | |
| 29 | **White Blood Cells** | 1. Classify white blood cells 2. Describe the structure, function, life span and normal count of White Blood Cells 3. Describe the stages of differentiation of white blood cells (leukopoiesis) 4. Describe the characteristics of WBCs (phagocytosis / chemotaxis, diapedesis) |
| 30 | **Reticulo-endothelial (**Monocyte-Macrophage**) system** | 1. Describe the components of reticulo-endothelial system (monocyte-macrophage system) 2. Describe the role of monocyte macrophage system in immunity 3. Explain the role of neutrophils, macrophages, basophils, eosinophils and monocytes in providing immunity against infections (immune system) |
| 31 | **Inflammation** | 1. Define inflammation 2. Describe characteristics of inflammation (hallmark of inflammation) 3. Describe the causes, sequence of events and cardinal signs of inflammation |
| 32 | **Abnormal leukocyte counts/ Leukemia** | 1. Define Leukopenia and Leukocytosis and Lukemia |
| 33 | **Introduction to immunity** | 1. Define and classify immunity 2. Define antigen 3. Define pathogen 4. Enlist the tissues that contribute to immunity and explain their function 5. Describe the functions of immune system 6. Describe the structure and function of lymphatic system |
| 34 | **Immune system** | 1. Enlist the three lines of defenses and outline their properties 2. Describe the characteristics, origin and functions of cells of immune system 3. Describe the types of immunity 4. Enlist the innate defenses 5. List the substances and cells that participate in adaptive immunity 6. Compare the **characteristics** innate and acquired immunity 7. Compare the active and passive immunity mechanism |
| 35 | **Immune response** | 1. Differentiate between primary and secondary immune response 2. Describe the roles of cytokines, chemokines, and colony-stimulating factors in the immune response |
| 36 | **Humoral and cell mediated immunity** | 1. Describe the role of T and B lymphocytes in immunity 2. Describe the role of B lymphocytes in humoral immunity 3. Describe cell mediated and humoral immunity 4. Explain how helper T cells regulate the immune system 5. Explain the function of cytotoxic T cells 6. Describe the role of helper T cells 7. Differentiate between humoral and cell mediated immunity |
| 37 | **Complement system** | 1. Describe the complement system 2. Explain how the complement system elicits the inflammatory response, lyses foreign cells, and increases phagocytosis 3. Describe the twopathways that activate the complement system 4. compare Classic and alternate pathways pathways of complement activation |
| 38 | **Immunity: extremes of ages** | 1. Compare the active and passive immunity 2. Explain the transfer of passive immunity from mother to fetus and from mother to infant during breast-feeding 3. Describe changes in immune response that occurs with aging |
| 39 | **Allergy & Hypersensitivity** | 1. Define allergy and allergen 2. Describe the pathophysiology of allergy and hypersensitivity 3. Define and classify the hypersensitivity reaction 4. Compare the immediate and delayed hypersensitivity reactions 5. List the diseases associated with hypersensitivity reactions |
| **Biochemistry** | | |
| 40 | **Immunoglobulin’s / Antibodies** | 1. Define Immunoglobulin’s 2. DESCRIBE Types of Immunoglobulin’s 3. Describe Structure of Immunoglobulin’s 4. Describe the mechanism of action of antibodies 5. Explain biochemical role of each immunoglobulin in immunity |
| **COMMUNIUTY MEDICINE** | | |
| 41 | **Vaccinology** | 146. Define vaccine and immunization  147. Explain the expanded program of immunization (EPI) in Pakistan |
| **LAB WORK** | | |
| **PHYSIOLOGY PRACTICAL** | | |
| 42 | **TLC determination** | 1. Determine the total leukocyte count (TLC) in the given sample |
| 43 | **DLC determination** | 1. Determine the differential leukocyte count (DLC) in the given sample |

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| **Blood MODULE** |
| **THEME –III** |
| **Excessive Bleeding** |

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| **PHYSIOLOGY** | | | |
| **SNO** | **Topic** | | **Learning Outcome** |
| 44 | **Introduction to hemostasis** | | 1. Describe the structure, function, life span and normal count of Platelets. 2. Define hemostasis 3. Describe the role of platelets in hemostasis 4. Outline the sequence of processes involved in hemostasis. |
| 45 | **Blood Coagulation** | | 1. Enlist the clotting factors 2. Explain the role of calcium in coagulation 3. Explain how clotting is prevented in the normal vascular system 4. Outline the sequence of processes during blood coagulation 5. Describe with the help of a flow diagram (or draw) intrinsic pathway of coagulation cascade 6. Describe with the help of a flow diagram (or draw) extrinsic pathway of coagulation cascade 7. Explain how the mechanism of clot dissolution. |
| 46 | **Bleeding disorders** | | 1. describe the role of Vit K in clotting 2. Describe the following bleeding disorders  * Vitamin K deficiency * Thrombocytopenia * Hemophilia  1. Define Von Willebrand disease |
| 47 | **Thrombotic disorders** | | 1. Describe the effects of low platelet count on Hemostasis 2. Define thrombus/thrombi 3. Define emboli/embolus 4. Enlist the causes of thromboembolic conditions 5. Describe Femoral venous thrombosis and pulmonary embolism |
| **Pharmacology** | | | |
| 48 | **Coagulation modifying drug** | | 1. Identify the site of action of following drugs in coagulation cascade  * Aspirin, * Heparin, * Tranexamic acid * Vit K |
| **LAB WORK** | | | |
| 49 | **Clotting time determination** | 1. Determine the clotting time | |
| 50 | **Bleeding time determination** | 1. Determine the bleeding time | |
| 51 | **Prothrombin time determination** | 1. Determine the Prothrombin time (PT) in the given sample | |

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| **BLOOD MODULE** |
| **THEME –IV** |
| **Transfusion Reaction** |

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| **SN0** | **Topic** | **Learning Outcome** |
| **PHYSIOLOGY** | | |
| 52 | **Blood Grouping** | 1. Describe different types of blood groups 2. Describe the genotype-phenotype relationships in blood groups. 3. Interpret the plausible blood groups (A-B-O) in children of parents with known blood groups. 4. Describe the role of agglutinogens and agglutinins in blood grouping 5. Describe the antigens and antibodies of the O-A-B blood types/ Interpret the types of agglutinins present in individuals with a specific blood group 6. Describe the process of agglutination |
| 54 | **transfusion reactions** | 1. Describe the antigens and antibodies of the Rh system 2. Describe the principles of blood typing 3. Explain universal donor and universal recipient blood groups 4. Enlist the manifestations of transfusion reaction |
| 55 | **Erythroblastosis fetalis** | 1. Define Rhesus incompatibility 2. Describe erythroblastosis fetalis 3. Describe the transfusion reactions resulting from mismatched O-A-B and Rh blood types |
| 56 | **Major histocompatibility complex** | 1. Define autoimmunity 2. Explain how immune reaction to self-antigens is avoided 3. Define and classify Major Histocompatibility complex (MHC)   Characterize the significance and function of major histocompatibility complex molecules |
| **Forensic Medicine** | | |
| 56 | **Medico-legal importance of blood groups** | 1. Describe the Medico-legal importance of blood groups in forensic work that is   (a)Personal Identity  b)inheritance claims  (c) DNA profiling  (d) Disputed paternity and maternity |
| **COMMUNITY MEDICINE** | | |
| 57 | **epidemiology of blood borne diseases** | 1. Identify important blood borne pathogens and how they are spread 2. Discuss the epidemiology of blood borne disease transmission and the potential for HIV, HBV and HCV transmission. 3. Identify routes of transmission of blood borne pathogens 4. Discuss the best practices to perform safe blood transfusion. 5. Identify potential exposure risks 6. List important safeguards against blood borne pathogen disease |
| **LAB WORK (Physiology Practical)** | | |
| 58 | **Blood grouping** | 1. Determine the O-A-B and Rh blood group in the given sample |
| 59 | **Blood smear preparation** | 1. Prepare blood smear by thumb prick method. |
| 60 | **Blood Bank** | 1. Observe the process of blood donation, blood product separation, screening and storage and observe the process of blood transfusion. |

**Cardiovascular System (CVS) Module**

**First Professional Year MBBS**

**5 Weeks**

KMU - Central Curriculum Committee

**LIST OF TEAM MEMBERS**

|  |  |
| --- | --- |
| Prof.Dr.Fouzia Gul  Dean HPER | Khyber Medical University |
| Dr.Usman Mahboob  Assistant Professor | Institute of Health Professions Education & Research, KMU |
| Dr.Farooq Ahmed  Director Medical Education | Khyber Medical College |
| Dr.Naheed Mahsood  Assistant Professor | Khyber Girls Medical College |
| Dr. Aisha Ayyub  Assistant Professor | Pathology, Kohat Institute of Medical Sciences (KIMS), Kohat |
| Dr.Iqbal Wahid  Assistant Professor  Dr.Danish Ali  Assistant Professor | Northwest School of Medicine |

**Themes of CVS module**

|  |  |  |
| --- | --- | --- |
| 1. **Chest pain-**   **(1 week)** | 1. **Breathlessness and ankle swelling-**   **(2 weeks)** | 1. **Blood Pressure-**   **(1 week)** |
| 1. **Palpitations**   **(1 week)** |

**General Learning outcomes**

At the end of this module, the students will be able to;

1. Describe the structure and surface markings of the heart, valves and great vessels
2. Describe the steps of development of the heart
3. Describe the steps of development of arterial, venous and lymphatic system
4. Describe the conduction system of the heart
5. Describe the anatomy of valves of the heart
6. Describe the microscopic structure of myocardium, and blood vessels
7. Describe the cardiac cycle
8. Discuss cardiac output, and venous return
9. Discuss blood pressure and its regulation
10. Discuss coronary circulation and diseases associated with it
11. Describe the mechanisms and types of circulatory shock and associated compensatory mechanisms
12. Describe the anatomy and common pericardial diseases
13. Describe the cardiac enzymes
14. Discuss the hyperlipidemias and the roles lipoproteins and cholesterol in the development of atherogenesis
15. Describe the mechanisms of impulse generation, conduction and excitation of myocardium
16. Discuss normal ECG and common ECG abnormalities
17. Enlist the drugs used in ischemic heart disease and hyperlipidemias
18. Describe preventive strategies of cardiovascular diseases

**Specific learning objectives (theme based)**

|  |  |  |  |
| --- | --- | --- | --- |
| **1- Chest Pain** | | | |
| **Subject** | **Topic** | **S. No** | **Learning objectives** |
| Anatomy | Surface anatomy | 1 | Describe the surface marking of the heart |
|  |  | 2 | Describe the surface marking of the heart valves |
|  |  | 3 | Illustrate the surface marking of the aorta on models / x-rays |
|  |  | 4 | Describe the surface marking of the superior vena cava |
|  |  | 5 | Describe the surface marking of the inferior vena cava |
|  |  | 6 | Describe the gross structure of the heart |
|  | Coronary circulation | 7 | Describe the coronary arteries |
|  |  | 8 | Enlist the branches of each main artery |
|  |  | 9 | Describe the anastomosis of coronaries |
|  |  | 10 | Identify the area of the heart supplied by a coronary artery and its branches |
|  |  | 11 | Describe the venous drainage of the heart |
|  |  | 12 | Describe the lymphatic drainage of the heart |
|  | Pericardium | 12 | Define pericardium |
|  |  | 14 | Describe different reflections of pericardium |
|  |  | 15 | Identify entry & exit of vessels of heart via pericardium |
|  |  | 16 | Define the following clinical condition; pericarditis pericardial effusion  cardiac Tamponade |
| Histology | Histology of heart muscles | 17 | Explain the characteristics of cardiac muscle cell |
|  |  | 18 | Explain the Structure of Intercalated disc |
|  |  | 19 | Define the junctional specializations making up the intercalated disk |
|  |  | 20 | Describe identification of different microscopic views of Cardiac muscle and its ultra-structures |
|  |  | 21 | Differentiate histologically between cardiac and skeletal muscle and smooth muscles |
|  |  | 22 | Enumerate histological layers of heart wall |
| Physiology | Cardiac muscles | 23 | Explain the physiologic anatomy of the cardiac muscle |
|  |  | 24 | Describe the properties of the cardiac muscle |
|  | Coronary circulation | 25 | Describe the physiologic basis coronary circulation |
|  |  | 26 | Describe the steps of coronary thrombosis |
|  |  | 27 | Describe the etiology of coronary thrombosis |
| Biochemistry | Cardiac enzymes | 28 | Identify the enzymes that increase in myocardial infarction |
|  | Lipids and cholesterol | 29 | Describe the Chemical Structure and function of cholesterol |
|  |  | 30 | Describe the fate of cholesterol in the body |
|  |  | 31 | Define and Classify lipids |
|  |  | 32 | Describe the metabolism of adipose tissue and role of brown adipose tissue |
|  |  | 33 | Describe the functions of lipids in the body |
|  |  | 34 | Classify lipoproteins and their functions |
|  |  | 35 | Describe the Synthesis of fatty acids, tri-acyl glycerol and phospholipids |
|  |  | 36 | Describe the process of Ketone bodies production and utilization |
|  |  | 37 | Describe the chemistry and metabolism of lipoproteins and the associated clinical disorders |
|  |  | 38 | Classify hyperlipidemias |
|  |  | 39 | Describe the metabolism of cholesterol in the body |
|  |  | 40 | Enlist the factors affecting cholesterol levels and synthesis |
|  |  | 41 | Describe hypercholesterolemia and its causes |
|  |  | 42 | Describe Cardiac enzymes and their pattern of elevation in ischemic heart diseases |
|  |  | 43 | Describe the sources and fate of acetyl-CoA in the body |
|  |  | 44 | Describe the mechanism of formation of fatty acids in the body |
|  |  | 45 | Define and classify lipid storage diseases |
|  |  | 46 | Describe Lipid profile and values |
|  |  | 47 | Describe the role of Na, K, Ca and Mg in cardiac muscles contractility and their biochemical abnormalities |
|  |  | 48 | Describe the cardiac manifestations of vitamin B1 deficiency |
| Pharmacology |  | 49 | Enlist the groups of drugs used in the treatment of CAD (angina and MI) |
|  |  | 50 | Enlist the groups of lipid lowering drugs |
| Pathology |  | 51 | Describe the risk factors, and lab. Diagnosis of CAD |
|  |  | 52 | Define and Enlist the stages of atherosclerosis |
| Forensic medicine |  | 53 | Describe the medicolegal aspects of sudden death due to cardiovascular diseases |
| Community Medicine | Prevention of CVD | 54 | Describe primordial, primary, secondary and tertiary prevention of CV diseases in community |
| **2- Breathlessness and ankle swelling** | | | |
| Embryology | Fetal circulation | 55 | Describe the physiological changes in circulation after birth |
|  | Cardiac developmental anomalies | 56 | Enlist the developmental anomalies of heart |
|  |  | 57 | Describe the congenital anomalies of the heart.  ASD  VSD  PDA  Tetrology of fallot  transposition of the great vessels  Hemangiomas and  Telegactesias |
| Physiology | Cardiac cycle | 58 | Describe the Cardiac cycle |
|  |  | 59 | Describe the concept of systole and diastole, |
|  |  | 60 | Describe the role of atria and ventricles as pumps, |
|  |  | 61 | Describe the functions of heart valves, |
|  |  | 62 | Correlate the cardiac cycle events with ECG |
|  |  | 63 | Describe the mechanism of production of normal and abnormal heart sounds |
|  |  | 64 | Relate heart sounds with cardiac cycle, |
|  |  | 65 | Describe the metabolism and oxygen utilization of cardiac muscle |
|  |  | 66 | Describe the regulation of cardiac cycle |
|  | Cardiac output | 67 | Describe pressure volume loop (end-systolic volume / end-diastolic volume / ejection fraction / systolic volume / systolic work output) |
|  |  | 68 | Explain the Frank-Starling mechanism of the heart for the control of cardiac output by venous return |
|  |  | 69 | Describe the methods for measuring of cardiac output |
|  |  | 70 | Describe normal cardiac output and venous return during rest and during activity |
|  |  | 71 | Enlist the causes of abnormally high and abnormally low cardiac output |
|  |  | 72 | Explain the mechanisms of normal cardiac contractility and the role of calcium ion/ ATPase pumps |
|  |  | 73 | Explain cardiac output (regulation/measurement) and peripheral resistance and its regulation |
|  |  | 74 | Explain the factors regulating cardiac output and venous return. |
|  | Blood flow | 75 | Describe the Biophysics and Interrelationships of Pressure, Flow, and Resistance in terms of Ohm’s law and Poiseuille’s Law |
|  |  | 76 | Describe starling forces |
|  |  | 77 | Describe regulation of blood flow |
|  |  | 78 | Define basal tone. |
|  |  | 79 | List several substances potentially involved in local metabolic control of vascular tone. |
|  |  | 80 | State the local metabolic vasodilator hypothesis. |
|  |  | 81 | Describe physiological Vasodilators and Vasoconstrictors and their mechanisms |
|  |  | 82 | Describe the factors affecting the local blood flow including auto-regulation. |
|  |  | 83 | Describe the function of capillaries |
|  |  | 84 | Describe circulatory changes during exercise |
|  |  | 85 | Describe blood flow to different organs like brain, heart, liver and skin during exercise |
|  | Functions of heart valves | 86 | Describe the functions of mitral, tricuspid, aortic and pulmonic valves |
|  |  | 87 | Describe the hemodynamics and sequel related to stenosis and regurgitation of heart valves |
|  | Lymphatic system | 88 | Describe the function of lymphatic system in the maintenance of interstitial fluid volume. |
|  |  | 89 | Describe the effects of Interstitial Fluid Pressure on Lymph Flow. |
|  |  | 90 | Describe how changes in capillary hydrostatic pressure, plasma oncotic pressure, capillary permeability, and lymphatic function can lead to tissue edema |
| Medicine | Heart failure | 91 | Define Heart failure |
|  |  | 92 | Differentiate between right-sided Heart failure and left-sided heart failure |
| **3- Blood Pressure** | | | |
| Anatomy |  |  |  |
|  | Histology of blood vessels | 93 | Describe the histological composition of vessel |
|  |  | 94 | Describe the microscopic structure of artery and vein |
|  |  | 95 | Differentiate histologically between artery and vein under light microscope |
|  |  | 96 | Describe the histological composition of lymphatic channels |
| Embryology | Development of arteries and veins | 97 | Describe the development of arterial system |
|  |  | 98 | Describe the development of venous system |
|  |  | 99 | Describe the congenital abnormalities in in the vessels. - Coarctation of Aorta |
| Physiology | Blood Pressure | 100 | Define blood pressure |
|  |  | 101 | Describe the causes of High / low BP |
|  |  | 102 | Discuss the mechanisms for rapid and long term control of blood pressure (including Renin Angiotensin system) |
|  |  | 103 | Describe the effects of sympathetic and parasympathetic stimulation on the heart and circulation |
|  | Circulatory Shock | 104 | Define Circulatory Shock |
|  |  | 105 | Explain the physiologic causes of circulatory shock |
|  |  | 106 | Explain the stages of circulatory shock |
|  |  | 107 | Describe cardiogenic shock |
|  |  | 108 | Describe Hemorrhagic Shock |
|  |  | 109 | Describe of Neurogenic Shock |
|  |  | 110 | Describe Anaphylactic Shock |
|  |  | 111 | Describe Septic Shock |
|  |  | 112 | Explain the physiology of treatment in Shock |
| Pharmacology |  | 113 | Describe the mechanisms of drugs used in the treatment of Hypertension |
| Community medicine |  | 114 | Describe the preventive strategies of hypertension |
| **5- Palpitations** | | | |
| Anatomy | Conduction system of the heart | 115 | Describe the different components of conduction system   * SA Node * AV Node * Bundle of His * Purkenje Fibers * Bundle branches |
|  |  | 116 | Describe the sympathetic innervation of heart |
|  |  | 117 | Describe the parasympathetic innervation of the heart |
| Physiology | Excitation and contraction of cardiac muscles | 118 | Describe the excitation–contraction process in cardiac muscle.  Describe Chronotropic, Inotropic and Dromotropic Effects |
|  |  | 119 | Describe Chronotropic, Inotropic and Dromotropic Effects |
|  |  | 120 | Differentiate excitation–contraction process in cardiac and skeletal muscle cells |
|  |  | 121 | Describe gap junctions and the significance of functional syncytium |
|  |  | 122 | Explain phases of cardiac muscle action potential |
|  |  | 123 | Describe the characteristics of cardiac action potentials and the role of “slow calcium” channels in causing plateau and its significance |
|  |  | 124 | Describe the significance of AV nodal Delay |
|  |  | 125 | Define Pacemaker and explain why SA node is the normal pacemaker of the heart |
|  |  | 126 | Define Ectopic Pacemaker and describe its causes |
|  |  | 127 | Describe the effects of sympathetic and parasympathetic stimulation on the heart rate and conduction of cardiac action potentials |
|  |  | 128 | Define various types of refractory periods |
|  |  | 129 | Differentiate the refractory period of cardiac muscle with that of skeletal muscle |
|  |  | 130 | Describe the significance of prolonged action potential in cardiac muscle |
|  |  | 131 | Describe the physiological anatomy of the sinus node |
|  |  | 132 | Define automaticity and rhythmicity and conductivity |
|  |  | 133 | Describe the specialized excitatory and conductive pathway of the cardiac muscle tissue |
|  | ECG | 134 | Describe the characteristics of normal ECG, time duration of waves, segments and voltages |
|  |  | 135 | Explain how to record ECG |
|  |  | 136 | Describe the AV nodal, ventricular impulse conduction |
|  |  | 137 | Interpret ECG paper and its calibration |
| Community Medicine | CVD prevention | 138 | Identify the major risk factors which contribute to common diseases of the cardiovascular system |
|  |  | 139 | Enumerate modifiable and non-modifiable risk factors of CV diseases |
|  |  | 140 | Apply primordial, primary, secondary and tertiary prevention of CV diseases in community |

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| **Psychomotor domain** | | |
| Chest Pain | Anatomy | 1. Identify the heart & its coverings in the model / dissected specimen 2. Identify the heart and major blood vessels in cadaver/dissected specimen 3. Identify the chambers of the heart. 4. Identify the internal structures of various chambers of the heart. 5. Identify the Cardiac Muscle under the microscope |
| Physiology | 1. **Perform basic life support. (Important)** |
| Blood Pressure |  | 1. Identify salient features of a medium sized artery & vein in a cross-section under microscope. 2. Identify the histological differences between medium size artery & vein under microscope. 3. Describe the histological differences between large size artery & vein. |
| Breathlessness and ankle swelling | Clinical | 1. Identify normal cardiac shadow, borders and cardiomegaly on chest radiographs. 2. Identify the position of borders and valves of the heart by surface marking on model / simulator 3. Palpate and find apex beat, and auscultatory areas in the chest of the subject provided and describe their significance. 4. Demonstrate the use of Stethoscope for Auscultation. 5. Differentiate between normal and displaced apex beat |
|  | Physiology | 1. Measure the blood pressure. 2. Measure the effect of posture and exercise on blood pressure. 3. Examine the arterial pulses. 4. Auscultate the heart sounds. |
| Palpitations |  | 1. Perform systematic analysis of ECG |
| **Affective domain** | | |
| PRIME |  | 1. Demonstrate ability to give and receive feedback, respect for self and peers. 2. Carry out practical work as instructed in an organized and safe manner 3. Demonstrate empathy and care to patients. 4. Develop respect for the individuality and values of others - (including having respect for oneself) patients, colleagues and other health professionals 5. Organize& distribute tasks 6. Exchange opinion & knowledge 7. Develop communication skills and etiquette with sense of responsibility. 8. To equip themselves for teamwork 9. Regularly attend the classes 10. Role play for the counseling of patients with risk factors for coronary heart diseases on modification of life style 11. Role play for the counseling of patients with risk factors for coronary heart diseases on modification of life style |

**Musculoskeletal Module**

**First Professional Year MBBS**

**8 Weeks**

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KMU - Central Curriculum Committee

**LIST OF TEAM MEMBERS**

|  |  |
| --- | --- |
| Prof.Dr.Fouzia Gul  Dean HPER | Khyber Medical University |
| Dr.Usman Mahboob  Director | Institute of Health Professions Education & Research, KMU |
| Dr.Farooq Ahmed  Director Medical Education | Khyber Medical College |
| Dr.Naheed Mahsood  Assistant Professor | Khyber Girls Medical College |
| Dr.Danish Ali  Assistant Professor | Northwest School of Medicine |

**Introduction to Module**

Musculoskeletal system Module is designed to provide guidance on introduction to the basics of human musculoskeletal system. Moreover, the module is aligned to the general outcomes required at the exit level, and includes introductory sessions on preventive medicine, communication skills, professionalism, self- management, and developing scholarly skills. The module committee will facilitate the students with any issues that they have, while settling down in the new environment. You will also learn the skills required for practical implications in the field of medicine. Moreover, working within teams will enhance your co-operative and approachable working style

**General Learning Outcomes**

By the end of this module the students should be able to;

**Knowledge**

By the end of this module, students should be able to:

1. Develop an understanding of the fundamental components of the musculoskeletal system.

2. Explain the structure & function of the musculoskeletal (MSK) components of limbs and back.

3. Describe how injury and disease alter the MSK structure & function.

4. Integrate concepts relating to various metabolic processes, their disorders and relevant lab investigations in the study of human MSK system.

5. Describe the role of the limbs (upper/lower) in musculoskeletal support, stability and movements.

6. Describe the development of the limbs & correlate it with organization and gross congenital anomalies of the limbs.

7. Identify the anatomical features of bones, muscles & neurovascular components of the limbs and correlate them with their functions, injuries and clinical problems.

8. Describe the types, formation, stability, function & clinical significance of joints of the upper and lower limb.

9. Describe the basic histology of muscle fibers including its molecular structure (Sarcomere).

10. Explain the mechanism of excitation and contraction of skeletal and smooth muscles.

11. Describe the basis for the use of therapeutic agents to modulate neuromuscular transmission.

12. Describe the general principles of MSK pain management.

13. Describe ergonomics and its principles. Prevention of different MSK disorders.

14. Interpret the mechanism of post-mortem rigidity. (spiral II)

15. Give an overview of pathology of bones, muscles and joints.

16. Explain the role of different minerals, hormones and specific metabolic products related to the musculoskeletal system and correlate them with their relevant clinical metabolic disorders.

17. Interpret the relevant laboratory investigations for diagnosis of common musculoskeletal disorders. (Spiral two)

18. To develop the critical thinking and analysis in the context of various case scenarios pertaining to locomotors system.

**Skills**

By the end of this module, it is a core objective that students should have acquired the following skills:  
1. Demonstrate the anatomical structures of the limbs in a dissected cadaver/Model/prosecuted specimen & X-ray.  
2. Demonstrate the provision of first aid measures in case of a limb fracture.  
3. Communicate effectively in a team with colleagues and teachers**.**

**Attitude**

While not necessarily taught explicitly, students are expected to develop following attitudes throughout the course:

1. Demonstrate respect and care for the cadaver and prosected parts.

2. Demonstrate humbleness and use socially acceptable language during academic and social interactions with colleagues and teachers.

3. Make ethically competent decisions when confronted with an ethical, social or moral problem related to MSKS in professional or personal life.

4. Discuss ethical issues social and preventive aspect of health care in the context of MSK system.

5. To create awareness about the ethical, social and preventive aspect of health care in the context of locomotor system.

**THEMES FOR FOUNDATION MODULE**

|  |  |  |
| --- | --- | --- |
| **SNO** | **Theme** | **Duration** |
| 1 | Orientation and shoulder pain | 2 weeks |
| 2 | Weak grip and painful hand | 1 week |
| 3 | Pain lower limb/limping | 2 weeks |
| 4 | Bony arches and fracture of foot | 1 week |
| 5 | Backache | 1 week |
| 6 | Muscle weakness and fatigue | 1 week |

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| **Musculoskeletal MODULE** |
| **THEME –I** |
| **ORIENTATION AND SHOULDER PAIN** |

|  |  |  |
| --- | --- | --- |
| **SNO.** | **Topic** | **Learning Outcomes** |
| **ANATOMY** | | |
| 1 | Introduction | * Define osseous tissue * Classify the skeletal system (axial and * appendicular) * Name and locate different bones of * axial and appendicular skeleton * Classify bones * Describe general features of bones * Describe Nerve/blood supply of bone * Describe bone marrow and its types * Describe ossification and its types * Describe surface markings of bones * Define fracture, osteoporosis, rickets, osteomalacia * Introduction to muscular system * Classify the muscles according to the * directions of fibers * Classify the skeletal muscles according to their action. * Types of skeletal muscle fibers(Type1 ,2,3) * Describe the nomenclature of skeletal muscles * Describe the principle of innervations * and nerve supply of muscles * Define paralysis, hyperplasia,hypertrophy,mysthena gravis |
| 2 | Introduction to locomotion  and upper limb | Identify the extent of the upper limb.Identify various regions of upper limb.Describe the division of the regions into compartments.State the contents of compartments of arm, forearm & handDescribe the joints of upper limb.Describe the clinical anatomy of upper limb |
| 3 | Osteology of clavicle | Recognize the boneIdentify the site of boneState the bony land marks of clavicle: like borders, surfaces & land mark used for bone determinationDescribe & demonstrate the attachments of muscles.Describe the common fractures of the bone.Identify and describe the salient features of the bones scapula and clavicleDescribe the surface anatomy clavicleDescribe the radiological anatomy clavicleDescribe the applied anatomy clavicle |
| 4 | Osteology of scapula | Recognize the bone.  Identify the site of bone.  State the bony landmarks of scapula: like borders, surfaces & land mark used for bone determination.  Demonstrate the attachment of  muscles on scapula  Describe the common fractures of the bone.  Identify and describe the salient features of the bones scapula.  Identify the attachments to scapula  Describe the surface anatomy scapula  Describe the radiological anatomy scapula.  Describe the applied anatomy scapula. |
| 5 | Osteology of humerus | Recognize the bone.  Identify the site of bone.  State the bony landmarks of humerus: like borders, surfaces & land mark used for bone determination.  Demonstrate the attachment of muscles & ligaments.    Describe the common fractures of the bone.    Identify and describe the salient features of the humerus  Identify the attachments to humerus  Describe the surface anatomy humerus  Describe the radiological anatomy  humerus  Describe the applied anatomy humerus |
| 6 | Muscles of the pectoral  girdle | Recognize the role of muscles of pectoral region in stabilizing the pectoral girdle.  List the muscle of pectoral girdle.  Describe & Demonstrate the attachments of muscle of pectoral girdle, nerve supply and actions.    Describe the structural organization of the clavi-pectoral fascia.  Identify the triangle of auscultation.  Describe the nerves and blood vessels of this region |
| 7 | Muscles of the shoulder  region | Recognize the extent of shoulder region.  Describe the muscle of shoulder region.  List the muscles of shoulder region.  State the detailed structures of each muscle with respect to Origin, Insertion, Nerve supply and Action of muscles with any characteristic features. |
| 8 | The shoulder joint & its  movements | Classify the type of shoulder joint.  Describe the structure of shoulder joint.  Name the muscles acting on the joint/rotator cuff muscles.  Explain the range of mobility.  Describe the movements of shoulder joint.  Explain the clinical anatomy of the  joint |
| 9 | Brachial plexus | Mention the formation of brachial plexus (roots, trunk, division, and cords).  Describe the relation of brachial plexus also in connection to clavicle (Supra, retro, infra clavicular parts).  State the branches arising the different cords.  Draw the brachial plexus.  Describe the clinical correlates of the brachial plexus.  Erb duchane palsy  Klumpke palsy  Saturday night palsy |
| 10 | Nerves of upper limb | Describe the course and branches of nerves of upper limbs.  Axillary nerve  Musculocutaneous nerve  Radial Nerve  Ulnar Nerve  Median Nerve  Explain the injuries associated with these nerves.  Identify the causes and motor and sensory loss associated with nerve injuries of upper limb.  Apply knowledge of gross anatomy to identify the deformities associated with these nerves. |
|  | Axilla | Describe the position, shape of axilla.  Describe the boundaries and content of axilla  Describe the boundaries and muscle forming the boundaries of axilla.  Describe the formation, course and relations of axillary vessels.  Describe arrangement and groups axillary lymph nod |
| 11 | Arm | Describe the compartments of arm and how they are formed.  Identify and explain the muscles and their actions found in the arm.  Describe the nerve supply of arm.  Describe the course of the nerves  Identify the branches of the nerves  Relate & integrate with the clinical  correlations  Describe cutaneous supply of arm. |
| 12 | Brachial vessels | Describe the extension, relation and branches of the Brachial artery.  Describe the course of the Basilic and cephalic veins  Describe and explain the formation and purpose of the scapular anastomosis. |
| 13 | Elbow joint | Identify the type of the joint.  State and Identify the muscles acting on the elbow joint.  Describe the neurovascular supply of the joint.  Describe the carrying angle and applied aspect of the joint.  Describe the anastomosis and collateral circulation.  Describe formation of anastomosis  around elbow joint |
| 14 | Osteology of ulna | Recognize the bone.  Determine the side of bone.  Identify the features of bone.  Identify the muscles attached to bone.  Describe the common fractures of the bone.  Describe and Identify the salient features of the ulna  Identify the attachments to ulna  Describe the surface anatomy ulna and the radiological anatomy ulna  Describe the applied anatomy ulna |
| 15 | Superficial veins, lymphatic’s  and lymph nodes of upper  limb | Describe the normal anatomy of veins of upper limb.  Differentiate between superficial and deep veins.  Describe the features of individual superficial veins of upper limb.  Correlate the applied anatomy with the gross anatomy of superficial  Veins of upper limb.  Describe the structure of a lymph node.  Identify the groups of lymph nodes.  Describe groups and area of drainage of each group of lymph nodes.  Describe the commencement, course and termination of superficial lymphatic vessels.  Describe the clinical conditions related to lymphatic channels of upper |
| 16 | Cubital fossa | Describe the boundaries, the contents and the relationship among structures of Cubital fossa.  Demonstrate the surface anatomy of the Cubital fossa.  Explain the clinical importance of the Cubital fossa. |
| 17 | Anterior compartment of  forearm | List the muscles of forearm.  State the nerve supply of these muscles.  Explain actions of the muscles of anterior compartment of forearm.  Describe attachment and functions of flexor retinaculum  Identify/Describe muscles of the anterior compartment of the arm (origin, insertion, nerve supply, blood supply, and action) |
| 18 | Posterior compartment of  forearm | Explain the organization of muscles of posterior compartment of forearm  Identify/Describe muscles of the posterior compartment of the arm (origin, insertion, nerve supply, blood supply, and action)  State the nerve supply of these muscles.  Explain the actions of the muscles of posterior compartment of forearm.  Describe the structural organization of the Extensor Retinaculum |
| 19 | Blood vessels & nerves of  the forearm | Describe the different vessels & nerves in forearm.  Describe the location, destination, course & relations of radial and ulnar arteries & their branches in forearm.  Describe the deep veins of forearm and their tributaries.  Describe the location, destination, course & relations of ulnar, radial and median nerves & their branch. |
| 20 | Radio-ulnar joint | Recognize the details of Radio-ulnar joint.  Describe and explain the movements occurring on Radio-ulnar joint.  Name the muscles acting in pronation and supination.  Describe the nerve supply and blood supply of Radio-ulnar joint.  Describe clinical problems related to Radio-ulnar joints. |
| 21 | Surface anatomy of upper  limb | Demonstrate the surface markings for various arteries of upper limb |
| **Embryology** | | |
| 22 | Somitogenesis | Define the process of gastrulation.  Describe the development of mesoderm.  Describe the process of somitogenesis.  Describe the formation of cartilage |
| 23 | Development of bone ,  cartilage and joints | Describe histogenesis of Bone  Describe the Intramembranous Ossification  Describe the Endochondral Ossification  Describe the Ossification of limb bones  Describe the development of joints  Describe the development of cartilage  Describe developmental events of fibrous joints  Describe developmental events of  cartilaginous joint  Describe developmental events of synovial joints  Describe important congenital correlates |
| 24 | Development of upper limb | Describe the early stages of upper limb development  Describe the development of upper limb buds  Describe the final stages of upper limb development  Describe and explain the anomalies of the upper limb |
| 25 | Development of muscles | Describe the development of skeletal muscle.  Describe the development of Myotomes and derivatives of epaxial divisions of myotomes and derivatives of hypaxial divisions of myotomes |
| **HISTOLOGY** | | |
| 26 | Bone histology | Define and identify compact and spongy bone  Describe and identify bone matrix (organic and inorganic component)  Describe and identify cells of boney tissue i.e. (osteoprogenitor, osteoblasts, osteoclast, and osteocytes)  Describe and identify periosteum and  endosteum  Describe and identify the microscopic structure of bone i.e. (primary  bone, secondary bone and haversian system)  Describe Functions of various bone cells  Describe important Functions and its role in calcium metabolism |
| 27 | Classification & histology of  cartilage | Describe the General properties of cartilage  Describe the Different types of cartilage  Describe the Hyaline, Elastic and Fibrocartilage  Explain the growth of cartilage |
| 28 | Histology of cartilage | Identify types of cartilages on microscopy, including distinctive features of each.  Describe the structural basis.  Classify and distinguish three types of cartilages  Describe the microscopic structure of hyaline cartilage  Describe the microscopic structure of Elastic cartilage  Describe the microscopic structure of fibrous cartilage  Describe important functional correlates of three types of cartilages |
| 29 | Classification & histology  of bone | Recognize bone and its functions and ncomposition.  Differentiate between woven bone and lamellar bone.  Differentiate between compact bone and spongy bone.  Describe the applied aspect of bone |
| 30 | Histology of bone | Identify three types of bone on microscopy, including distinctive features of each.  Describe the structural basis of classification. |
| 31 | Histology of muscles | Identify three types of muscles on microscopy, including distinctive features of each muscle fiber.  Describe the structural basis of muscle striations.  Recognize the structural elements that produces muscle contraction and brings the movement of a body part.  Recognize the function and organization of the connective tissue in muscle.  Classify and distinguish three types of muscles  Describe the microscopic structure of  skeletal muscle  Describe important functional correlates of skeletal, smooth  Describe the microscopic structure of  smooth muscle  Identify/Describe the microscopic structure of cardiac muscle fiber  Describe important functional correlates of cardiac muscle fiber |
| **Physiology** | | |
| 32 | Skeletal vs smooth muscle | Differentiate between skeletal muscle and smooth muscle. |
| 33 | Mechanism of muscle  contraction | Describe the general mechanism of muscle contraction.  Describe the molecular mechanism of muscle contraction |
| 34 | Energetics of muscle  contraction | Describe the energetics of muscle contraction. |
| 35 | Terms related to MSK | Describe the following terms related to MSK  Excitable tissue  Stimulus  Threshold  Depolarization  Hyperpolarization  Presynaptic potential  Post synaptic potential  Goldmann Equation  Nernst Equation |
| **Biochemistry** | | |
| 36 | Connective tissues | Explain in detail the biochemistry of connective tissues. |
| 37 | Glycosaminoglycan | Discus the role of glycosaminoglycan (GAG) in the formation of the connective tissues, cartilage, skin, blood vessels and tendons |
| 38 | Collagen | Describe the chemical structures of cellular matrix of collagen and elastin |
| **Biochemistry Practical** | | |
| 39 | Detection of Sulphur containing amino acids | Define Sulphur containing amino acids their structure and types  Lead Sulphate test |

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| **Musculoskeletal MODULE** |
| **THEME –II** |
| **Weak grip and painful hand** |

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| **SNO.** | **Topic** | **Learning Outcomes** |
| **ANATOMY** | | |
| 1 | Osteology of radius & hand | Recognize the bones of forearm & hand  Determine side of bones.  Identify the features of bones.  Identify the muscles attached to bones.  Describe the ossification of bones  Explain the clinical significance of bones.  Describe the common fractures of the bone.  Describe and Identify the salient features of the radius  Identify the attachments to radius  Describe the surface anatomy radius and the radiological anatomy radius  Describe the applied anatomy radius  Describe and Identify the salient features bones of hand  Identify the attachments to bones of hand  Describe the surface anatomy main bones of hand and the radiological anatomy of main bones   * Describe the applied anatomy main bones of hand including carpal tunnel and fractures |
| 2 | Muscles of hand | Recall the structure and functions of palmar aponeurosis.  Describe the attachments, nerve supply & actions of muscles of hand.  Describe the thenar Muscles.  Correlate the movements of thumb with hand anatomy.  Identify the anatomical snuffbox.  Relate applied with gross anatomy of few structures of hand  Enumerate, describe and identify the small muscles of the hand  Describe Surface anatomy of important muscles of hand  Identify structures on transverse MRI hand taken at various levels  Describe relevant clinical anatomy of important muscles  Identify/Describe joints of the hand and fingers (intercarpal joints, carpometacarpal and intermetacarpal joints, carpometacarpal joint of the thumb, and metacarpophalangeal joints  Describe surface , radiological and clinical anatomy of important joints |
| 3 | Vessels & nerves of the  hand | Identify different vessels in hand.  Describe the location, destination course relations of radial and ulnar arteries in hand.  State the branches of radial and ulnar arteries in hand.  Describe the formation of superficial and deep palmar arch, veins of hand and their tributaries.  Describe the nervous supply of the hand. |
| 4 | Wrist joint | Recognize the details of wrist joints.  Describe and explain the movements occurring on wrist joints.  Name the muscles acting in pronation and supination.  Describe the nerve supply and blood supply of wrist joints.  Describe wrist joint, nerve supply and blood supply.  Describe clinical problems related to Wrist joints. |
| 5 | Spaces of the palm | Identify the different spaces of the hand on both palmar and dorsal aspects.  Describe the clinical importance of these spaces |
| **Physiology** | | |
| 10 | Describe the important  terms | Describe the following  Motor unit  Summation  Tetanization  Staircase effect  Skeletal muscle tone  Muscle fatigue  Agonist  Antagonists  Coactivation of agonist and antagonis |
| 11 | Excitation contraction  coupling in skeletal  muscles | Discuss the process of excitation contraction coupling in skeletal muscles.  Explain Transverse tubule-sarcoplasmic reticulum system  Describe Release of Calcium ions by sarcoplasmic reticulum  Explain Role of Calcium pump  Describe Excitatory pulse of Ca+ |
| 12 | Muscle action potential | Describe the muscle action potential. |
| 13 | Excitation contraction coupling | Describe excitation contraction coupling of skeletal muscle. |
| **BIOCHEMISTRY** | | |
| 14 | Role of calcium and  phosphorus | Explain the role of calcium and phosphorous in formation of cellular matrix and bone |
| 15 | Vitamins | Vitamins and their role  Define vitamins  Classify vitamins  Differentiate between Fats and water soluble vitamins  Describe role of Vitamin A  Explain the role of Vitamin D  Describe the role of Vitamin E  Describe the role of water soluble vitamins |
| 16 | Introduction to minerals | Define Minerals,  Define major and minor minerals  Describe classification of minerals |
| **Biochemistry Practical’s** | | |
| 17 | Detection of Cyclic amino  Acids | Define Cyclic amino Acids  Understand their structure and types  Xanthoproteic Test |

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| **Musculoskeletal MODULE** |
| **THEME –III** |
| **Pain lower limb/limping** |

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| **SNO** | **Topic** | | **Learning Outcome** |
| **1** | **Introduction to lower limb** | | **Recognize different parts of lower limb.**  **Describe regions of lower limb.**  **List the bones of lower limb.**  **Describe the vessels and nerves of lower limb.**  **Identify different land marks in different regions of lower limb** |
| **2** | **Hip bone** | | **Identify the different parts of the bone.**  **Describe side determination.**  **Describe muscle attachments.**  **Describe ligamentous attachments.**  **Describe the different bones articulating with the hip bone**  **Identify the different parts of the bone.**  **Describe the common fractures of the bone.**  **Identify and describe the salient features of the bones of hip bone**  **Identify the attachments of hip bone**  **Describe the surface anatomy of hip bone**  **Describe the radiological anatomy of hip bone**  **Describe the applied anatomy of hip bone.** |
| **3** | **The hip joint and**  **movements** | | **Describe the characteristics features of synovial joint**  **Describe the Articular surfaces of hip**  **joint**  **Identify the capsule of hip joint**  **Describe the synovial membrane,**  **cavity & fluid of hip joint**  **Enumerate the ligaments of hip joint**  **& describe their attachments**  **Describe the movements possible at**  **hip joint**  **Describe the clinical correlates of the**  **hip joint**  **Describe surface and radiological anatomy (X-rays and MRI) and clinical of hip joints** |
| **4** | **Gluteal region** | | **Describe the boundaries of gluteal**  **region**  **Describe bones and ligaments of gluteal region**  **Describe the different structures entering and leaving gluteal region**  **Describe muscles of the gluteal region.**  **Describe Vessels of the gluteal region.**  **Describe nerves of the gluteal region.**  **Describe about certain clinical correlates regarding gluteal region**  **Describe Surface anatomy of important muscles**  **Identify structures on transverse MRI of gluteal region taken at various levels**  **Describe clinical anatomy of important muscles** |
| **5** | **Femur** | | **Identify different parts of the femur**  **Determine the side of the bone**  **Identify the surfaces and borders of**  **the bone**  **Describe the common fractures of the bone.**  **Describe the attachments of the different muscles and ligaments on the bone**  **Describe the arterial supply of the bone**  **Relate to the general idea about fractures of femur and other clinical conditions Identify and describe the salient features of the bones of hip bone**  **Describe the surface anatomy of femur**  **Describe the radiological anatomy of**  **femur**  **Describe the applied anatomy of femur** |
| **6** | Nerves of lower limb and their injuries | | Identify the names of nerves and their main branches innervating lower limb  Identify the nerves closely related to  a bone or other structure of lower limb  Recognize the main nerves commonly vulnerable to injury  Identify the main area and loss of  function if particular nerve is injured  Define and understand terms neuritis, anesthesia, par aesthesia, paralysis,  neuralgia, sciatica |
| 7 | Superficial vessels and lymphatic’s of lower limb | | Enumerate and describe the superficial arteries of lower limb  Name and Describe superficial veins of lower limb   * List and Describe the superficial lymphatic vessels and lymph nodes of lower limb |
| 8 | Deep fascia of thigh,  iliotibialtract and superficial  vessels | | Describe the arrangement of deep  fascia in thigh  Describe how the iliotibial tract participates in walking and running  Describe the location of saphenous opening and its relations  Describe the great saphenous vein.   * Describe clinical correlates of saphenous vein |
| 9 | Muscles of the anterior fascial compartment of  thigh | | Describe the muscles of anterior compartment of thigh.  Describe the nerve supply of anterior  Compartment.   * Describe the action of these muscles |
| 10 | Nerves and vessels of  anterior compartment of  thigh | | Describe the nerve supply of the anterior compartment of thigh.  Describe the blood supply and the venous drainage of anterior compartment of thigh   * Describe the action of these muscles |
| 11 | The medial compartment  of thigh | | Describe the muscles of medial compartment of the thigh.  Describe the nerve supply of these muscles.  Describe the actions of the muscles of medial compartment of thigh   * Describe the vessels of medial compartment of the thigh |
| 12 | Posterior compartment of  thigh | | Describe the muscles of posterior  compartment of thigh  Describe the arterial supply of posterior compartment of thigh  Discuss the trochanteric and cruciate  anastomosis at the back of thigh  Describe the venous drainage of this  region  Describe the nerve supply of posterior compartment of thigh and   * Relate to the clinical conditions effecting the region |
| 13 | Popliteal fossa | | Describe the boundaries of popliteal fossa.  Describe the contents of the popliteal fossa.   * Describe some clinical correlates regarding popliteal fossa |
| 14 | Femoral triangle and its contents | | Describe the boundaries of femoral  triangle  List the contents of femoral triangle  Describe the femoral sheath & canal  Describe the clinical correlates of the Femoral triangle.   * Describe the location, boundaries and contents of adductor canal |
| 15 | Tibia bone | | Describe the division of tibia bone in  3 parts  Identify the surfaces and borders of  tibia  Describe the attachments of muscles  on the tibia bone  Describe the ossification of tibia and  its primary and secondary ossification centers  Describe the common fractures of the bone.  Identify and describe the salient features of the bone of leg  Identify the attachments to the bone of the leg  Describe the surface anatomy of leg  Describe the radiological anatomy of  leg   * Describe the applied anatomy of leg |
| 16 | Fibula & bones of foot | | Determine the side of bone.  Describe the bony features along with its different attachments on the fibula.  Name and describe the tarsal bones  and their arrangement  Name and describe the metatarsal bones and phalangeal bones.  Describe the common fractures of the bone.  Describe the muscles of the sole of  the foot (origin, insertion, nerve supply, blood supply, and action)  Describe the muscles of the dorsum of the foot (origin, insertion, nerve supply, blood supply, and action)  Describe Surface anatomy of important muscles  Identify structures on transverse MRI  of foot taken at various levels  Describe clinical anatomy of important muscles |
| 17 | Anterior and lateral  compartment of leg | | identify the boundaries of the compartments of leg  State the muscles of anterior and lateral compartment of leg  Describe the vessels of anterior and  lateral compartment of leg  Describe the nerves of lateral and anterior compartment of leg   * Describe action of these muscles |
| 18 | Posterior compartment of  leg | | Explain the muscles of posterior  Compartment of leg.  Describe nerve supply of these muscles.  Explain the actions of the muscles of   * posterior compartment of leg |
| 19 | Knee joint | | Describe the type of knee joint  Describe the articular surfaces of this  joint  Describe the articular capsule  Describe the synovial membrane and  the synovial cavity  Enumerate the ligaments of knee  joint  Describe the bursa around the knee  joint  Describe the blood and nerve supply  of the knee joint  Describe the mechanism of locking and unlocking of knee joint.  Describe surface and radiological  anatomy (Xrays and MRI) and clinical   * of knee joints |
| 20 | Surface anatomy of lower limb | | Demonstrate the surface anatomy of arteries of lower limb.  Demonstrate the surface anatomy of superficial & deep veins lower limb.  Demonstrate the surface anatomy of nerves of lower limb |
| **Embryology** | | | |
| 21 | Development of lower limb | | Describe the early stages of lower limb development  Describe the development of lower limb buds  Describe the final stages of lower limb development  Describe and explain the anomalies of the lower limb |
| Biochemistry | | | |
| 22 | Sodium, potassium and  chlorine in biology | | Discuss RDA, serum Levels  Enlist sources of Sodium, Potassium and chlorine,  Describe functions  Discuss absorption excretion,  Describe disorders related to increase and decrease in amount of  Sodium, Potassium and chlorine |
| **Biochemistry Practical’s** | | | |
| 23 | Salt Saturation Test | Perform Salt Saturation Test | |

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| **Musculoskeletal MODULE** |
| **THEME –IV** |
| **Bony arches and fracture of foot** |

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| **SN0** | **Topic** | **Learning Outcome** |
| **ANATOMY** | | |
| 1 | Muscles and neurovascular  supply of the foot | Describe the dorsal muscles of foot.  Describe the origin and insertion of planter muscles of foot.  Describe their nerve supply and actions.  Describe vascular and nervous supply  of sole and dorsum of foot  Describe their course through foot  Describe relationships  Identify and describe the salient features of the bone of foot  Identify the attachments to the bone  of the foot  Describe the surface anatomy of foot  Describe the radiological anatomy of  foot  Describe the applied anatomy of foot |
| 2 | Arches of foot | Describe the arches of foot  Describe the factors responsible for their maintenance of the arches of the foot  Recognize the injury when it occurs and be able to evaluate plantar fasciitis.  Describe about counselling regarding  the rehabilitation for plantar fasciitis |
| **Biochemistry** | | |
| 3 | Role of vitamin c & D | Describe the role of Vitamin C and Vitamin D in the formation of connective tissues and bones. |
| 4 | Iodine in Biology | Discuss RDA, serum Levels Iodine  Enlist sources of  Describe functions  Discuss absorption excretion,  Describe disorders related to increase and decrease in amount of Iodine |
| **PATHOLOGY** | | |
| 5 | introduction to Bone pathology | Define and differentiate osteopenia, osteoporosis, osteomalacia  Define osteomyelitis  Enlist various forms of arthriti |
| Forensic Medicine | | |
| 6 | Injury | Define injury on medico legal basis.  Classify injury.  Define mechanical injury  Classify mechanical injury  Describe mechanisms of injury.  Interpret the nature (manner) of injury. |
| 7 | Wound | Define wound.  Define hurt.  Identify factors affecting appearance of wound |

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| **Musculoskeletal MODULE** |
| **THEME –V** |
| **Backache** |

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| **SN0** | **Topic** | **Learning Outcome** |
| **ANATOMY** | | |
| 1 | Typical spinal nerve | Define a spinal nerve.  Recognize the spinal nerve as a part of PNS.  Enumerate the spinal nerves in different regions  Identify their location and site of emergence.  Identify various components of a typical spinal nerve.  Recall the fate of rami.  Associate the rami communicans with typical spinal nerve  Recall the distribution of gray rami |
| 2 | Vertebral column | Describe the muscles of back (origin,  insertion, nerve supply, blood supply,  and action)  Describe Surface anatomy of important muscles  Identify structures on CT/MRI of vertebral column taken at various levels  Describe clinical anatomy of important muscles |
| 3 | Lumbo sacral plexus,  cutaneous nerves | Describe the formation of lumbar Plexus.  List the branches of lumber plexus with their root values.  Describe relation of the nerves with Psoas major muscle.  List the structures supplied by lumbar plexus.  Describe the formation of sacral plexus.  Describe the composition and relations of sacral plexus.  List the branches of this plexus |
| **Biochemistry** | | |
| 4 | Phosphorus and Magnesium  in biology | Discuss RDA, serum Levels  Enlist sources of Phosphorus and Magnesium  Describe functions  Discuss absorption excretion,  Describe disorders related to increase and decrease in amount of Phosphorus and Magnesium |
| 5 | Sulphur in biology | Discuss RDA, serum Levels  Enlist sources of Sulphur  Describe functions  Discuss absorption excretion,  Describe disorders related to increase and decrease in amount of sulphur |
| 6 | Copper and cobalt in  biology | Discuss RDA, serum Levels Copper and cobalt  Enlist sources of  Describe functions  Discuss absorption excretion,  Describe disorders related to increase and decrease in amount of Copper and cobalt |
| Community Medicine | | |
| 7 | Back pain | Explain the causes of low back  pain  z Describe the prevention of low  back pain  z Describe the causes & prevention  of msd related to child labor |

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| **Musculoskeletal MODULE** |
| **THEME –VI** |
| **Muscle weakness and fatigue** |

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| **SN0** | **Topic** | **Learning Outcome** |
| **Physiology** | | |
| 1 | Physiologic anatomy of the  skeletal muscle fiber | Explain the physiologic anatomy of the skeletal muscle fiber.  Skeletal muscle fiber  Sarcolemma  Myofibrils  I band  A band  Z disk  M line  Sarcomere  Titin microfilament molecules  Sarcoplasm  Sarcoplasmic reticulum |
| 2 | Characteristics of whole  muscle contraction | Identify the characteristics of whole muscle contraction.  Compare isotonic and isometric exercises.  Compare and contrast slow and fast muscle fibers.  Describe the mechanics of skeletal muscle contraction.  Describe muscle tone and muscle fatigue.  Describe lever systems of the body and positioning of a body part.  Describe remodeling of muscle to match function. |
| 3 | Neuromuscular junction | Describe the transmission of impulses from nerve endings to skeletal muscle fibers.  Explain the physiologic anatomy of the neuromuscular junction |
| 4 | Neuromuscular  Transmission | Explain the mechanism of transmission of impulses from nerve endings to muscle fibers  Explain Formation and Secretion of acetylcholine at nerve terminals  Describe Action of acetylcholine at postsynaptic membrane  Describe Degradation/Destruction of released acetylcholine  Describe End plate potential  Describe Fatigue of junction |
| 5 | Neuromuscular drugs | Describe the physiologic basis of the drugs used in the neuromuscular disorders (Drugs that enhance or block the transmission  at neuromuscular junction)  Enlist the excitatory and inhibitory  transmitter substances secreted at the smooth muscle neuromuscular junction  Drugs that stimulate the muscle fiber by acetylcholine like action  Drugs that stimulate neuromuscular junction by inactivating acetylcholinesterase  Drugs that block transmission at  the neuromuscular junction  Enlist the excitatory and inhibitory transmitter substances secreted at the smooth muscle neuromuscular junction |
| 6 | Myasthenia gravis | Describe the pathophysiology of  myasthenia gravis |
| 7 | Smooth muscle | Classify smooth muscles  Describe the physiologic anatomy of the smooth muscle neuromuscular junction |
| 8 | Skeletal Muscle fiber | Discuss in detail types of muscles and arrangement of skeletal muscle fibers. |
| 9 | Contraction of smooth muscle | Describe the contractile mechanisms in smooth muscles  Describe excitation and contraction of smooth muscle.  Identify the types of smooth muscles.  Describe the chemical and physical basis for smooth muscle contraction.  Compare smooth and skeletal muscle contraction.  Chemical basis of smooth muscle  contraction  Physical basis of smooth muscle contraction  Explain how the calcium ions regulate the contraction.  Regulation of smooth muscle contraction by the calcium ions  Enlist the excitatory and inhibitory transmitter substances secreted at the smooth muscle neuromuscular junction |
| 10 | Nervous and hormonal  control of smooth muscle  contraction | Describe the nervous and hormonal control of smooth muscle  contraction |
| 11 | Resting Membrane  Potential | Enumerate the intracellular and extracellular concentrations of sodium, potassium, chloride and calcium ions in a resting/normal cell.  Describe the characteristics of major membrane ion channels and their role in the membrane potential  Describe the resting membrane  potential in a cell/nerve fiber |
| 12 | Muscle Remodeling | Describe following  Muscle hypertrophy  Muscle atrophy  Muscle hyperplasia  Rigor mortis  Muscle dystrophy  Recovery of muscle contraction in poliomyelitis |
| 13 | Membrane potentials and action potentials in smooth muscles | Describe the membrane potentials and action potentials in smooth muscles.  Describe Spike potentials  Describe Action potentials with plateaus  Describe Role of calcium channels in generating the smooth muscle action potential  Describe Slow wave potentials  Describe Excitation of visceral smooth muscle by muscle stretch  Describe Depolarization of multi-unit smooth muscle without action potentials |
| 14 | Control of smooth muscle  contraction | Describe the mechanism nervous, hormonal and local control of smooth muscle contraction. |
| 15 | Smooth muscle and skeletal  muscle contraction | Compare the smooth muscle  contraction and skeletal muscle contraction |
| 16 | Skeletal muscle contraction | Describe the three sources of energy for muscle contraction  Compare isometric and isotonic contractions  Compare characteristics of fast and slow muscle fibers.  Sources of energy for muscle contraction  Compare isometric and isotonic contractions  Compare characteristics of fast and slow muscle fibers |
| Biochemistry | | |
| 17 | Hormonal regulation | Explain the hormonal regulation of  calcium and phosphorous to maintain  musculoskeletal system |
| 18 | Sodium, potassium and chlorine in biology | Discuss RDA, serum Levels  Enlist sources of Sodium, Potassium and chlorine,  Describe functions  Discuss absorption excretion,  Describe disorders related to increase and decrease in amount of Sodium, Potassium and chlorine |
| 19 | Calcium in Biology | Discuss RDA, serum Levels  Enlist sources of Calcium  Describe functions  Discuss absorption excretion,  Describe disorders related to increase and decrease in amount of Calcium |
| 20 | Fluoride and Lithium in biology | Discuss RDA, serum Levels Fluoride  Enlist sources of  Describe functions  Discuss absorption excretion,  Describe disorders related to increase and decrease in amount of Fluoride  Brief description on role of lithium in biology |
| 21 | Molybdenum, Selenium, Zinc, chromium,manganese,silicon, vanadium in biology | Enlist sources of  Describe functions  Discuss absorption excretion,  Describe disorders related to increase and decrease of the said elements |
| 22 | Toxic element Aluminum , Arsenic,  Antimony, Boron, Bromine, Cadmium, Cesium, Germanium, Lead, Mercury, Silver, Strontium | Discuss different effects of toxic  elements |
| Pharmacology | | |
| 23 | Drug used in MSK | Define & classify NSAIDS  Classify neuromuscular blocking agents.  Enlist more most comomly used  analgesia aspirin , iburrofen , diclofenac, paracetamol, COX-2 Salicox  Classify corticosteroids |
| Community Medicine | | |
| 24 | MSK diseases | Explain the risk factors for different types of msd’s  Describe the preventive measures for different types of risk factors for msd’s |
| 25 | Epidemiology and  prevention of MSD | Describe work related msd’s  Identify risk factors of msd at workplace.  Describe prevention of exposure to risk factors related to workplace.  Describe the preventive strategies and safety guidelines in order to reduce the incidence of msds related to work place.  Describe the burden /epidemiology of work related msd’s  Describe application of ergonomics in the prevention of work related msd’s |

**Respiration Module**

**First Professional Year MBBS**

**4 Weeks**

KMU - Central Curriculum Committee

**LIST OF TEAM MEMBERS**

|  |  |
| --- | --- |
| Prof.Dr.Fouzia Gul  Dean HPER | Khyber Medical University |
| Dr.Usman Mahboob  Assistant Professor | Institute of Health Professions Education & Research, KMU |
| Dr.Farooq Ahmed  Director Medical Education | Khyber Medical College |
| Dr.Naheed Mahsood  Assistant Professor | Khyber Girls Medical College |
| Dr.Iqbal Wahid  Assistant Professor  Dr.Danish Ali  Assistant Professor | Northwest School of Medicine |

**Themes of the module**

1. **Chest wall injury- 1 week**
2. **Cough and Hemoptysis-1 week**
3. **Breathlessness- 2 weeks**

**General Learning Outcomes**

By the end of this module the students will be able to;

1. Describe the anatomy and abnormalities of thoracic cage
2. Describe the development and gross anatomy of the diaphragm
3. Describe the contents of mediastinum and their relations
4. Describe the anatomy of pleura and its reflections
5. Describe the gross and microscopic structure, development, nerve supply and blood supply of trachea, bronchi and lungs
6. Describe the epithelia and connective tissues lining the respiratory passageways.
7. Describe pulmonary ventilation
8. Discuss the mechanisms of gaseous exchange between alveoli, and blood and blood and tissues
9. Elaborate the transport of gases in the blood
10. Describe the mechanisms of regulation of respiration
11. Define hypoxia, and cyanosis
12. Describe the effect of aging on respiratory system
13. Describe glysolysis
14. Describe the processes of kreb`s cycle
15. Describe the mechanisms of biologic oxidation
16. Describe the mechanisms of energy production in the body
17. Describe the mechanisms of O2 and CO2 transport in the blood
18. Classify anti-asthmatic and anti-tuberculous drugs
19. Describe the types and signs of asphyxia
20. Enlist the causes and signs of pneumonias, bronchial asthma, tuberculosis, Acute Respiratory Distress Syndrome (ARDS), and pulmonary edema
21. Describe the parameters of Pulmonary Function Tests (PFTs)

**Specific learning objectives (theme based)**

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| **Theme-1: Chest wall injuries** | | | |
| **Subject** | **Topic** | **S. No** | **Learning objectives** |
| Anatomy | Gross anatomy of thorax | 1 | Describe main features of thoracic wall |
|  |  | 2 | Describe the location and shape of the sternum |
|  |  | 3 | Describe the parts of the sternum |
|  |  | 4 | Describe the articulations and muscle attachments |
|  |  | 5 | Describe the gross features of the thoracic vertebrae a. Vertebral body  b. Intervertebral disc  c. Laminae d. Pedicles e. Intervertebral foramina f. Processes  g. Ligaments |
|  |  | 6 | Differentiate between typical and atypical ribs. |
|  |  | 7 | Describe different joints of thorax |
|  |  | 8 | Discuss Intercostal muscles |
|  |  | 9 | Discuss the contents of intercostal spaces |
|  |  | 10 | Describe the origin of intercostal arteries |
|  |  | 11 | Describe the origin, course and distribution of intercostal nerves |
|  |  | 12 | Discuss branches and course of internal thoracic artery |
|  | Abnormalities of thoracic wall | 13 | Describe thoracic wall abnormalities and its clinical correlation |
|  | Diaphragm | 14 | Describe the origin and insertion of the diaphragm |
|  |  | 15 | Describe the openings of the diaphragm |
|  |  | 16 | Describe the nerve supply of diaphragm and its clinical significance |
|  | Mediastinum | 17 | Describe the contents of the superior mediastinum |
|  |  | 18 | Describe the contents of the Anterior & Posterior Mediastinum |
|  |  | 19 | Describe the relations of different contents in mediastinum |
|  |  | 20 | Identify various anatomical landmarks on chest X-Rays, CT and MRI |
| Embryology | Development of Diaphragm | 21 | Describe development of diaphragm |
|  |  | 22 | Describe diaphragmatic hernias and clinical significance |
|  | Development of Ribs | 23 | Describe the development of ribs from costal elements of primitive vertebrae |
| Physiology | Mechanics of Respiration | 24 | Describe the mechanics of respiration |
|  |  | 25 | Describe the pressures that cause the movements of the air in and out of the lungs |
|  | Lung compliance | 26 | Define compliance of the lung and elastic recoil |
|  |  | 27 | Identify two common clinical conditions in which lung compliance is higher or lower than normal. |
|  | Lung volumes and capacities | 28 | Describe changes in the lung volume, alveolar pressure, pleural pressure, and trans-pulmonary pressure during normal breathing |
|  |  | 29 | Draw a normal pulmonary pressure-volume (compliance) curve (starting from residual volume to total lung capacity and back to residual volume), labeling the inflation and deflation limbs. Explain the cause and significance of the hysteresis in the curves. |
|  |  | 30 | Draw the pressure-volume (compliance) curves for the lungs, chest wall, and respiratory system on the same set of axes. Show and explain the significance of the resting positions for each of these three structures. |
| Surgery |  | 31 | Describe pneumothorax |
|  |  | 32 | Define Hydropneumothorax |
| **Theme-2: Cough and Hemoptysis** | | | |
| Anatomy | Introduction | 33 | Describe the major components of the (upper and lower) respiratory system and describe their functions |
|  | Trachea, bronchi and lungs | 34 | Describe trachea and bronchi with relations plus subdivisions |
|  |  | 35 | Describe the neurovascular supply of trachea and bronchi |
|  |  | 36 | Describe the surfaces anatomy of trachea and bronchi |
|  |  | 37 | Describe the lungs with their lobes and fissures, relations with surroundings and surfaces and compare between right and left lungs. |
|  |  | 38 | Describe Broncho-pulmonary segments and their clinical importance |
|  |  | 39 | Describe innervations, blood supply and lymphatic drainage of the lungs. |
| Embryology | Development of Respiratory system | 40 | Describe development of trachea, bronchial tree, pleura, lungs |
|  |  | 41 | Recognize the cephalo-caudal and transverse folding of embryonic disc |
|  |  | 42 | Describe the extent of intra embryonic coelom after folding and its divisions into three serous cavities |
|  |  | 43 | State the derivatives of visceral and parietal layers of mesoderm |
|  |  | 44 | State the pericardio-peritoneal canals and their final fate |
|  |  | 45 | Discuss the formation of Lung Bud |
| Histology | Respiratory epithelium and connective tissues | 46 | Classify the types of epithelia lining the various parts of respiratory system |
|  |  | 47 | Differentiate between the histological differences among various parts of respiratory system |
|  |  | 48 | Describe the structure of trachea and its layer |
|  |  | 49 | Discuss the microscopic picture of respiratory bronchiole, alveolar ducts, alveolar sacs and alveoli. |
|  |  | 50 | Describe the different types of cells found in alveoli |
| Physiology | Functions of respiratory passageways | 51 | Describe the respiratory and non-respiratory functions of the respiratory passageways |
|  |  | 52 | Identify the mechanism by which particles are cleared from the airways. |
| Pharmacology | Anti-Aashtmatic drugs | 53 | Enlist Anti-asthmatic drugs |
|  | Anti-Tuberculous drugs | 54 | Classify Anti-tuberculous drugs |
| Pathology | Pneumonias | 55 | Define pneumonia and enlist the causative pathogens of pneumonia |
|  | Pulmonary Tuberculosis | 56 | Define primary and secondary Tuberculosis and state its etiology |
|  | Bronchial Asthma | 57 | Describe the etiology, pathogenesis and clinical features of asthma |
|  | Pulmonary Edema | 58 | Define pulmonary edema and classify it according to underlying causes |
| Community Medicine | Prevention of Respiratory disorders | 59 | Discuss preventive strategies of different problems related to respiratory system |
|  |  | 60 | Discuss the relationship of smoking with lung Diseases |
|  |  | 61 | Describe preventive strategies for smoking |
| **Theme-3: Breathlessness** | | | |
| Anatomy | Mechanics of respiration | 62 | Describe briefly mechanics of respiration |
|  | Pleura | 63 | Describe the gross features of pleura |
|  |  | 64 | Describe the pleural cavity and the pleural reflections |
|  |  | 65 | Describe the surface anatomy related to pleural reflections |
| Embryology |  | 66 | Describe the development of pleural cavity |
| Histology |  | 67 | Discuss surfactant, alveolar septum, alveolar pores and alveolar macrophages |
| Physiology | Pulmonary ventilation | 68 | Define respiration |
|  |  | 69 | Compare between the internal and external respiration |
|  |  | 70 | Enlist the steps of external respiration accomplished by the respiratory system and those carried out by the circulatory system |
|  |  | 71 | State the functions of Type I alveolar cells, Type II alveolar cells, and alveolar macrophages |
|  |  | 72 | Describe the forces that keep the alveoli open and those that promote alveolar collapse. |
|  |  | 73 | Define the following terms: anatomic dead space, physiologic dead space, wasted (dead space) ventilation, total minute ventilation and alveolar minute ventilation. |
|  |  | 74 | Compare anatomic and physiologic dead space |
|  |  | 75 | Describe the basic concept of measurement of dead space |
|  |  | 76 | Enlist the factors that changes the dead space |
|  |  | 77 | Define the following terms: hypoventilation, hyperventilation, hypercapnea, eupnea, hypopnea, and hyperpnea. |
|  |  | 78 | Define surface tension, surfactants, atelectasis |
|  |  | 79 | Describe the role of surfactants on the lung compliance. |
|  |  | 80 | Describe the composition of the pulmonary surfactants and its role |
|  |  | 81 | Describe the pathophysiology of respiratory distress syndrome of the newborn |
|  |  | 82 | Discuss the work of breathing |
|  | Pulmonary circulation | 83 | Explain the physiologic anatomy of the pulmonary circulatory system |
|  |  | 84 | Describe the pressures in the pulmonary circulatory system |
|  |  | 85 | Describe blood volume of the lungs |
|  |  | 86 | Describe blood flow through the lungs and its distribution |
|  |  | 87 | Compare the systemic and pulmonary circulations with respect to pressures, resistance to blood flow, and response to hypoxia. |
|  |  | 88 | Describe the regional differences in pulmonary blood flow in an erect position. |
|  |  | 89 | Describe the consequence of hypoxic pulmonary vasoconstriction on the distribution of pulmonary blood flow. |
|  |  | 90 | Describe the pulmonary capillary dynamics |
|  |  | 91 | Describe the development of pulmonary edema |
|  | Gas exchange | 92 | List the normal airway, alveolar, arterial, and mixed venous PO2 and PCO2 values. |
|  |  | 93 | List the normal arterial and mixed venous values for O2 saturation, [HCO3-] |
|  |  | 94 | List the factors that affect diffusive transport of a gas between alveolar gas and pulmonary capillary blood. |
|  |  | 95 | Describe respiratory unit |
|  |  | 96 | Describe the physiologic anatomy of the respiratory membrane and its significance |
|  |  | 97 | Describe the factors that affect the rate of gaseous diffusion through the respiratory membrane |
|  |  | 98 | Describe the diffusing capacity of respiratory membrane for O2 and CO2 at rest and exercise. |
|  |  | 99 | Describe the effect of ventilation/perfusion (V/Q) ratio on alveolar gas concentrations. |
|  |  | 100 | Identify the average V/Q ratio in a normal lung. |
|  |  | 101 | Explain the concept of physiologic shunt and physiologic dead space |
|  |  | 102 | Describe the abnormalities of ventilation perfusion ratio in normal lung and chronic obstructive lung disease. |
|  |  | 103 | Enlist common causes of hypoxemia |
|  | Transport of O2 and CO2 in the blood | 104 | Define oxygen partial pressure (tension), oxygen content, and percent hemoglobin saturation as they pertain to blood. |
|  |  | 105 | Describe Oxyhemoglobin dissociation curve (hemoglobin oxygen equilibrium curve) showing the relationships between oxygen partial pressure, hemoglobin saturation, and blood oxygen content. |
|  |  | 106 | Describe the relative amounts of O2 carried bound to hemoglobin with that carried in the dissolved form. |
|  |  | 107 | State Henry’s Law (the relationship between PO2 and dissolved plasma O2 content) |
|  |  | 108 | Describe how the shape of the oxyhemoglobin dissociation curve influences the uptake and delivery of oxygen. |
|  |  | 109 | Define P50. |
|  |  | 110 | Describe how the oxyhemoglobin dissociation curve is affected by changes in blood temperature, pH, PCO2, and 2,3-DPG. |
|  |  | 111 | Describe how anemia and carbon monoxide poisoning affect the shape of the oxyhemoglobin dissociation curve, PaO2, and SaO2. |
|  |  | 112 | List the forms in which carbon dioxide is carried in the blood. |
|  |  | 113 | Describe the percentage of total CO2 transported as each form. |
|  |  | 114 | Describe the chloride shift and its importance in the transport of CO2 by the blood. |
|  |  | 115 | Describe the enzyme that is essential to normal carbon dioxide transport by the blood and its location. |
|  |  | 116 | Describe the carbon dioxide dissociation curves for oxy- and deoxyhemoglobin. |
|  |  | 117 | Describe the interplay between CO2 and O2 binding on hemoglobin that causes the Haldane effect. |
|  | Regulation of Respiration | 118 | Describe the regions in the central nervous system that play important roles in the generation and control of cyclic breathing. |
|  |  | 119 | Give three examples of reflexes involving pulmonary receptors that influence breathing frequency and tidal volume. Describe the receptors and neural pathways involved. |
|  |  | 120 | List the anatomical locations of chemoreceptors sensitive to changes in arterial PO2, PCO2, and pH that participate in the control of ventilation. Identify the relative importance of each in sensing alterations in blood gases. |
|  |  | 121 | Describe how changes in arterial PO2 and PCO2 alter alveolar ventilation, including the synergistic effects when PO2 and PCO2 both change. |
|  |  | 122 | Describe the significance of the feedforward control of ventilation (central command) during exercise, and the effects of exercise on arterial and mixed venous PCO2, PO2, and pH. |
|  |  | 123 | Describe voluntary control of respiration |
|  |  | 124 | Describe the effect of irritant receptors, J-receptors, brain edema and anesthesia on breathing. |
|  | Common Respiratory abnormalities | 125 | Describe periodic breathing and basic mechanism of Cheyne-Stokes breathing |
|  |  | 126 | Define sleep apnea |
|  |  | 127 | Describe the pathophysiology of Obstructive sleep apnea and central sleep apnea. |
|  |  | 128 | Describe the pathophysiology of specific pulmonary abnormalities: |
|  |  | 129 | Describe hypoxia |
|  |  | 130 | Describe cyanosis |
|  |  | 131 | Describe the effect of aging on lung volumes, lung and chest wall compliance, blood gases, and respiratory control. |
| Biochemistry | Glycolysis | 132 | Explain Aerobic and Anaerobic Respiration |
|  |  | 133 | Define Glycolysis |
|  |  | 134 | Enlist different enzymes used in Glycolysis |
|  |  | 135 | Enlist the intermediate compounds of glycolysis |
|  |  | 136 | Enlist the reversible and irreversible reactions in glycolysis |
|  |  | 137 | Explain production of Energy |
|  |  | 138 | Explain Regulation of rate limiting enzymes   * Hexokinase and glucokinase * Phosphofructokinase   Pyruvate kinase |
|  |  | 139 | Expain aerobic regeneration of NAD+ and Disposal of Pyruvate |
|  |  | 140 | Describe conversion of carbohydrates into fatty acids and cholesterol |
|  |  | 141 | Explain conversion of Pyruvate into oxaloacetate for citric acid cycle |
|  |  | 142 | Describe role of Glycolysis in genetic diseases and cancer. |
|  | Kreb`s cycle | 143 | Define Kreb cycle |
|  |  | 144 | Enlist different enzymes used in Kreb’s cycle |
|  |  | 145 | Enlist the intermediate compounds of Kreb’s cycle |
|  |  | 146 | Describe Sequence of reactions Kreb’s cycle |
|  |  | 147 | Explain substrate level phosphorylation |
|  |  | 148 | Explain production of Energy in Kreb’s cycle |
|  |  | 149 | Expain the regulation of Kreb’s cycle |
|  |  | 150 | Describe briefly the major pathways converging into Kreb’s cycle |
|  | Biologic oxidation | 151 | Define biological oxidation |
|  |  | 152 | Define redox reactions |
|  |  | 153 | Describe the structure of Mitochondria |
|  |  | 154 | Enlist the Functions of Mitochondria |
|  |  | 155 | Describe Oxidoreductases |
|  |  | 156 | Describe sources of NADH and FADH2 |
|  |  | 157 | Describe Glycerol 3-phosphate Shuttle |
|  |  | 158 | Describe Malate Shuttle |
|  |  | 159 | Enumerate different parts enzymes and co-enzymes that carryout biological oxidation |
|  |  | 160 | Enlist components of each enzyme involved in Biological Oxidation |
|  |  | 161 | Describe transfer of electron through each complexes |
|  |  | 162 | Describe the free radicals involved in BO |
|  |  | 163 | Explain Chemiosmotic theory. |
|  | Formation of ATP | 164 | Describe structure of ATP |
|  |  | 165 | Describe the mechanism of ATP production by ATP Synthase |
|  |  | 166 | Describe transfer of protons from Inter mitochondrial membrane to Mitochondrial matrix through ATP Synthase |
|  |  | 167 | Explain P/O ratio |
|  |  | 168 | Explain coupling |
|  |  | 169 | Describe uncoupling along with examples |
|  |  | 170 | Enumerate the Electron transport chain inhibitors |
|  |  | 171 | Define respiration and Explain steps of respiration. |
|  |  | 172 | Define partial pressure and explain its role in the transport of gases according to Dalton's law. |
|  |  | 173 | Explain various modes of oxygen transport and clinical importance of oxygen. |
|  |  | 174 | Describe the formation of oxyhemoglobin. |
|  |  | 175 | Explain Respiratory exchange ratio. |
|  | O2 and CO2 transport | 176 | Explain oxygen-dissociation curves with various factors affecting oxygen delivery. |
|  |  | 177 | Describe Bohr effect and its importance. |
|  |  | 178 | Describe the modes of carbon dioxide transport |
|  |  | 179 | Explain various modes of oxygen transport |
|  |  | 180 | Describe in detail all the events occurring at lung site and tissue site including Haldene effect. |
|  |  | 181 | Explain the chloride shift and its importance. |
|  |  | 182 | Explain the factors affecting the transport of carbon dioxide transport. |
|  |  | 183 | Describe the role of Nitrogen in plasma. |
|  |  | 184 | Explain how free radicals are produced and why oxygen is more prone to produce superoxide radical? |
|  |  | 185 | Discus various toxic effects of free radicals. |
|  |  | 186 | Classify antioxidants. How they are produced and discus its role in combating free radicals. |
|  |  | 187 | Describe the respiratory control of acid base balance. |
|  |  | 188 | Role of dipalmitoyl phosphotidyl inositol in infant respiratory syndrome. |
| Forensic Medicines | Asphyxia | 189 | Define Asphyxia |
|  |  | 190 | Describe different types of Asphyxia |
|  |  | 191 | Identify classical signs of asphyxia |
| Medicine | Introduction to Respiratory symptomatology | 192 | Enumerate the various symptoms of respiratory disorders |
|  | PFT`s | 193 | Interpret the Pulmonary Function Tests |
|  | ARDS | 194 | Discuss acute lung injury and its correlation Acute Respiratory Distress Syndrome |
|  |  | 195 | Describe the causes of Acute Respiratory Distress Syndrome |
|  |  | 196 | Discuss the morphology of Acute Respiratory Distress Syndrome |
|  |  |  |  |
| **Psychomotor and Affective domain** | | | |
| **Breathlessness** | Physiology | 1 | Draw a normal spirogram, labeling the four lung volumes and four capacities. |
|  |  | 2 | List the volumes that comprise each of the four capacities. |
|  |  | 3 | Identify which volume and capacities cannot be measured by spirometry. |
|  |  | 4 | Define the factors that determine total lung capacity, functional residual capacity, and residual volume. |
|  |  | 5 | Describe the mechanisms responsible for the changes in those volumes that occur in patients with emphysema and pulmonary fibrosis. |
|  |  | 6 | Differentiate between the two broad categories of restrictive and obstructive lung disease, including the spirometric abnormalities associated with each category. |
|  |  | 7 | Examine the chest of the subject |
|  |  | 8 | Calculate the respiratory rate of the subject |
|  |  | 9 | Determine the peak expiratory flow (PEF) by peak flow meter |
|  |  | 10 | Describe the use of inhaler |
|  |  | 11 | Demonstrate the use of inhaler to the subject |
| **Cough and Hemoptysis** | Histology |  | Identify the various microscopic tissue types in the  Respiratory system  z Epithelium of the respiratory system  z Trachea  z Bronchi  z Bronchioles  z Alveoli |

Endocrinology Module

2nd Year MBBS

Duration: 5-weeks

**RATIONALE:**

The function of the endocrine system is to coordinate and integrate cellular activity within the whole body by regulating cellular and organ function throughout life and maintaining **homeostasis.** Homeostasis, or the maintenance of a constant internal environment, is critical to ensuring appropriate cellular function. In this module the anatomy and physiology of the endocrine organs along with functional biochemistry of the hormones secreted along with normal physiological changes are taught in integrated fashion with reference to common disease processes occurring in our community.

By the end of this module student will be able to:

Review the anatomy of endocrine organs (pituitary, thyroid, pancreas, parathyroid and adrenal gland).

Describe the role of hormones in relation to homeostasis and metabolism.

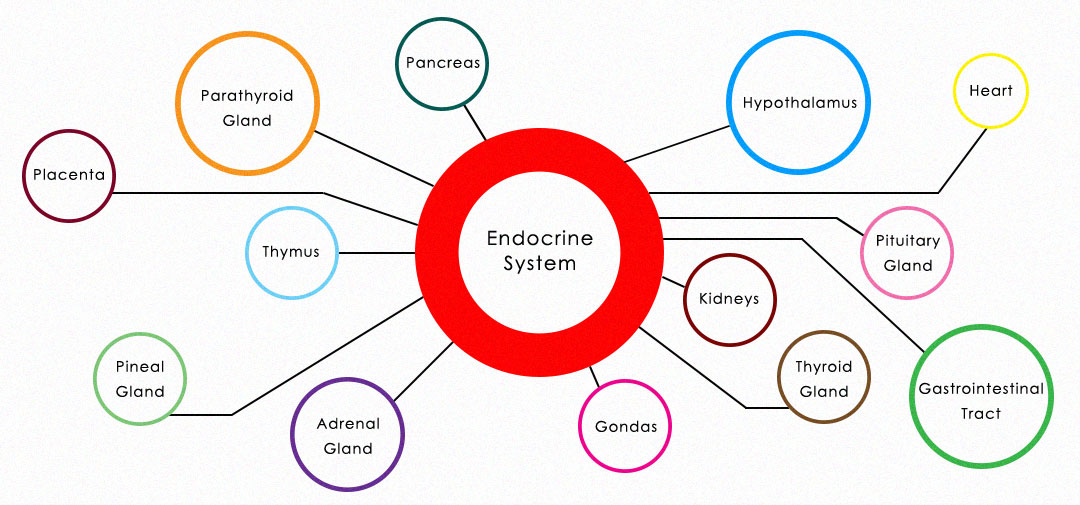
Identify and list functional physiology of hormones.

Recognize stepwise synthesis and release of various hormones

Enlist common endocrine related disorders and their pathogenesis

Recognize various endocrine disorders on the basis of clinical and investigative findings

Highlight the role of pharmacological agents used to treat endocrine disorders



**THEME-I MOON FACIES**

**COURSE OBJECTIVES & STRATEGIES**

|  |  |
| --- | --- |
| **OUTCOMES AND OBJECTIVES** | **FACULTY** |
| **1. GROSS AND DEVELOPMENT OF PITUITARY AND RELATED ANOMALIES**  1.1 Discuss embryological development of pituitary gland  1.2 Discuss the gross anatomy of pituitary gland.   * 1. Describe the development of pituitary gland.   1.4 Enumerate the congenital anomalies related to pituitary gland  1.5 Describe the arterial supply, venous drainage and nerve supply of pituitary gland. | **Anatomy** |
| **2. ADRENAL GLAND**  2.1 Outline structure of suprarenal gland  2.2 Identify the different zones of adrenal cortex  2.3 List the hormones released by adrenal cortex and their functions.   * 1. Know the relations of right and left adrenal glands   2. Discuss the development of adrenal gland.   3. Enumerate the developmental anomalies of adrenal gland.   4. Discuss the gross anatomy of adrenal gland   2.8 Enumerate the hormones released by adrenal cortex and their functions.   * 1. Describe the relations of right and left adrenal gland   2.10 Describe the arterial supply, venous drainage and nerve supply of Adrenal glands. | **Anatomy** |
| **3. ADRENAL GLANDS, RELATION OF STRUCTURE WITH FUNCTION**  3.1 Describe anatomy and division of adrenal gland  3.2 Enlist and discuss Hormones of adrenal cortex,  3.3 Enlist and discuss Hormones of adrenal medulla. | **Anatomy** |
| **4. MICROSCOPY OF PITUITARY GLAND.**  4.1 Identify the histological features of pituitary gland.   * 1. Discuss the different subtypes of the pituitary gland lobes.   2. Identify the normal microscopic features of thyroid gland   3. Discuss the histology of thyroid gland   4. Discuss the histological features of pancreas   5. Identify the normal microscopic features of pancreas   6. Discuss the differences between Parotid gland and Pancreas   7. Identify microscopic features of adrenal gland   4.10 Discuss Histology of adrenal gland.  4.11 Identify Microscopic structure of Parathyroid Gland  4.12Describe histology of parathyroid gland  4,13Identify the histological features of pituitary gland.  4.14 Discuss the histology of the pituitary gland. | **Histology** |
| **5. MICROSCOPIC STRUCTUREOF ADRENAL GLAND.**  5.1 Discuss the histological features of Adrenal gland | **Histology** |
| **6. DEVELOPMENT OF ADRENAL GLAND AND RELATED ANOMALIES**  6.1 Discuss the development of adrenal gland.  6.2 Enumerate the developmental anomalies of adrenal gland. | **Embryology** |
| 7. INTRODUCTION TO ENDOCRINOLOGY/ Pituitary Hormones 1Classify endocrine glands and discuss various chemical messenger systems in the body.   1. Describe mechanisms of action of hormones 2. Describe Role and function of the endocrine glands and hormones secreted by them. 3. Enumerate the factors that control human growth 4. Describe the endocrine control of human growth 5. Describe a normal growth curve 6. Explain the relationship between growth hormone and insulin like growth factors in promoting growth of bones and soft tissues 7. Tabulate the metabolic effects of growth hormone in humans 8. Explain the mechanism by which growth hormone can cause diabetes 9. Draw a table showing the stimulatory and inhibitory factors for the secretion of growth hormone 10. Describe the role of hypothalamus in controlling the secretion of growth hormone 11. Describe pan hypopituitarism in adults and children 12. Differentiate between growth hormone excess before puberty and after puberty 13. Explain the role of ant diuretic hormone in controlling osmolarity of blood 14. Describe the role of ant diuretic hormone in restoring blood pressure   16.Describe second messenger mechanisms for mediating intracellular hormonal functions  17.Describe measurement of Hormone Concentrations in the Blood  18.Describe physiological anatomy of pituitary gland  19.Describe Growth hormone’s effect on growth and metabolism  20. Explain Insulin-LikeGrowth Factors  21. Describe regulation of Growth Hormone  22. Describe formation &physiological functions of Oxytocin  23. Describe formation &physiological functions of ADH | **Physiology** |
| 8. Thyroid Hormone  1. Enlist the effects of thyroid hormone on different body tissues and organs 2. Describe the regulation of thyroid hormone secretion 3. Explain the effect of high dose of iodides on thyroid gland and its function 4. Compare the causes of hyperthyroidism and hypothyroidism 5. Compare the clinical features of hypothyroidism and hyperthyroidism 6. Explain the pathogenesis of goiter | **Physiology** |
| **9. REGULATION OF HORMONAL SECRETION**  8.1 Discuss secretion, transport, clearance of hormones from blood  8.3 Explain the control of hormone secretion by hypothalamus | **Physiology** |
| **10. THE PINEAL GLAND**  9.1 Describe physiological anatomy of Pineal gland  9.3 Discuss the physiological functions of pineal gland  9.4 Explain the control of melatonin secretion  9.5 Describe prostaglandins  9.6 Discuss the effects of prostaglandins  9.7 Describe the therapeutic uses of prostaglandins | **Physiology** |
| **10. HORMONES OF POSTERIOR PITUITARY AND RELATED DISORDERS**  10.1 Give an overview of the posterior pituitary  10.2 Discuss the functions of Oxytocin and ADH  10.3 Discuss the disorders of ADH and correlate clinically | **Physiology** |
| **11. ADRENAL CORTEX - FUNCTIONS OF THE GLUCOCORTICOIDS**   1. List the factors causing release of aldosterone from adrenal cortex 2. Explain the mechanism by which aldosterone increase extracellular volume 3. Explain the role of aldosterone in controlling potassium ion concentration in plasma 4. Discuss the Renin-angiotensin system and the actions of Angiotensin II 5. List the effects of aldosterone on different target tissues 6. Explain the effects of excess aldosterone 7. Explain the effects of aldosterone deficiency 8. Explain the role of cortisol in adaptation to stress 9. Describe the anti-inflammatory effects of cortisol 10. Explain the integrated stress response 11. Draw a chart showing the major hormones released and the changes brought about by each hormone during stress response 12. Descried the effects of cortisol on blood cells and immunity 13. Describe the role of adrenal androgen in males and female 14. Explain the clinical features of Addison’s disease 15. Explain Cushing‘s syndrome 16. Discuss primary aldosteronism (Conn’s syndrome 17. Explain adrenogenital syndrome | **Physiology** |
| **12. Classification of hormones according to the chemical nature**   1. Discuss the basic functions of endocrine system 2. Classify the hormones chemically 3. Recall the mechanism of action according to the chemical nature    1. Recognize the chemical properties and structure of each group of hormones    2. Describe hormonal receptors 4. Explain the chemical nature of hormonal receptors 5. classify hormonal receptors 6. Enumerate the tropic hormones 7. Describe chemistry and metabolic role of gonadotropic hormones 8. Enumerate the various hypothalamic releasing factors that control the secretion of hormones 9. Enumerate the hormones produced by anterior ,intermediate and posterior pituitary gland 10. Describe chemistry and metabolic role of melanocyte stimulating hormone 11. Describe chemistry and metabolic role of oxytocin and antidiuretic hormone 12. Describe chemistry and mechanism of action of growth hormones. 13. Define hormones ,Differentiate between the terms endocrine, paracrine & autocrine 14. Define 2nd messengers and their roles 15. Enumerate the hormones of anterior pituitary gland 16. Describe Regulation of Thyroid Hormone Secretion 17. Explain Mechanism of action PTH 18. Describe Control of Parathyroid Secretion | **Biochemistry** |
| **13. ADRENAL CORTEX: FUNCTIONS OF MINERALOCORTICOIDS.**  13.1 Enumerate various mineralocorticoids  13.2 Describe actions of mineralocorticoids  13.3 Discuss the factors that help in regulation of Aldosterone | **Biochemistry** |
| **14. ADRENOCORTICAL HORMONES CHEMISTRY AND SYNTHESIS**  14.1 Discuss the various adreno-cortical hormones, their structure and synthesis. | **Biochemistry** |
| **15. METABOLIC FUNCTIONS OF MINERALOCORTICOIDS AND THEIR DISORDERS**  15.1 Discuss the mode of action, functions and diseases associated with deficiency and excess of mineralocorticoids | **Biochemistry** |
| **16. BIOCHEMISTRY OF ADRENAL MEDULLA & PHAEOCHOMOCYTOMA**  16.1 Identify the parts of the adrenal gland  16.2 Identify hormones secreted by adrenal medulla and their main actions  16.3 Discuss the diseases caused by imbalance of adrenal medulla.  16.4 Discuss the common clinical presentation of phaeochromocytoma. | **Biochemistry** |
| **17. ADRENOCORTICAL HORMONES CHEMISTRY, SYNTHESIS AND METABOLIC FUNCTIONS OF GLUCOCORTICOIDS & DISORDERS**  To understand :  17.1 Discuss the various adrenocortical hormones, their structure and synthesis.  17.2 Describe the effects of Glucocorticoids on carbohydrate metabolism, fat metabolism, protein metabolism and immune system  17.3 Describe the role of Glucocorticoids as Anti-inflammatory Agents | **Biochemistry** |
|  |  |
| **18. DRUGS USED IN HYPERCORTISOLISM:**  18.1 Enlist and understand the mechanism of action ,clinical uses and side effects of Steroids  18.2 Discuss the role of drugs used in Addison’s disease/ Addisonian crises, their uses and adverse effects. | **Pharmacology** |
| **19. DISORDERS OF ANTERIOR PITUITARY.**  19.1Discuss common disorders of Pituitary gland..  19.2 Discuss Hyperpitutarism  19.3 Discuss hypopituitarism | **Pathology** |
| **20. CLINICAL DISORDERS OF ADRENAL GLAND**  20.1 Discuss the common diseases caused by excess or deficiency of adrenal hormones.  20.2 Describe the common clinical presentation of these disorders | **Medicine** |
| **21. CLINICAL DISORDERS OF PITUITARY**  21.1 To identify the parts of the pituitary gland  21.2 To identify hormones secreted by each lobe and their main actions  21.3 Discuss the common diseases caused by excess or deficiency of pituitary hormones  21.4 Recognize and discuss the common clinical presentation of these disorders | **Medicine** |

**THEME-II POLYPHAGIA BUT LOSS OF WEIGHT**

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| **OUTCOMES AND OBJECTIVES** | **FACULTY** |
| **1. GROSS STRUCTURE OF THYROID GLAND.**  1.1 Recognize the anatomy of thyroid gland.  1.2 Define the relations of lobes of thyroid and isthmus of thyroid.  1.3 Discuss Blood vessels of supplying thyroid.  1.4 Discuss Nerve supply of thyroid. | **Anatomy** |
| **2. MICROSCOPIC STRUCTURE OF THYROID GLAND**  2.1 Discuss the histological structure of thyroid gland | **Histology** |
| **3. DEVELOPMENT OF THYROID GLANDS AND RELATED ANOMALIES**  3.1 Discuss embryological development of thyroid glands  3.2 Enumerate related developmental anomalies | **Embryology** |
| **4. FUNCTIONS OF THYROID HORMONE**  4.1Describe the physiologic anatomy of the Thyroid Gland.  4.2 Discuss the steps of production of thyroid hormones.  4.3 Discuss Thyroid Hormone Transport and Protein Binding  4.4 Discuss the mode of action of Thyroid Hormones  4.5 Discuss the clinical Disorders of Thyroid Function including hypo and hyper thyroidism | **Physiology** |
| **5. SYNTHESIS, MODE OF ACTION, METABOLIC FUNCTIONS AND DISORDERS**  5.1 Discuss the steps involved in Thyroid Hormone Synthesis  5.2 Describe the chemical nature of Thyroid Hormones  5.3 Discuss Thyroid Hormone Transport and Protein Binding  5.4 Describe the mode of action of Thyroid Hormones  5.5 Discuss the metabolic effects of Thyroid Hormones  5.6 Discuss the clinical disorders of Thyroid Function | **Biochemistry** |
| **6. DRUGS USED IN HYPO AND HYPERTHYROIDISM**  6.1 Understand the mechanism of action ,clinical uses and side effects of drugs used in hypo and hyper thyroidism | **Pharmacology** |
| **7. HYPERTHYROIDISM AND GRAVES DISEASE**  7.1 Discuss patho-physiology of hypo and hyper thyroidism  7.2 Discuss graves disease/ goiter | **Pathology** |
| **8. SIGNS & SYMPTOMS OF HYPO/HYPERTHYROIDISM**  8.1 Discuss the normal regular functioning of thyroid gland.  8.2 Enlist the common investigations used for thyroid functional disorders  8.3 Describe clinical signs & symptoms caused by excess or deficiency of thyroid hormone. | **Medicine** |
| **9. IODINE CONTROL PROGRAM IN PAKISTAN**  9.1 Discuss the epidemiology and consequences of iodine deficiency and the salient features of iodine control program in Pakistan  9.2 Prevalence and causes of Iodine deficiency in Pakistan  9.3 Iodine control program in Pakistan | **Medicine** |

**THEME-III STONES, BONES, GROANS & PSYCHAITRIC MOANS**

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| **OUTCOMES AND OBJECTIVES** | **FACULTY** |
| **1. GROSS STRUCTURE OF PARATHYROID GLAND**  1.1 Discuss the anatomical structure of parathyroid glands | **Anatomy** |
| **2. MICROSCOPIC STRUCTURE OF PARATHYROID GLAND**  2.1 Identify Microscopic structure of Parathyroid Gland  2.2 Describe Points of identification  2.3 Discuss Disorders of parathyroid gland | **Histology** |
| **3. DEVELOPMENT OF PARATHYROID GLANDS AND**  **RELATED ANOMALIES**  3.1 Discuss embryological development of parathyroid glands  3.2 Enumerate and explain related developmental anomalies | **Embryology** |
| **4. FUNCTION OF PARATHYROID HORMONES**  4.1 Discuss Parathyroid hormone  4.2 Describe role of parathyroid and Calcitonin in Calcium regulation  4.3 Discuss the Calcium and Phosphate metabolism  4.4 Discuss the role of Vitamin D. | **Physiology** |
| **5. DRUGS USED IN HYPO AND HYPERCALCEMIA:**  5.1 Discuss the mechanism of action ,clinical uses and side effects of drugs used in hypo and hyper-calcemia  5.2 Discuss the role of vitamin D | **Pharmacology** |
| **6. DISORDERS OF PARATHYROID**  6.1 Explain the types of Parathyroid Disorders.  6.2 Discuss hypo and hyper parathyroidism. | **Pathology** |

**THEME-IV PIN PRICKS & BURNING FEET SYNDROME**

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| **OUTCOMES AND OBJECTIVES** | **FACULTY** |
| **1.** **GROSS ANATOMY OF PANCREAS**  1.1Describe the location, peritoneal relations, and morphological and secretory parts of Pancreas  1.2 Describe the gross features of different parts of pancreas  1.3 Describe the arterial supply, venous drainage and nerve supply of pancreas | **Anatomy** |
| **2.** **MICROSCOPIC STRUCTURE OF PANCREAS**  2.1 Discuss the histological components of pancreas  2.2 Describe the capsule and stroma pancreas  2.3 Discuss the Parenchyma and Lobules (acini) of Pancreas  2.4 Discuss the Duct System of Pancreas  2.5 Describe the endocrine component of pancreas  2.6 Discuss the differences between Parotid gland and Pancreas | **Histology** |
| **3. HORMONAL SECRETION OF PANCREAS**  3.1 Describe Endocrine portion of pancreas.  3.2 Discuss the normal Insulin secretion and its function.  3.3 Discuss the role of different hormones in regulation of blood glucose levels  3.4 Discuss Diabetes Melitis | **Physiology** |
| **4. ENDOCRINE SECRETIONS OF PANCREAS-MOLECULAR STRUCTURE AND BIOCHEMICAL FUNCTION (INSULIN)**  4.1 Discuss the molecular structure of Insulin  4.2 Describe the biosynthesis of Insulin  4.3 Describe the mechanism of action of Insulin  4.4 Discuss the functions of Insulin | **Biochemistry** |
| **5. REGULATION OF BLOOD GLUCOSE LEVELS HYPOGLYCEMIA AND HYPERGLYCEMIA**  5.1 Define normal blood glucose level  5.2 Describe its regulation  5.3 Define Hypoglycemia  5.4 Enlist different causes of hypoglycemia  5.5 Define Hyperglycemia  5.6 Enlist different causes of hypoglycemia  5.7 Justify that hypoglycemia is more dangerous for life as compare to hyperglycemia | **Biochemistry** |
| **6. METABOLIC SYNDROME**  6.1 Definition of Metabolic Syndrome  6.2 Discuss Visceral obesity is an indicator of the syndrome and an independent marker for CVD  6.3 Describe Current and some potential future treatment options | **Biochemistry** |
| **7. RELATE OBESITY, LEPTINS and Type II DIABETES**  1 Define Diabetes mellitus  2 Define obesity  3 Describe Leptins  4 Describe the relation of diabetes with obesity  5 Justify the role of Leptins in obese diabetic conditions  Glycolysis  Define Glycolysis,  Describe the entry of glucose into different kinds of cells through various GLUT transporters  Describe the reactions of glycolysis  Describe the transportation of NADH to Mitochondria via various Shuttles  Describe the energetics of glycolysis  Describe the fates of pyruvate  Describe the types of glycolysis especially the anaerobic glycolysis  Describe the key enzymes and regulation of glycolysis  Discuss the glycolysis in RBC  Describe the biomedical Significance and clinical disorders of glycolysis  Discuss glycolysis in cancer cells  Describe the conversion of pyruvate into acetyl CoA  Enumerate the enzymes & coenzymes of PDH complex  Describe the sequence of reactions catalyzed by PDH complex.  Describe the regulation of PDH complex  Discuss the clinical aspects of PDH complex especially the congenital lactic acidosis  Define citric acid cycle  Describe the sources of acetyl CoA in mitochondria  Describe the reactions of TCA  Discuss the energetics of TCA  Discuss the energy yield of one molecule of glucose when it is converted into carbon dioxide and water  Name the vitamins that play key role in TCA  Describe the amphibolic nature of TCA  Discuss the regulation of TCA  Enumerate the inhibitors of TCA and their sites of inhibition  Define Gluconeogenesis  Name the organs and sub cellular location where Gluconeogenesis occurs  Describe the substrates or precursors of Gluconeogenesis  Describe the three bypass reactions  Describe the Gluconeogenesis from Fatty Acids  Discuss the Cori's cycle  Discuss the regulation of Gluconeogenesis  Name the key enzymes of Gluconeogenesis  Discuss the Role of Pentose  Phosphate Pathway  Name the tissues where Hexose Mono Phosphate shunt occurs  Describe the reactions of the two parts of Hexose Mono Phosphate shunt  Describe the Role of thiamine in Hexose Mono Phosphate shunt  Enumerate the Similarities & differences b/w glycolysis and HMP shunt pathway  Discuss the functions of NADPH (produced in Hexose Mono Phosphate shunt) in various tissues and cells  Discuss G6PD deficiency and its effects in various tissues and cells  Describe the regulation of HMP shunt pathway  Enumerate the products of uronic acid pathway and their importance  Discuss why ascorbic acid is vitamin for humans  Describe the uses & requirements of galactose in the body  Discuss the various reactions with enzymes involved  Describe the Genetic Deficiencies of Enzymes in Galactose Metabolism and their effects  Describe the Main source of Fructose  Discuss the various reactions with enzymes involved  Discuss the Fructose formation in Seminal fluid  Describe the mechanism of formation of diabetic cataract  Discuss the Defects in Fructose Metabolism and their effects  Describe the structure and functions of the glycogen especially the significance of its polymer nature  Describe the Difference between Liver & muscle glycogen  Describe the synthesis of glycogen by two mechanisms with its enzymes  Discuss the breakdown of glycogen with its enzymes  Describe the Regulation of Glycogen metabolisms  Discuss the glycogen storage diseases with deficient enzymes and cardinal clinical features  Fatty acid (FA) synthesis  (*De Novo*)  Enumerate the organs where fatty acid synthesis occurs with sub cellular sites  Discuss the source of Acetyl CoA that will be used for FA synthesis with reason  Discuss how acetyl CoA comes out of mitochondria for the synthesis of FA  Describe the steps of FA synthesis with enzymes  Describe the FA synthase enzyme with its structure and components  Describe the product of FA synthase and the subsequent fate of this product  Discuss the regulation of FA synthesis  Discuss why animals cannot convert fatty acids into glucose  Describe the further elongation and desaturation of FA and its regulation  Describe how fats are mobilized from adipose tissues to the organs where they will be used for oxidation  Enumerate the various methods of oxidation of FA  Discuss the stages of beta oxidation with its reactions  Calculate the no. of ATP obtained when one molecule of palmitic acid is oxidized completely  Describe the genetic deficiencies of FA oxidation i.e. MCAD & CAT deficiencies with their hallmarks  Discuss the oxidation of odd-chain FA  Compare the processes of FA synthesis with FA oxidation  Enumearate the ketone bodies  Define ketogenesis  Describe the steps of ketogenesis  Discuss the energy yield during ketogenesis in liver  Enumerate the conditions in which there is increased ketogenesis  Discuss utilization of ketone bodies  Discuss the energy yield in ketone bodies utilization in extra hepatic tissues  Describe the regulation of ketogenesis in well-fed healthy conditions, during early stages of starvation & in prolonged starvation  Discuss the ketoacidosis in diabetes  Describe the synthesis of triacylglycerol by two mechanisms  Describe the synthesis of phosphatidic acid  Enumerate the substances formed from phosphatidic acid  Describe the synthesis of glycerophospholipids  Discuss the degredation of glycerophospholipids  Describe the synthesis of ceramide and sphingophospholipids (shingomyelin)  Discuss the degradation of shingomyelin  Discuss Niemann-Pick disease with its cardinal clinical features  Discuss Farber disease with its cardinal clinical features  Describe the synthesis of glycosphingolipids  Describe the degradation of glycosphingolipids  Describe the abnormalities of phospholipid metabolism i.e. true demyelinating diseases and sphingolipidosis  Define eicosanoids and describe their two classes  Describe the synthesis of prostanoids by cyco-oxygenase pathway  Enumerate the two isomers of cyclo-oxygenase with their inhibition  Discuss why low dose aspirin therapy is used in strokes and heart attacks  Describe biochemical reason for the adverse effects of NSAIDs & steroids  Describe the catabolism of the prostanoids  Describe the lipoxygenase pathway for synthesis of Leukotrienes and lipoxins  Describe the synthesis of leuktriene biosynthesis inhibition  Enumerate the leukotriene receptor antagonists  Describe the major sites of cholesterol synthesis as well as sub cellular sites  Describe the source of cholesterol synthesis  Describe the various steps of cholesterol synthesis  Discuss the regulation of cholesterol synthesis  Enumerate the inhibitors of HMG CoA reductase inhibitors  Describes the degradation and excretion of cholesterol with synthesis of bile acids, their conjugation, bile salt formation and micelle formation in lumen of the intestine  Discuss the enterohepatic circulation of bile salts  Discuss the role of bile acid sequestrants i.e. cholestyramine and dietary fiber  Discuss the regulation of bile acid synthesis  Describe the structure of a typical lipoprotein particle  Enymerate the various classes of LP  Enumerate the functions of apolipoproteins  Describe the steps of chylmicrons’ metabolism  Describe the metabolism of VLDL  Describe the metabolism of LDL  Describe the metabolism of HDL  Differentiate between hyperlipidemia and dyslipidemia  Describe the Classification of hyperlipidemia with enzyme deficiency  Describe the epidemiology, preventive strategies and diseases associated with hyperlipidemias  Amino acid pool & chemical processes for dissimilation of proteins  Discuss how amino acid pool is formed  Discuss the chemical processes responsible for dissimilation of proteins: transamination, deamination and transdeamination  Discuss the clinical importance of transaminases  Discuss how ammonia is formed in various tissues and transported to liver  Discuss the effects of ammonia toxicity in brain  Describe The Krebs-Henselet Cycle of Urea Formation in Liver  Describe the clinical significance of various enzymes involved in urea formation  Discuss biosynthesis, fate, metabolic functions and related inherited disorders of aromatic amino acids  Discuss biosynthesis, fate, metabolic functions and related inherited disorders of sulphur containing amino acids  Discuss biosynthesis, fate, metabolic functions and related inherited disorders of Glycine, serine, and alanine  Discuss biosynthesis, fate, metabolic functions and related inherited disorders of acidic amino acids  Discuss biosynthesis, fate, metabolic functions and related inherited disorders of branched chain amino acids  Enumerate purine and Pyrimidine bases  Describe the steps of de novo synthesis of the parent purine nucleotide i.e Inosine mono phosphate (IMP)  Discuss the conversion of IMP to AMP & GMP  Describe the regulation of purine synthesis  Describe the salvage pathway of purine synthesis with its regulation  Describe Lesch-Nyhan syndrome with its cardinal clinical features  Discuss the anti-metabolites of purine nucleotides i.e purine analogs, amino acid analogs & folic acid analogs  Enumerate the synthetic inhibitors of purine synthesis with their mechanisms  Discuss the synthesis of deoxy ribonucleotides  Describe the mechanism of action of ribonucleotide reductase with its inhibitors  Describe the degradation of purine nucleotides  Describe the fate of adenine  Describe why the average serum level of uric acid in humans is close to the solubility limit  Discuss the diseases associated with purine degradation i.e. gout  Describe the types of gout  Discuss why allopurinol is used in the treatment of gout  Discuss adenosine deaminase deficiency  Discuss the steps of de novo Pyrimidine synthesis  Discuss the synthesis of thymidine mono phosphate from deoxy uridine mono phosphate with its inhibition  Describe the salvage pathway of pyrimidines  Describe the degradation of Pyrimidine nucleotides  Discuss the abnormalities of Pyrimidine metabolism  Discuss orotic aciduria  Discuss the regulation of Pyrimidine metabolism | **Biochemistry** |
| **8. DRUGS USED IN HYPERGLYCEMIA**  8.1 Enlist and understand the mechanism of action ,clinical uses and side effects of drugs used in Type I & II Diabetes melitis | **Pharmacology** |
| 1. Define diabetes 2. classify diabetes 3. Enlist risk factors for diabetes 4. Describe Health effects of diabetes   Briefly explain primary, secondary and tertiary level of prevention for diabetes | Community Medicine |
| List of Histology Practical’s   1. Nervous system 2. Cerebral cortex 3. Cerebellum 4. Spinal cord 5. Endocrine system 6. Pituitary gland 7. Thyroid gland 8. Parathyroid gland 9. Pancreas (endocrine part) 10. Supra renal gland 11. Gastro intestinal tract 12. Tongue 13. Esophagus 14. Stomach 15. Duodenum 16. Jejunum 17. Ileum 18. Colon 19. Rectum 20. Appendix 21. Associated glands of G.I.T 22. Liver 23. Gall bladder 24. Pancreas (exocrine port) 25. Male genital system 26. Gonads (testes) 27. Genital ducts 28. Epididymus 29. Ductus deference 30. Seminal vesical 31. Ejaculatory duct 32. Associated (Auxillary) glands 33. Prostate gland 34. Bulbourethral gland 35. External genitalia 36. Penis 37. Female gental system 38. Gonads 39. Ovary 40. Genital ducts 41. Uterine tube 42. Uterus 43. Vagina 44. Associated glands 45. Greater vestibular gland 46. Lesser vestibular gland 47. External genitlia 48. Labia majora 49. labia minora 50. urinary system 51. Kidneys 52. Ureter 53. Urinary bladder   Respiratory system   1. Epiglottis 2. Trachea 3. Lungs (bronchi –bronchioles- Alveoli) 4. List of Physiology Practical’s      1. Triple Response. 2. Deep Tendon Reflexes. 3. Superficial Reflexes 4. Examination of Cranial Nerves I 5. Examination of Cranial Nerves II 6. Examination of Cranial Nerves III 7. Visual Acuity. 8. Perimetry. 9. Reflexes of the eye. 10. Hearing Function Tests I 11. Hearing Function Tests II 12. Audiometry. 13. Testing Sense of taste. (Gustation) 14. Testing Sense of Smell. (Olfaction) 15. Temperature Recording. 16. Pregnancy Test     List of Biochemistry Practical’s    To Determine the titrable Acidity of given urine.  2. Determine the concentration of chloride in the giv­en urine.  3. To estimate the amount of glucose in the urine.  4. To estimate the concentration of Creatinine in the given urine.  5. To estimate the free and combined Acidity of gas­tric juice.  6. To estimate the concentration of glucose in the given blood.  7. To estimate the concentration of Creatinine in the serum.  8. To estimate the amount of total proteins in the plasma serum.  9. To estimate the concentration of urea in the blood.  10. To estimate the amount of chloride in the serum.  11. To estimate the concentration of chloride in the plasma serum.  12. To determine the direct Bilirubin in the plasma se­rum.  13. To determine the total Bilirubin in the plasma se­rum. | Practical |

**GIT, Hepatobiliary & Metabolism**

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|  | **Topics List** | **MIT** | **Objectives**  **Anatomy** | | | | **Week 01 –**  **Theme**  **General Principles of Gastrointestinal Tract** |
| 1 | General Layout & Divisions of the abdominal cavity | **LGF** | 1.Discuss general layout and divisions of abdominal cavity  2.Explain cutaneous innervation and blood supply | | | |  |
| 2 | Gross Anatomy of Anterior Abdominal wall | SGF | 1. Discuss origin, insertion and nerve supply of Muscles of anterior abdominal wall | | | |  |
| 3 | Rectus Sheath | SGF | 1. Demonstrate formation of rectus sheath and related clinicals | | | |  |
| 4 | General Histology of GIT | LGF |  | | | |  |
| 5 | Inguinal Canal & Hernias | LGF | 1. Discuss Inguinal canal and its contents  2. Discuss Inguinal hernias | | | |  |
| 6 | Peritoneum & its Reflections | SGF | 1.Explain Gross anatomy of peritoneum | | | |  |
| 7 | Peritoneum & its Reflections | LGF | 1.Discuss Reflections and tracings of peritoneum | | | |  |
| 8 | Histology of Tongue, Lip, Salivary glands – Review / Revision | Practical |  | | | |  |
| **Physiology** | | | | | | | |
| 1 | General features & electrical activity of GIT | LGF | 1. Describe the functional significance of gastrointestinal system.  2. Explains different aspects of electrical activities occurring in GIT | | | |  |
| 2 | General principles of GIT movements & their Control | LGF | 1.Describe general principles of GIT motility  2.Discuss general principles of Control of GIT movements | | | |  |
| 3 | Mastication and Deglutition-I | LGF | 1.Define Mastication and Deglutition & their Importance  2.Describe Chewing & swallowing Reflex  3.Name the Stages of Swallowing  4.Describe the events occurring in different Stages of swallowing | | | |  |
| 4 | Mastication and Deglutition-II | LGF | 1.List the Functions of tongue, teeth & esophagus  2.Define Receptive Relaxation of the Stomach  3.List the factors that prevent esophageal reflux | | | |  |
| 5 | Neural & hormonal control of GIT | SGF | 1. Describe general principles of neural & hormonal control of GIT functions.  2. Differentiate between structure, location & function of myenteric & submucosal plexus enteric nervous system.  3. List GIT hormones, along with their site of secretion | | | |  |
| 6 | General principles of GIT secretions &Types of glands in GIT | SGF | 1.Cite examples of different types of alimentary tract glands.  2.Describe general principles of GIT secretions | | | |  |
| 7 | Saliva | SGF | 1.Describe the composition, characteristics, & mode of secretion of saliva  2.Describe functions & regulation of secretion of saliva | | | |  |
| **Bio Chemistry** | | | | | | | |
| 1 | High energy compounds, enzymes and coenzymes involved in Redox reactions | **LGF** | 1.Explain how energy from oxidation of fuels like fats, carbohydrates & amino acids is liberated as reducing equivalents which pass through ETC by a series of redox carrier molecules of 4 complexes, embedded in the inner mitochondrial membrane & finally reduce the oxygen to form water  2.Enumerate & describe the 4 complexes & their components molecules involved in electrons transfer through ETC & the roles of flavoproteins, iron-sulfur proteins, & coenzyme Q | | | |  |
| 2 | Respiratory chain and electron carriers | LGF | 1.Describe how coenzyme Q accepts electron from NADH via comp-1 & from FADH2 via complex-II  2.Explain the process by which reduced cytochrome-C is oxidized & oxygen is reduced to water | | | |  |
| 3 | Saliva | SGF | 1.Describe the composition &  Functions of saliva  2.Enlist & explain the different factors  Which regulate salivary glands secretion | | | |  |
| 4 | Determination of blood Glucose | Practical |  | | | |  |
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| **Anatomy** | | | | **Week 02**  **Theme – Esophagus & Stomach** | | | |
| 1 | Gross Anatomy of Esophagus | SGF | 1.Explain Gross anatomy of esophagus | | | |  |
| 2 | Histology of Stomach | LGF | 1.Describe Histology of stomach | | | |  |
| 3 | Development of Foregut | LGF |  | | | |  |
| 4 | Esophagus & Stomach | Practical Histology | 1.Describe Histology of esophagus | | | |  |
| 5 | Gross Anatomy of Stomach | SGF | 1.Explain gross anatomy of stomach  2.Discuss Development of foregut and developmental abnormalities | | | |  |
| **Physiology** | | | | | | | |
| 1 | **Gastric secretion and its regulation** | **LGF** | 1.Describe the phases of gastric secretion  2.Describe the composition, characteristics and functions of gastric secretions  3.Describe the mechanism of HCl secretion by the stomach.  4.Describe the function of each type cell in different glands of the stomach  5.Describe the regulation & control of gastric secretions  6.Explain the composition & significance of gastric mucosal barrier | | | |  |
| 2 | **Motor function of Stomach-1** | **SGF** | 1.Describe the functional anatomy of stomach.  2.List the functions of stomach.  3.List the motor functions of stomach.  4.Describe the storage function of stomach | | | |  |
| 3 | **Motor function of Stomach-1I** | **SGF** | 5.Describe the mixing and propulsive movements of stomach.  6.Describe the regulation of gastric emptying  7.Explain the role of pyloric pump in gastric emptying.  8.Explain hunger contractions. | | | |  |
| 4 | **Disorders of stomach** | **SGF** |  | | | |  |
| **Bio Chemistry** | | | | | | | |
| 1 | Oxidative Phosphorylation | LGF | 1.Describe the generation of proton gradient & the resultant motive force across the inner mitochondrial membrane by transport of electrons through ETC which in turn produces ATP by oxidative phosphorylation  2.Describe the structure of ATP synthase enzyme(complex-V) & explain how it works as a rotary motor to synthesize ATP from ADP & Pi | | | |  |
| 2 | Respiratory Chain Inhibitors & Uncouples | LGF | 1.Describe the control of the rate of respiration, oxidation of reducing equivalents via ETC & its tightly coupling with oxidative phosphorylation in mitochondria  2.Discuss certain common poisons which block respiration or oxidative phosphorylation & identify their site of action  3.Explain how uncouplers act as poisons by dissociating oxidation from oxidative phosphorylation via ETC but at the same time they may have a physiological role in generating body heat. | | | |  |
| 3 | Gastric juice | SGF | 1.Identify the different components of gastric juice & explain their significance  2.Describe the synthesis of HCl & discuss the health hazards occur due to its imbalanced production  3.List & explain the various factors responsible for regulation of the secretion of gastric juice & their effects on the rate of synthesis of HCl | | | |  |
| 4 | Pancreatic juice | SGF | 1.Describe the composition of pancreatic juice  2.Discuss the role of enzymes of pancreas in digestion of food stuff & the role of Bicarbonate ions in neutralizing the acidic PH of Chyme  3.Name the phases of pancreatic juice secretion & discuss the factors regulating these secretory phases | | | |  |
| 5 | Determination of serum Bilirubin | Practical |  | | | |  |
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| **Anatomy** | | | | | | **Week 03**  **Theme – Movements of GIT** | |
| 1 | Gross Anatomy of Small Intestine - Duodenum | SGF | Discuss Gross anatomy of Small intestine | | | |  |
| 2 | Histology of Small Intestine | LGF | Discuss Histology of small intestine | | | |  |
| 3 | Small Intestine – Jejunum , Ileum & mesenteries | SGF | Discuss Gross anatomy of Small intestine | | | |  |
| 4 | Gross Anatomy of Small Intestine | LGF | Discuss Gross anatomy of Small intestine | | | |  |
| 5 | Histology of Small Intestine | Practical |  | | | |  |
| **Physiology** | | | | | | | |
| **1** | **GIT Hormones** | **LGF** | 1.Name GIT Hormones  2.Contrast stimuli for secretion, site of secretion & actions of Gastrin, Secretin, Cholecystokinin, GIP & Motilin | | | |  |
| **2** | **Movements of small intestine** | **LGF** | 1.Classify movements of small intestine  2.Explain mechanism, functions, significance & regulation of different types of movements of small intestine  3.List the autonomic reflexes affecting bowl activity  1.Classify movements of large intestine  2.Explain mechanism, functions, significance & regulation of different types of movements of intestine  3.Describe the function(s) of ileocecal valve & sphincter.  4.Describe the regulation of emptying at ileocecal sphincter. | | | |  |
| **Bio Chemistry** | | | | | | | |
| 1 | Digestion and absorption of carbohydrates | LGF | 1.Describe the process of CHO digestion & enzymes involved  2.Discuss the mechanism of absorption of the end products of hydrolysis of different carbohydrates in the diet | | | |  |
| 2 | Digestion and absorption of Proteins | LGF | 1.List the different proteolytic enzymes & explain their role in protein digestion  2.Describe the mechanism of absorption of the end products, amino acids  3.List the factors which influence protein digestion & absorption | | | |  |
| 3 | Digestion and absorption of Lipids | LGF | 1.Describe the role of different lipases & phospholipases in lipids digestion  2.Discuss the role of bile salts in digestion & absorption of fats & fats soluble vitamins  6.Describe the mechanisms of absorption long & short chain fatty acids | | | |  |
| 4 | Succus entericus | SGF | 1.Describe the nature of secretion of the small intestine  2.Describe the role of succus entericus in digestion of the ingested food | | | |  |
| 5 | Bile | SGF | 1.Recognize the organic & inorganic components of bile & explain their significance  2.Describe the synthesis & importance of bile salts  3.Explain the regulation of secretion of bile & clinical aspects of its imbalances | | | |  |
| 6 | Hyper, Hypo-chlorhydria & lactose intolerance | SGF |  | | | |  |
| 7 | Elisa, Determination of serum cholesterol, Determination of plasma protein | Practical |  | | | |  |
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| **Anatomy** | | | | | **Week 04**  **Theme –Large Intestine** | | |
| 1 | Colon & Appendix | Practical |  | | | |  |
| 2 | Histology of Colon & Appendix | LGF | Discuss Histology of appendix and colon | | | |  |
| 3 | Large Intestine | SGF | Explain Gross anatomy of Large intestine and appendix | | | |  |
| 4 | Appendix | SGF |  | | | |  |
| 5 | Development of Midgut & Foregut | LGF | Explain Development of midgut and developmental abnormalities | | | |  |
| **Physiology** | | | | | | | |
| 1 | **Digestion in GIT** | **LGF** | 1.Discuss the basic principle of digestion of various foods.  2.Describe the process of digestion of carbohydrates, fats & proteins in different parts of alimentary tract | | | |  |
| 2 | **Absorption in GIT** | **LGF** | 1.Discuss the basic principle of absorption of gastrointestinal absorption  2.Describe the mechanism of absorption of carbohydrates, fats & proteins in different parts of alimentary tract  3.Describe the mechanism of absorption of water & ions in different parts of alimentary tract  4.Describe the mechanism of formation & composition of feces | | | |  |
| 3 | **Secretion and movements of small & large intestine** | **SGF** | 1.List the functions of small & large intestine.  2.Describe the composition, characteristics and functions of secretions of small and large intestine  3.Describe the regulation & control of secretions of small and large intestine | | | |  |
| 4 | **Defecation reflex** | **SGF** | 1.Classify GIT reflexes  2. Give examples of different Type of Reflexes  3.List neurotransmitters secreted by enteric neurons | | | |  |
| 5 | **Abnormalities of intestine** | **SGF** |  | | | |  |
| 6 | **Taste Sensations** | **Practical** |  | | | |  |
| **Bio Chemistry** | | | | | | | |
| 1 | Nitrogen balance and  Reactions involved in amino acid metabolism-I | LGF | 1. Define nitrogen balance | | | |  |
| 2 | Reactions involved in amino acid metabolism-II | LGF | 1. Explain the different reactions of amino acid metabolism after absorption  2.Explain the significance & steps of urea cycle | | | |  |
| 3 | Urea Cycle - I & Related Disorders | LGF | 1.Describe defects of various enzymes & the resultant disorders of urea cycle | | | |  |
| 4 | Metabolism of Phe and Tyr | SGF | 1.Describe the metabolism of Phe & Tyr metabolism.  2.Discuss the congenital defects of certain enzymes of Phe & Tyr metabolism & the resultant disorders | | | |  |
| 5 | Disorders of Phe and Tyr metabolism | SGF | 1.Enumerate & explain the synthesis of specialized products of Phe & Tyr | | | |  |
| 6 | Metabolism of Glycine & Related Disorders | SGF |  | | | |  |
| 7 | Determination of serum creatinine | Practical |  | | | |  |
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| **Anatomy** | | | | **Week 05**  **Theme – GIT Accessory Organs** | | | |
| 1 | Liver & Gall Bladder | Practical |  | | | |  |
| 2 | Liver | SGF | 1.Discuss Histology of liver and gallbladder | | | |  |
| 3 | Gall Bladder 7 Extra hepatic Biliary Apparatus | SGF | 1.Discuss gross features of Gallbladder and extra hepatic biliary apparatus | | | |  |
| 4 | Pancreas - Revision | SGF | 1.Discuss Histology of liver and gallbladder | | | |  |
| 5 | Development of Accessory organs | LGF | 1.Explain Development of accessory apparatus and developmental abnormalities | | | |  |
| 6 | Portal Venous Circulation | LGF |  | | | |  |
| **Physiology** | | | | | | | |
| **1** | **Liver as an Organ** | **LGF** | 1.List the functions of liver  2.Describe the role of liver in control of body functions.  3.Highlight the physiological significance of liver as an organ. | | | |  |
| **2** | **Biliary secretion** | **SGF** | 1.Compare the composition of liver bile & gall bladder bile  2.Describe the physiological anatomy of biliary secretion, including the course followed by bile during rest & digestion  3.Describe the functions of different components of bile  4.Describe the mechanism of secretion, regulation & factors affecting bile secretion.  5.Describe the role of gall bladder in storing & concentrating bile  6.Correlate the knowledge of mechanism of biliary secretion with causes of gall stone formation. | | | |  |
| **3** | **Defecation reflex** | **SGF** | 1.Define Defecation reflex  2.List the types of Defecation reflex  3.Describe the components & control of Defecation reflex | | | |  |
| **Bio Chemistry** | | | | | | | |
| 1 | Glucose tolerance test | Practical |  | | | |  |
| 2 | Metabolism of alanine, serine & threonine | SGF | 1.Explain the metabolic fate of Ala, Ser, Thr  2.Illustrate the role of these amino acids in the body  3.Discuss the role of peptidyl serine, threonine & tyrosine in metabolic regulation & signals transduction pathway  4.Discuss the pathway by which alanine being a glucogenic amino acid is converted to glucose  5.Specialized product formed by the metabolism  of other standard amino acids | | | |  |
| 3 | Metabolism of Glycine & Related Disorders | SGF | 1.Describe the disorders related different amino acids metabolism  2.Describe the enzyme defects of various inherited diseases of amino acid metabolism  3.Describe the management of disorders of various amino acid metabolism | | | |  |
|  | Glucose Tolerance test | Practical |  | | | |  |
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| **Anatomy** | | | | | | **Week 06**  **Theme – Blood Supply of GIT** | |
| 1 | Revision GIT | Practical |  | | | |  |
| 2 | Aorta / Inferior Vena Cava | SGF | Explain Origin, course branches and area of distribution of aorta and inferior vena cava | | | |  |
| 3 | Blood Supply of GIT | LGF | Blood supply and lymphatic | | | |  |
| 4 | Posterior Abdominal Wall | LGF | Describe Gross anatomy of posterior abdominal wall including muscles, | | | |  |
| **Physiology** | | | | | | | |
| **1** | **Physiology of GIT disorders** | **LGF** | 1. Correlate the knowledge of GIT Physiology with physiological basis of vomiting, diarrhea, constipation, gastrointestinal obstruction & excessive flatus.  2.Describe the physiological basis of the causes, effects, mechanism of development, and Physiology of treatment of paralysis of swallowing mechanism, achalasia & megaesophagus  3.Describe the physiological basis of the causes, effects, mechanism of development, and Physiology of treatment of gastritis, gastric atrophy & peptic ulcer.  4.Name different disorders of stomach  5.Explain physiological basis of different disorders of stomach  6.Predict how these disorders can affect the homeostatic functions of GIT  7.Describe the physiological basis of the causes, effects, mechanism of development, and Physiology of treatment of pancreatic failure, sprue  8.Explain the effects of spinal cord injuries on defecation. | | | |  |
| **2** | **Pancreatic Secretion** | **SGF** | 1.Describe the composition, characteristics and functions of pancreatic secretions  2.Describe the phases of pancreatic secretion  3.Describe the regulation & control of pancreatic secretions | | | |  |
| **Bio Chemistry** | | | | | | | |
| 1 | Determination of blood urea | Practical |  | | | |  |
| 2 | Metabolism of Branch Chain Amino Acids | SGF | 1.Describe the reactions involved in the metabolism  of branched chain amino acids  2.Identify the specific enzymatic defects in hyper valinemia, Maple syrup urine disease, intermittent branched-chain ketonuria & iso-valeric acidemia | | | |  |
| 3 | Urea Cycle-II & Related Disorders | LGF | 1.Explain the significance & steps of urea cycle  2.Describe defects of various enzymes & the resultant disorders of urea cycle | | | |  |
|  | BMR & factors affecting BMR, Respiratory quotient and Caloric requirements | LGF | 1. Describe BMR & factors affecting BMR 2. Define respirator quotient & describe the caloric requirements of normal individuals | | | |  |
|  | Nutrition importance of CHO, Proteins, Lipids and Fiber | SGF | 1. Describe the nutritional importance of carbohydrate & protein, 2. Describe the nutritional significance of lipids & fiber | | | |  |
|  | Balanced diet, Diet required in pregnancy & lactation | SGF | 1. Describe balanced diet 2. Describe the nutritional requirements for a woman in pregnancy & Lactation | | | |  |
|  | Obesity, Protein energy malnutrition (PEM) | LGF | 1. Describe Obesity 2. Describe protein energy malnutrition 3. Differentiate between Marasmus & Kwashiorkor | | | |  |

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| --- | --- |
| ISL/Pak | Early problem of Pakistan |
| ISL/Pak | The role of ulama and mashikh in the freedom |
| ISL/Pak | Constitutional and political development in Pakistan since 1947 |
| Community Medicine | Medical Sociology |
| Medicine | Overview of disorders of large & small Intestine |
| Medicine (CSC) | Basic signs and symptoms of GIT disorders |
| Pharmacology | Treatment of Viral Hepatitis |
| DME | Pre-Post- Feed Back |
| PAL - Seminar (Interdisciplinary) | Peptic-ulcer |
| Family Medicine | Role of Family in Health & Disease |
| Surgery | Disorders of defection |

**Vertical Subject Topic List (RMC)**

**Vertical Subject Topic List (Additional)**

|  |  |
| --- | --- |
| **Medicine** | Hepatitis |
| Diarrhea |
| GERD |
| **Community Health Sciences** | Food Poisoning |
| Poliomyelitis |
| Water borne infections |
| **Surgery** | Gall Stones |
| Intestinal obstruction |
| **Pathology** | Gastritis |

**PRIME topics added as per KMU Document**.

Module- GIT, Hepatobiliary and Metabolism MBBS2nd Prof

**General Objectives of Biochemistry for GIT, Hepatobiliary and Metabolism**

* To explain the process of digestion & its significance
* To describe the composition of

1. Saliva
2. Gastric juice
3. Pancreatic juice
4. Bile
5. Succus entericus

* To describe the role of different components of above secretions in digestion

of carbohydrates, lipids & proteins

* To describe that how the products of digestion are absorbed from GIT
* To describe the different pathways of carbohydrate metabolism
* To describe the synthesis & oxidation of fatty acid
* To describe the metabolism of cholesterol, ketone bodies & lipoproteins

**Biochemistry Topic List**

* High energy compounds, enzymes & coenzymes involved in Redox reactions
* Respiratory chain and electron carriers
* Oxidative Phosphorylation
* Respiratory Chain Inhibitors & Uncouples
* Gastric juice
* Pancreatic juice
* Digestion and absorption of carbohydrates
* Digestion and absorption of Proteins
* Digestion and absorption of Lipids
* Bile
* Succus entericus
* Hyper, Hypo-chlorhydria & lactose intolerance
* Metabolism of alanine, serine & threonine
* Nitrogen balance & Reactions involved in amino acid metabolism-I
* Reactions involved in amino acid metabolism-II
* Urea Cycle-II & Related Disorders
* Metabolism of Phe and Tyr
* Disorders of Phe and Tyr metabolism
* Metabolism of Glycine & Related Disorders
* Metabolism of Branch Chain Amino Acids
* Metabolism of carbohydrates, including Glycolysis, TCA cycle, Gluconeogenesis,

Glycogen synthesis & breakdown, HMP & Uronic acid pathway

* Disorders related to glycogen metabolism
* Fatty acid synthesis, fatty acid oxidation & related disorders
* Synthesis & fate of ketone bodies
* Cholesterol, lipoproteins metabolism & related disorders
* BMR & factors affecting BMR, Respiratory quotient and Caloric requirements
* Nutritional importance of carbohydrates, proteins, lipids & fiber
* Balanced diet, Diet required in pregnancy & lactation
* Obesity, Protein energy malnutrition(PEM)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Topics** | **Contents** | | **Objectives** | **Comments** | |
| 1 | | **GIT** | Introduction to digestion and absorption | | 1. Discuss the process of digestion of the ingested food in the GI tract 2. Describe absorption of the end products of digestion of digestion different food articles take place |  | |
| Secretion of salivary glands  (Saliva) | | 1. Describe the composition &   Functions of saliva   1. Explain the different factors which regulate salivary glands secretion |  | |
| The secretion of stomach  (gastric juice) | | 1. Identify the different components of gastric juice & explain their significance 2. Describe the synthesis of HCl & discuss the health hazards occur due to its imbalanced production 3. List & explain the various factors responsible for regulation of the secretion of gastric juice & their effects on the rate of synthesis of HCl |  | |
| Secretion of pancreas  (pancreatic juice) | | 1. Describe the composition of pancreatic juice 2. Discuss the role of enzymes of pancreas in digestion of food stuff & the role of Bicarbonate ions in neutralizing the acidic PH of Chyme 3. Name the phases of pancreatic juice secretion & discuss the factors regulating these secretory phases |  | |
| 1. Secretion of the liver (Bile) 2. Cholelithiasis and related disorders | | 1. Recognize the organic & inorganic components of bile & explain their significance 2. Describe the synthesis & importance of bile salts 3. Explain the regulation of secretion of bile & clinical aspects of its imbalances |  | |
|  | |  | Succus entericus | | 1. Describe the nature of secretion of the small intestine 2. Describe the role of succus entericus in digestion of the ingested food |  | |
| 1. Digestion & absorption of carbohydrates (CHO) 2. Digestion & absorption of lipids 3. Digestion & absorption of proteins | | 1. Describe the process of CHO digestion & enzymes involved 2. Discuss the mechanism of absorption of the end products of hydrolysis of different carbohydrates in the diet 3. Describe the role of different lipases & phospholipases in lipids digestion 4. Discuss the role of bile salts in digestion & absorption of fats & fats soluble vitamins 5. Describe the mechanisms of absorption long & short chain fatty acids 6. List the different proteolytic enzymes & explain their role in protein digestion 7. Describe the mechanism of absorption of the end products, amino acids 8. List the factors which influence protein digestion & absorption |  | |
| 2 | **Protein & Amino Acids Metabolism** | | | Protein metabolism   1. Nitrogen balance 2. Reactions involved in amino acid metabolism 3. Urea cycle & disorders of urea cycle | 1. Describe nitrogen balance 2. Explain the different reactions of amino acid metabolism after absorption 3. Explain the significance & steps of urea cycle 4. Describe defects of various enzymes & the resultant disorders of urea cycle | |  |
| 1. Metabolism of phenyl alanine (Phe) & Tyrosine (Ty 2. Congenital disorders of Phe & Tyr metabolism | 1. Describe the metabolism of Phe & Tyr metabolism. 2. Discuss the congenital defects of certain enzymes of Phe & Tyr metabolism & the resultant disorders 3. Enumerate & explain the synthesis of specialized products of Phe & Tyr | |  |
| Metabolism of alanine, serine &  Threonine, glutamine, Glutamate, asparagine, aspartate glycine, histidine, lysine  Methionine, cystine, arginine | 1. Explain the metabolic fate of Ala, Ser, Thr 2. Illustrate the role of these amino acids in the body 3. Discuss the role of peptidyl serine, threonine & tyrosine in metabolic regulation & signals transduction pathway 4. Discuss the pathway by which alanine being a glucogenic amino acid is converted to glucose 5. Specialized product formed by the metabolism   of other standard amino acids | |  |
|  | |  | Metabolic defects of different amino acids metabolism | | 1. Describe the disorders related different amino acids metabolism 2. Describe the enzyme defects of various inherited diseases of amino acid metabolism 3. Describe the management of disorders of various amino acid metabolism |  | |
|  | |  | Metabolism of branched  chain amino acids | | 1. Describe the reactions involved in the metabolism   of branched chain amino acids   1. Identify the specific enzymatic defects in hyper valinemia, Maple syrup urine disease, intermittent branched-chain ketonuria & iso-valeric acidemia |  | |
| 3 | | **Bioenergetics Electron Transport chain and oxidative phosphorylation** | High energy compounds, enzymes & coenzymes involved in Redox reactions | | 1. Explain how energy from oxidation of fuels like fats, carbohydrates & amino acids is liberated as reducing equivalents which pass through ETC by a series of redox carrier molecules of 4 complexes, embedded in the inner mitochondrial membrane & finally reduce the oxygen to form water 2. Enumerate & describe the 4 complexes & their components molecules involved in electrons transfer through ETC & the roles of flavoproteins, iron-sulfur proteins, & coenzyme Q |  | |
| Respiratory chain & electron carriers | | 1. Describe how coenzyme Q accepts electron from NADH via comp-1 & from FADH2 via complex-II 2. Explain the process by which reduced cytochrome-C is oxidized & oxygen is reduced to water |  | |
|  | |  | Oxidative phosphorylation | | 1. Describe the generation of proton gradient & the resultant motive force across the inner mitochondrial membrane by transport of electrons through ETC which in turn produces ATP by oxidative phosphorylation 2. Describe the structure of ATP synthase enzyme(complex-V) & explain how it works as a rotary motor to synthesize ATP from ADP & Pi |  | |
| Respiratory chain inhibitors & uncouplers | | 1. Describe the control of the rate of respiration, oxidation of reducing equivalents via ETC & its tightly coupling with oxidative phosphorylation in mitochondria 2. Discuss certain common poisons which block respiration or oxidative phosphorylation & identify their site of action 3. Explain how uncouplers act as poisons by dissociating oxidation from oxidative phosphorylation via ETC but at the same time they may have a physiological role in generating body heat. |  | |
| 4 | | **Lipids Metabolism** | TAG, Fatty acid biosynthesis and Fatty acid oxidation | | 1. Describe the process of TAG and Fatty acid biosynthesis, enumerate the Enzymes involved 2. How the synthesis of fatty acid is regulated 3. Enumerate the different types of Fatty acid oxidation. Describe the steps of fatty acid Beta- oxidation 4. Explain the disorders of beta oxidation focusing on the specific enzymes defect |  | |
|  | | **Lipids Metabolism** | **Synthesis and degradation of phospholipids, Glycolipids and their metabolic disorders**  **Biosynthesis of cholesterol**  **Synthesis and utilization of ketone bodies**  **Lipoproteins metabolism** | | 1. Describe the synthetic and degradative Pathways of phospholipids and Glycolipids 2. Explain the Metabolic Disorders of Phospholipids and Glycolipids 3. Explain the biosynthesis of cholesterol 4. Describe the regulation of cholesterol synthesis 5. Describe the synthetic steps of ketone bodies 6. Discuss the regulation of ketone bodies synthesis 7. Explain the utilization of ketone bodies 8. Explain the different types and synthesis of lipoproteins 9. Discuss the functions and importance lipoproteins 10. Describe the disorders Lipoproteins Metabolism |  | |
| 5 | | **Carbohydrate Metabolism** | **Glycolysis & fate of Pyruvate**  **Gluconeogenesis & Glycogen metabolism**  **HMP, TCA, Uronic acid pathways & Metabolism of glycosaminoglycans** | | 1. Describe glycolysis, focusing on the types & steps of glycolysis 2. Describe the regulation of glycolysis & the energy yield by glycolysis 3. Describe the fate & significance of pyruvate 4. Define Gluconeogenesis, what are its substrates, describe the steps & how it is regulated 5. Describe the pathways of glycogenesis & glycogenolysis along with their regulations 6. Describe the glycogen storage diseases 7. Describe the steps, regulations, importance of HMP, TCA, Uronic acid pathways 8. Describe the amphibolic significance & energetics of TCA 9. What are the inhibitors of TCA cycle & describe the metabolism of glycosaminoglycans |  | |
| 6 | | **Nutrition**    **Nutrition** | **BMR & factors affecting**  **BMR, Respiratory quotient and Caloric requirements**  **Nutrition importance of CHO, Proteins, Lipids and Fiber**  **Balanced diet, Diet required in pregnancy & lactation**  **Obesity, Protein energy malnutrition (PEM)** | | 1. Describe BMR & factors affecting BMR 2. Define respirator quotient & describe the caloric requirements of normal individuals 3. Describe the nutritional importance of carbohydrate & protein, 4. Describe the nutritional significance of lipids & fiber 5. Describe balanced diet 6. Describe the nutritional requirements for a woman in pregnancy & Lactation 7. Describe Obesity 8. Describe protein energy malnutrition 9. Differentiate between Marasmus & Kwashiorkor |  | |

**Learning objectives**

**Neurosciences-1 Module**

**Year-2 (MBBS)**

**Total Weeks-6**

Central Curriculum Committee, Khyber Medical University

**Themes**

1. Numbness and tingling---1 week
2. Paraplegia-------------------1 week
3. Syncope--------------------1 week
4. Hemiplegia / Aphasia------------------1 week
5. Tremors ---------------------1 week
6. Headache ---------------1 week

**General learning outcomes**

At the end of this module, the 2nd year MBBS students will be able to:

1. Explain the gross and microscopic structural and functional features of peripheral nerves, spinal cord and brain.
2. Describe the development of forebrain, midbrain and hindbrain
3. Describe the basic functions of synapses, neurotransmitters and mechanisms of electrical events during neuronal excitation
4. Explain the structure and functions of different receptors during neuronal excitation
5. Describe the mechanisms and pathways of sensory inputs in the nervous system
6. Explain the organization, structure, functions, and neurotransmitters of autonomic nervous system
7. Describe the blood supply and venous drainage of brain and spinal cord
8. Describe the organization, structure and functions of motor system of the brain and spinal cord
9. Explain the organization, structure and functions of cerebellum and basal ganglia
10. Explain the structure, formation and drainage of cerebrospinal fluid in the brain and spinal cord
11. Describe the functions of limbic system and reticular activating system
12. Describe the pathophysiology and prevention of common diseases like stroke, epilepsy, hydrocephalus and brain injuries
13. Identify the microscopic structure of spinal cord, cerebral and cerebellar cortex
14. Examine nervous system of a standardized patient (sensations, motor functions, and higher cortical functions and tendon reflexes)

Specific Learning objectives

**Theme-1 (numbness and tingling)**

|  |  |  |
| --- | --- | --- |
| Subject | Topic | Learning objectives |
| Gross anatomy | Overview of nervous system | Describe the general features of neurons and its classification |
|  |  | Differentiate between central and peripheral nervous system. |
|  |  | Describe the general features of brain (forebrain, midbrain and hindbrain) |
|  |  | Describe the general features of spinal cord including its enlargements at different levels |
|  |  | Describe the general features of cranial and spinal nerves |
|  |  | Differentiate between the anatomical aspects of sympathetic and parasympathetic system |
| Embryology | Forebrain, midbrain and hindbrain | Describe the development of primary and secondary brain vesicles |
|  |  | Enlist the derivatives of the brain vesicles |
|  |  | Describe the development of prosencephalon, mesencepahalon and rhombencephalon |
|  |  | Discuss congenital anomalies associated with each region of brain |
| Physiology | Organization of the Nervous System | Describe general design of the nervous system |
|  |  | Describe various divisions of the nervous system. |
|  |  | Describe structural and functional unit of CNS. |
|  |  | Describe Functional components of Neuron. |
|  |  | Describe Functional and Structural classification of Neurons |
|  |  | Describe major levels of central  nervous system function |
|  |  | Describe Glial cells and their functions. |
|  |  | Compare nervous system to a computer |
|  | Basic Functions of Synapses | Define and classify synapses |
|  |  | Explain physiological structure of synapse |
|  |  | Describe Mechanism by Which an Action Potential Causes Transmitter Release from the Presynaptic Terminals |
|  |  | Describe synaptic transmission and explain properties of synaptic transmission. |
|  |  | Describe mechanism of action of neurotransmitter on the post synaptic membrane. |
|  |  | Describe Second messenger system in the post synaptic neuron |
|  | Functions of Neurotransmitters | Define the characteristics of a neurotransmitter |
|  |  | Enumerate the neurotransmitters involved in central nervous system. |
|  |  | Classify neurotransmitters and describe the actions of some common neurotransmitters in central nervous system. |
|  | Electrical Events during Neuronal Excitation and Inhibition | Describe resting membrane potential of the neuronal soma. |
|  |  | Describe Effect of Synaptic Excitation on the Postsynaptic Membrane—Excitatory Postsynaptic Potential. |
|  |  | Describe Effect of Inhibitory Synapses on the Postsynaptic Membrane—Inhibitory Postsynaptic Potential. |
|  |  | Describe Generation of Action Potentials in the Initial Segment of the Axon Leaving the Neuron—Threshold for Excitation |
|  | Sensory Receptors | Define and classify receptors. |
|  |  | Classify receptors according to their location in the body. |
|  |  | Describe specific functions of receptors. |
|  |  | Describe Receptor or generation potential |
|  |  | Discuss mechanism of action of sensory transduction. |
|  | Coding of Sensory Information | Describe Doctrine of specific nerve energies |
|  |  | Describe Modality of Sensation—The “Labeled Line Principle” |
|  |  | Define and discuss law of projection |
|  |  | Discuss properties of stimulus; modality, Stimulus location Stimulus intensity Stimulus duration |
|  |  | Describe Frequency of action potentials with threshold level of receptor potential |
|  | Transmission and Processing of Signals in CNS | Describe Relaying of signals through  Neuronal pools; Divergence, Convergence, Prolongation of Signals |
|  | Types of nerve fibers, its regeneration and degeneration | Describe the mechanism of degeneration & regeneration. |
|  |  | Describe the duration required for regeneration inside & out of CNS. |
|  |  | Enumerate the causes of degeneration. |
|  |  | Discuss Wallerian degeneration |
|  |  | Identify the microscopic appearance of degenerating neurons |
|  | Somatic Sensations | Describe Tactile receptors in the skin and their functions: Pacinian corpuscles, Meissner’s corpuscles, Ruffini endings, Merkle cell, A-delta and C free nerve endings |
|  | Transmission in the Dorsal column medial Lemniscal system | Describe ascending pathways and enumerate the differences between the two. |
|  |  | Describe Transmission in the Dorsal column–medial Lemniscal system |
|  |  | Describe Spatial Orientation of the Nerve  Fibers in the Dorsal Column–Medial  Lemniscal System |
|  |  | Describe two-point discrimination |
|  | Somatosensory Cortex | Identify the diagrammatic representation of different areas of the body in the somatosensory cortex I |
|  |  | Identify Broadman’s areas of cerebral cortex and correlate each one of them with their respective functions. |
|  |  | Describe the functions of somatosensory area I. |
|  |  | Describe layers of the somatosensory cortex and their function. |
|  |  | Describe the functions of somatosensory association area |
|  | Transmission of  Sensory signals in the Anterolateral pathway | Differentiate the submodalities of nondiscriminative touch, temperature and nociception based on receptor transduction mechanism, localization within the spinal gray matter, and central termination of the pathways. |
|  |  | Describe functional organization at all levels and sub-modalities served by the anterolateral system and the equivalent components of the spinal trigeminal system. |
| Biochemistry | Neurotransmitters | Explain the biosynthesis of different neurotransmitters |
|  | Brain and nervous tissues metabolism | Describe the metabolism of brain and nervous tissues |
| General Medicine | Peripheral neuropathies | Describe the etiology and types of peripheral neuropathies |
|  |  | Discuss the clinical presentation and complications of diabetic neuropathies |
| Histology | Transverse section of spinal cord (cervical level) 1 | Identify the slide of transverse section of cervical spinal cord under the microscope |
| Physiology | Examination of sensations | Examine the sensations (tactile, position, pain, thermal, vibration) of lower limb on a standardized patient |

**Theme-2 (Paraplegia)**

|  |  |  |
| --- | --- | --- |
| Gross anatomy | Externals features of Spinal Cord | Describe the shape, grooves and sulci and extension of spinal cord |
|  |  | Enlist the segments of spinal cord |
|  |  | Differentiate between white and grey matter of spinal cord |
|  |  | Describe the meningeal covering of spinal cord |
|  |  | Describe the blood supply of spinal cord |
|  | Grey Matter of Spinal Cord | Describe the distribution of spinal cord into horns |
|  |  | Differentiate between anterior, lateral and posterior horns |
|  |  | Describe the distribution of sensory and motor neuron within the grey matter |
|  |  | Explain formation of Rexed lamina of spinal cord |
|  | White matter of spinal cord | Enumerate the ascending tracts |
|  |  | Explain the origin, pathway and termination of dorsal column medial lemniscal system  Explain the origin, pathway |
|  |  | and termination of anterolateral spinothalamic tract. |
|  |  | Enumerate the descending tracts |
|  |  | Explain the origin, pathway and termination of pyramidal tracts |
|  |  | Explain the origin, pathway and termination of extrapyramidal tracts |
|  |  | Differentiate between pyramidal and extrapyramidal tracts |
| Embryology | Spinal cord | Discuss the development of alar and basal plate and its derivatives |
| Histology | Spinal cord | Identify the light microscopic transverse section of spinal cord at cervical, thoracic, lumbar and sacral regions |
|  |  | Draw and label the transverse section of spinal cord at different levels |
| Physiology | Introduction to Motor Nervous System (General Principles) | Describe organization of the spinal cord  for motor functions |
|  | Give an overview of the components of nervous system involved in motor control |
|  | Identify and differentiate upper and lower motor neurons |
|  | Describe the types of anterior horn cells |
|  | Describe the concept of Final Common Path |
|  | Describe broad types of motor activities |
|  | Motor functions of Spinal cord I:  Stretch Reflex | Describe structural organization of the muscle spindle |
|  | Define a reflex action and enlist components of reflex arc. |
|  | Describe types of reflexes and their level of integration. |
|  | Describe Stretch Reflex |
|  | Differentiate between Static (Tonic) and Dynamic (Phasic) stretch reflex |
|  | Describe Functions of muscle spindle |
|  | Discuss physiological significance of these reflexes. |
|  | Describe Functions of Gamma efferent system |
|  | Describe the role of the muscle spindle in  voluntary motor activity |
|  | Motor functions of Spinal cord II:  Golgi Tendon Reflex, Withdrawal Reflexes | Describe Golgi Tendon Reflex |
|  | Differentiate between muscle spindle and Golgi tendon organ. |
|  | Describe types of polysynaptic reflexes and their level of integration. |
|  | Discuss physiological significance of these reflexes. |
|  | Describe reciprocal inhibition and  reciprocal innervation |
|  | Support of the body against gravity,  Reflexes of Posture And Locomotion | Describe Positive Supportive Reaction |
|  | Describe Cord “Righting” Reflexes. |
|  | Describe stepping and walking movements |
|  | Describe Excitatory-Inhibitory Antagonism  Between Pontine and Medullary Reticular Nuclei |
|  | Vestibular Sensations and  Maintenance of Equilibrium | Describe the physiologic anatomy of vestibular apparatus |
|  | Describe function of the utricle and  saccule in the maintenance of static equilibrium |
|  | Describe function of semicircular ducts |
|  | Describe Neuronal Connections of the Vestibular Apparatus |
|  | Describe Vestibular mechanism for stabilizing the eyes |
|  | Lesions of the Spinal Cord:  Upper and Lower Motor Neuron lesion | Define muscle tone and describe its significance. |
|  | Explain the sequence of events during development of muscle tone. |
|  | Discuss spinal shock |
|  | Differentiate between signs of the upper and lower motor neurons. |
| General medicine | Hemi-section of spinal cord | Describe the clinical features of Brown Sequard syndrome |
|  |  | Describe the etiology, clinical features, investigations and management of a patient with paraplegia |
| Histology | Transverse section of thoracic segment of spinal cord-2 | Identify the slide of transverse section of thoracic segments of spinal cord under the microscope |
| Physiology | Examination of deep tendon reflexes-1 | Examine a standardized patient for deep tendon reflexes of lower limbs |

**Theme- 3 (Syncope)**

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| Gross anatomy | Medulla | Enlist the components of brain stem |
|  |  | Describe the external features of brainstem |
|  |  | Describe the transverse section of medulla at the level of sensory decussation, motor decussation and inferior Olivary nuclei |
|  |  | Enumerate the cranial nerves nuclei present within the medulla |
|  | Pons | Describe the transverse section of pons at the level of cranial and caudal parts |
|  |  | Enumerate the cranial nerves nuclei present within the pons |
|  | Midbrain | Describe the transverse section of pons at the level of superior colliculus and inferior colliculus |
|  |  | Enumerate the cranial nerves nuclei present within the midbrain |
| Physiology | Involuntary function of brain | Describe the involuntary functions of the brain |
|  | Functions of reticular activating system | Describe the structure and functions of RAS |
|  | Coma and brain death |  |
|  | The Autonomic Nervous System 1 | Describe the differences in the locations, level and organization of sympathetic and parasympathetic nervous system. |
|  |  | Identify the target organs of sympathetic and parasympathetic nervous system. |
|  |  | Describe the distribution of afferent and efferent sympathetic and parasympathetic fibers to their respective target organs. |
|  |  | Contrast the sympathetic and parasympathetic branches of the autonomic nervous system based on: spinal cord division of origin, length of preganglionic and postganglionic neurons, neurotransmitters and receptors at the ganglionic and target organ synapse. |
|  | The Autonomic Nervous System 2 | Discuss basic characteristics of sympathetic and parasympathetic functions |
|  |  | Describe receptors on the effector organs |
|  |  | Describe function of the adrenal medullae |
|  |  | Describe sympathetic and parasympathetic “tone” |
|  |  | Describe “alarm” or “stress” response of  the sympathetic nervous system |
| Pharmacology | Drugs acting on sympathetic nervous system | Enlist the drugs acting on SNS and describe their mechanism of actions |
|  | Drugs acting on parasympathetic nervous system | Enlist the drugs acting on PNS and describe their mechanism of action |
| Forensic medicine | Brain death | Certify brain death |
|  |  | Describe the medicolegal importance of brain death |
| Histology | Transverse section of lumbar spinal cord-3 | Identify the slide of transverse section of Lumbar segment of spinal cord under the microscope |
| Physiology | Examination of deep tendon reflexes-2 | Examine a standardized patient for upper limbs tendon reflexes |

**Theme-4 (Hemiplegia)**

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| Gross anatomy | Cerebrum   * Grey matter of cerebrum * White matter of * cerebrum | Division of cerebrum into different lobes, its surfaces, sulci and gyri |
|  | Distribution of grey matter in cerebral hemispheres |
|  | Enumerate the types of white matter fibers |
|  | Differentiate between association, projection and commissural fibers |
|  | Detailed account of corpus callosum |
|  | Diencephalon | Structure and important nuclei of Thalamus and Hypothalamus |
|  | Blood supply of brain | Describe the formation of circle of Willis |
| Histology | Cerebral cortex | Identify the cerebral cortex on light microscope |
|  |  | Enlist the different histological layers of cerebral cortex |
| Physiology | Cortical Control of Motor Functions | Describe Motor Functions of Specific Cortical Areas |
|  |  | Describe transmission of signal from the motor cortex to the muscles. (Pyramidal and extrapyramidal). |
|  |  | Explain the excitation of the spinal cord motor control areas by the primary motor cortex and red nucleus. |
|  | Functions of Descending Tracts | Describe the functions of Descending Tracts |
|  |  | Describe Decerebrate and Decorticate Rigidity |
| Community medicine | Risk factors of cerebrovascular diseases | Describe risk factors for the development of cerebrovascular diseases |
|  | Explain the strategies to prevent cerebrovascular diseases |
| General medicine | Stroke | Differentiate between hemorrhagic and ischemic stroke |
|  |  | Describe the etiology, clinical features, investigations and prevention of stroke |
| Histology | Cerebral cortex | Identify the histological layers of cerebral cortex under the microscope |
| Physiology | Examination of motor functions of the brain and spinal cord | Examine a standardized patient for power, tone and movements of upper and lower limbs, speech, memory and other higher cortical functions |

**Theme- 5 (Tremors)**

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| Gross anatomy | Basal nuclei |  | Enumerate the components of basal nuclei  Describe the structure and relation of corpus striatum, red nucleus and substantia nigra |
|  | Cerebellum |  | Describe the general features of cerebellum |
|  |  |  | Name the lobes of cerebellum and discuss its anatomical and physiological classification |
|  |  |  | Enumerate the intracerebellar nuclei of cerebellum |
|  |  |  | Describe the input and output of cerebellum |
| Histology | Histology of cerebellum |  | Identify the cerebellar cortex on light microscope |
|  |  |  | Enlist the different histological layers of cerebellar cortex |
| Physiology | Cerebellum I:  Basic Circuit and Connections |  | Describe the divisions of cerebellum into 3 lobes and their connections. |
|  |  |  | Describe Interconnections of neurons of cerebellar cortex |
|  |  |  | Describe Cerebellar afferent fibers |
|  |  |  | Describe Cerebellar efferent fibers |
|  |  |  | Describe the functional circuits of cerebellum |
|  | Cerebellum II: Functions and Disorders |  | Explain the functional differences between vermis and cerebellar hemispheres. |
|  |  |  | Describe Functions of vestibulocerebellum |
|  |  |  | Describe Functions of spinocerebellum |
|  |  |  | Describe Functions of cerebrocerebellum |
|  |  |  | Describe the clinical abnormalities of cerebellum |
|  | Basal Ganglia I: Pathways and connections |  | Describe the anatomical and physiological classification of basal ganglia. |
|  |  |  | Describe the functional circuits of basal ganglia. |
|  |  |  | Describe connections of putamen circuit. |
|  |  |  | Describe connections of caudate circuit. |
|  |  |  | Enlist the differences between direct and indirect pathways |
|  | Basal Ganglia II: Functions and Diseases |  | Describe functions of putamen circuit. |
|  |  |  | Describe functions of caudate circuit. |
|  |  |  | Explain the clinical problems related to basal ganglia |
| Biochemistry | Phosphosphingolipids |  | Describe the metabolism of phosphosphingolipids |
| Pharmacology | Drugs used in Parkinson’s disease |  | Describe the groups of drugs used in Parkinson`s disease and their mechanism of actions |
| General medicine | Parkinson`s disease |  | Describe the pathology, clinical features and treatment of Parkinson`s disease |
|  |  |  | Differentiate between cerebellar and parkinsonian tremors |
| Skills and affective domain | | | |
| Histology | Cerebellar cortex |  | Identify the histological layers of cerebellar cortex under the microscope |
| Physiology | Examination of cerebellum |  | Illicit cerebellar signs in a standardized patient |

**Theme-6 (Headache)**

|  |  |  |  |
| --- | --- | --- | --- |
| Gross anatomy | Dural venous sinus |  | Differentiate between paired and unpaired venous sinuses  Discuss the structure and drainage of individual venous sinuses |
|  | CSF in ventricular system |  | Discuss the structure of choroidal plexus and the formation of CSF in ventricles |
| Physiology | Pain Sensation  Pathways |  | Describe pain receptors and type of stimuli causing pain. |
|  |  |  | Describe types of pain. |
|  |  |  | Explain in detail the pathway for pain. |
|  | Pain suppression (analgesia)  System in the brain and  Spinal cord |  | Define analgesia |
|  |  |  | Explain pain suppression system in the brain and spinal cord. |
|  |  |  | Describe Gate control theory and Brain Opiate system |
|  |  |  | Describe clinical abnormalities of pain:  Primary and Secondary Hyperalgesia |
|  | Headache,  Referred Pain |  | Define referred pain and describe its mechanism. |
|  |  |  | Describe the clinical significance of referred pain with examples. |
|  |  |  | Enumerate the causes of referred pain. |
|  |  |  | Enlist the causes of intra-cranial and extra-cranial headache and correlate with the underlying mechanism of pain. |
|  | Thermal Sensations |  | Describe thermal receptors and their excitation |
|  |  |  | Describe mechanism of stimulation of thermal receptors |
|  |  |  | Describe transmission of thermal signals  in the nervous system |
|  | Functions of Specific Cortical Areas (Concept of Dominant Hemisphere) |  | Name the association areas of brain. Briefly describe their location and function? |
|  |  |  | Draw the diagram of cerebral cortex to show the different functional areas |
|  | Language and Speech |  | Define and classify speech |
|  |  |  | Describe how the brain performs the function of speech. |
|  |  |  | Describe Broca’s area in the brain, and its function. |
|  |  |  | Describe wernicke’s area in the brain, and its function. |
|  |  |  | Describe the speech pathways for perceiving a heard word and then speaking the same word & perceiving a written word and repeating it and correlate it with their clinical significance |
|  |  |  | Describe the effects of damage to broca’s area and wernicke’s area |
|  |  |  | Describe disorders related to speech. |
|  | Learning and Memory |  | Define and classify memory and explain its basic mechanism. |
|  |  |  | Describe the mechanism of synaptic facilitation and synaptic inhibition |
|  |  |  | Describe consolidation of memory, and briefly describe one of its most important features. |
|  |  |  | Describe Codifying of new memories |
|  |  |  | Role of specific parts of the brain in the memory process |
|  |  |  | Explain disorders related to memory. |
|  | Activating-Driving Systems of the Brain |  | Describe bulboreticular facilitatory area.  Explain continuous stimulation from lower brain by four neurohormonal systems. |
|  |  |  | Explain continuous stimulation from lower brain by four neurohormonal systems. |
|  | Limbic System |  | Describe the principal components of the limbic system: hippocampus, amygdala, prefrontal cortex, and nucleus accumbens), the pathways connecting them and their functions. |
|  |  |  | Discuss the anatomy of memory and emotion in relation to the limbic system |
|  |  |  | Describe Functions of limbic system |
|  |  |  | Describe the connection of hypothalamus with different areas of brain. |
|  |  |  | Describe the vegetative and endocrine functions of hypothalamus. |
|  |  |  | Describe the behavioral functions of hypothalamus. |
|  | Brain Waves and Sleep |  | Describe brain waves. |
|  |  |  | Describe the clinical significance of EEG. |
|  |  |  | Define sleep. Describe its various types and characteristics. |
|  |  |  | Describe basic theories of sleep. |
|  |  |  | Describe genesis of n-REM and REM sleep. |
|  |  |  | Enumerate the neurotransmitters involved in sleep. |
|  |  |  | Describe various sleep disorders. |
|  | Seizures and Epilepsy |  | Define seizure and epilepsy. |
|  |  |  | Classify seizures & epilepsies |
|  |  |  | Enumerate causes of seizure and epilepsy. |
|  |  |  | Discuss the clinical features of patient presents with epilepsy. |
|  |  |  | Discuss the significance of electrophysiologic studies imaging and other investigations in epilepsy. |
|  |  |  | Describe briefly about pharmacologic treatment. |
|  | CSF formation, circulation and functions |  | Describe regulation of cerebral  blood flow |
|  |  |  | Describe formation, flow, and absorption  of cerebrospinal fluid |
|  |  |  | Describe Blood–Cerebrospinal Fluid and  Blood-Brain Barriers |
| Pathology | Alzheimer’s disease |  | Explain the pathogenesis and microscopic findings of Alzheimer`s disease and its types |
|  | Inflammation of brain |  | Describe the inflammatory processes related to meninges and brain parenchyma |
|  |  |  | Describe the pathogenic mechanisms of meningitis and encephalitis |
| General medicine | Epilepsy |  | Explain the types of epilepsy |
|  |  |  | Describe the investigations and enlist anti-epileptic drugs |
|  | Hydrocephalus |  | Describe the etiology, pathogenesis and clinical features of hydrocephalus |
| Radiology | Neuroradiology- CT scans |  | Describe relevant CT scan findings of intracerebral bleeds, hematomas and subarachnoid hemorrhage |
|  |  |  | Describe relevant CT scan findings of ischemic strokes |
|  | Neuroradiology- MRI scans |  | Describe relevant MR scan findings of intracerebral bleeds, hematomas |
|  |  |  | Describe relevant MR scan findings of ischemic strokes |
| Neurosurgery | Brain injuries |  | Describe the types, clinical presentations and investigations of a patient with head injury |
|  | Brain and spinal tumors |  | Explain the types, clinical features and investigations of brain and spinal tumors |
| Skills and affective domain | | | |
| Histology | Slides of sacral segments and overview of nervous tissues |  | Identify the slides of different neural structures under the microscope |
| Physiology | Neurological examination of upper and lower limbs |  | Examine a standardized patient for neurological system of upper and lower limbs |

Learning objectives

Neurosciences-2 module

**TOTAL WEEKS-5**

**Central Curriculum Committee, Khyber Medical University**

**List of themes**

|  |  |  |
| --- | --- | --- |
| **Sr. No** | **Themes** | **Duration in weeks** |
| 1 | Facial palsy (face, 5th and 7th cranial nerves) | 1 |
| 2 | Neck swelling (thyroid, larynx, neck, muscles etc.) | 1 |
| 3 &  4 | Cleft palate (palate, tongue, pharynx) | 1 |
| Anosmia |
| 5 | Diplopia / blindness (2nd, 3rd, 4th, 6th cranial nerve / eye ball / orbit) | 1 |
| 6 | Deafness (ear / 8th nerve) | 1 |

**General learning outcomes**

At the end of this module, the 2nd year students will be able to:

1. Describe the structure of vertebrae, skull bones palate, pharynx, larynx, facial bones and base of the skull
2. Describe the contents walls and boundaries of anterior and posterior triangles of the neck
3. Describe the structure, relation, blood supply and venous drainage of thyroid
4. Describe the arteries, veins and nerves of the neck including cervical plexuses
5. Describe the nuclei, course, relations, and structures supplies by all cranial nerves
6. Describe the origin, course, relations and structures supplies by the arteries, veins and lymphatics of head and neck
7. Describe the anatomy of all the muscles of facial expression and head and neck
8. Describe the structure and functions of eye, ears, nose and paranasal sinuses
9. Describe the development of different structures of organs of the head and neck
10. Identify the microscopic structure of salivary glands and tongue
11. Examine a standardized patient`s cranial nerves
12. Demonstrate perimetry and audiometry

|  |  |  |  |
| --- | --- | --- | --- |
| **specific learning objectives**  **Theme-1 (Facial palsy)** | | | |
| Subject | Topic | S. No | Learning objectives |
| Gross anatomy | Osteology of mandible |  | Describe the gross features of adult mandible. |
|  |  |  | Describe the bony features of mandible |
|  |  |  | Name the joints formed by mandible |
|  |  |  | Name the attachment of muscles and ligaments on mandible |
|  | Norma frontalis |  | Describe the bony features of frontal view of skull |
|  | Norma basalis |  | Name the bones forming the base of skull |
|  |  |  | Name the bony features |
|  |  |  | Identify the different foramina and name the structures passing through these foramina |
|  |  |  | Describe the attachment and relation of base of skull |
|  |  |  | Describe the clinical importance |
|  | Norma lateralis |  | Name the boundaries of temporal fossa |
|  |  |  | Enumerate the contents of temporal fossa |
|  |  |  | Describe the relations of temporal fossa |
|  |  |  | Name the boundaries of infratemporal fossa |
|  |  |  | Enlist the contents of fossa |
|  |  |  | Describe the relations of Infratemporal fossa |
|  |  |  | Name the layers of scalp |
|  | Scalp and muscles of facial expression |  | Describe the muscles of scalp |
|  |  |  | Name the neurovascular supply of scalp |
|  |  |  | Describe the lymphatic drainage of scalp |
|  |  |  | Name the fascial muscles along with attachments, nerve supply and actions |
|  | Muscles of mastication |  | Enumerate the muscles od mastication along with their attachments, nerve supply and actions |
|  | Blood supply and lymphatic drainage of face |  | Describe the blood supply and lymphatic drainage of face portion |
|  | Temporomandibular joint (TMJ) |  | Name the type of TMJ |
|  |  |  | Name the ligaments related with TMJ |
|  |  |  | Describe the relations of TMJ |
|  |  |  | Name the muscles causing movements of TMJ |
|  |  |  | Name the neurovascular supply of TMJ |
|  | Extra cranial course of CN VII |  | Describe the extra cranial course of CN VII along with its clinical importance |
| Embryology | Face development |  | Discuss the five facial primordia |
|  |  |  | Describe the inter-maxillary segment |
|  |  |  | Describe the embryological defects of face |
| Histology | Parotid glands |  | Identify the variety of gland according to nature of its acinus |
|  |  |  | Discuss the capsular structure and its extensions in the gland |
|  |  |  | Differentiate between the stroma and parenchyma of parotid gland |
|  |  |  | Describe the ductal system of the gland and its lining epithelium |
|  |  |  | Differentiate between the intercalated and striated ducts in intralobular parts of gland |
|  |  |  | Describe the detailed structure of serous acinus |
|  |  |  | Discuss the location of stenson,s duct and its structure |
|  |  |  | Discuss clinical conditions related with parotid gland |
| Biochemistry | Biotechnology | Lectures-2 | Describe the indications and procedure of Polymerase Chain Reaction (PCR), Cloning and Restriction fragment length polymorphism (RFLP) |
| Medicine | Bell`s palsy |  | Describe the clinical features and management of Bell`s palsy |
| **Skills and affective domain** | | | |
| Histology | Submandibular and Sublingual Salivary Gland |  | Identify the slide of submandibular and sublingual salivary glands under the microscope |
| Physiology | Examination ofCranial nerves, V, VII |  | Examine the cranial nerves V & VII on a standardized patient |

**Theme-2 (neck swelling)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Subject** | **Topic** | **S. No** | **Learning objectives** |
| Gross Anatomy | Typical cervical vertebra |  | Describe the bony features of typical cervical vertebrae |
|  |  |  | Name the joints formed by typical vertebrae |
|  |  |  | Describe the attachments |
|  | Atypical cervical vertebra |  | Describe the bony features of atypical cervical vertebrae |
|  |  |  | Name the joints formed by atypical vertebrae |
|  |  |  | Describe the attachments |
|  | Hyoid bone |  | Describe the bony features of hyoid bone |
|  |  |  | Describe the attachments of muscles and ligaments with hyoid bone |
|  | Pterygopalatine fossa |  | Name the boundaries of pterygopalatine fossa |
|  |  |  | Enumerate the contents of pterygopalatine fossa |
|  |  |  | Describe the relations of pterygopalatine fossa |
|  | Deep fascia of neck |  | Enumerate the layers of deep cervical fascia |
|  |  |  | Draw and labelled diagram of transverse section of neck showing deep cervical fascia |
|  |  |  | Describe the layers of deep cervical fascia along with its clinical importance |
|  | Larynx |  | Name the paired and unpaired cartilages of larynx |
|  |  |  | Enumerate the ligaments and membrane of larynx |
|  |  |  | Describe the sensory and blood supply of larynx |
|  |  |  | Enumerate the intrinsic and extrinsic muscle of larynx along with its actions and nerve supply |
|  |  |  | Describe the pyriform fossa |
|  | Ant. triangle of neck |  | Enlist the subdivisions of anterior triangle of neck |
|  |  |  | Describe the boundaries and contents of submental triangle |
|  |  |  | Describe the boundaries and contents of carotid triangle Describe the boundaries and contents of digastric triangle Describe the boundaries and contents of muscular triangle |
|  | Post triangle of neck |  | Enlist the subdivisions of posterior triangle of neck |
|  |  |  | Describe the boundaries and contents of occipital triangle |
|  |  |  | Describe the boundaries and contents of supraclavicular triangle |
|  | Arteries of neck |  | Describe the course, Distribution and branches of main arteries of neck |
|  | veins of neck |  | Describe the course, Draining and tributaries of main veins of neck |
|  | cervical plexus and nerves of neck |  | Describe the cervical plexus along with its branches and distribution |
| Embryology | Pharyngeal apparatus |  | Describe the components of pharyngeal apparatus. |
|  |  |  | Describe the development of pharyngeal apparatus |
|  |  |  | Enlist the derivatives of the first pharyngeal arch |
|  |  |  | Define the terms pharyngeal arch, pouch, cleft and membrane |
|  |  |  | Enumerate the derivatives of the second pharyngeal arch |
|  |  |  | Enumerate the derivatives of the 3rd pharyngeal arch |
|  |  |  | Enumerate the derivatives of the 4th pharyngeal arch |
|  |  |  | Enlist the derivatives of 1st ,2nd, 3rd and 4th pharyngeal pouches |
|  |  |  | Describe the derivatives of pharyngeal, grooves, and membranes |
|  |  |  | Discuss the arterial supply and innervation of the pharyngeal arches |
|  |  |  | Describe the pharyngeal membranes |
|  |  |  | Discuss the branchial cyst, sinuses, and fistula |
|  |  |  | Describe the 1st arch developmental defects |
| Histology | Thyroid gland |  | Discuss the structural unit of thyroid gland |
|  |  |  | Identify the lining epithelium of follicular cells |
|  |  |  | Discuss the formation and storage of colloid in the lumen of follicular cells |
|  |  |  | Describe the location and structure of parafollicular cells |
|  |  |  | Discuss the interfollicular connective tissue |
| ENT | Lump in neck |  | Approach to a patient with lump in the neck |
| **Skills and affective domain** | | | |
| Histology | Thyroid gland |  | Identify the slide of thyroid gland under the microscope |
| Physiology | Examination of Cranial nerves XI, XII |  | Examine a standardized patient for Cranial nerves XI, XII |
| **Theme-3 (Anosmia)** | | | |
| **Subject** | **Topic** | **S. No** | **Learning objectives** |
| Anatomy | Nose and paranasal sinuses |  | Describe the external features of nose |
|  |  |  | Describe the relations of nose with other structures |
|  |  |  | Describe the nasal septum |
|  |  |  | Describe the lateral wall of nose |
|  |  |  | Name the neurovascular supply of nose |
|  |  |  | Describe the olfactory nerve |
|  |  |  | Describe the paranasal sinuses along with its clinical importance |
| Embryology | Development of nose |  | Describe the development of nasal cavities and paranasal air sinuses. |
|  |  |  | Describe the development of nasolacrimal groove, duct, and sac |
|  |  |  | Enlist developmental defects of nose |
| Physiology | Sense of Smell |  | Describe olfactory membrane |
|  |  |  | Explain mechanism of excitation of the olfactory cells. |
|  |  |  | Discuss Rapid Adaptation of Olfactory Sensations. |
|  |  |  | Define threshold for smell |
|  |  |  | Describe transmission of smell signals into the central nervous system |
|  |  |  | Describe primitive and newer olfactory pathways into the central nervous system |
|  |  |  | Describe centrifugal control of activity in the olfactory bulb by the central nervous system. |
| ENT | Sinusitis |  | Describe the causes and clinical features of acute and chronic sinusitis |
| Gross anatomy | Tongue |  | Describe the mucosa and muscles of tongue along with its attachments, nerve supply and actions |
|  | Salivary glands |  | Name the salivary glands |
|  |  |  | Describe the location of each gland |
|  |  |  | Describe the relations of each gland |
|  |  |  | Name the nerve supply |
|  |  |  | Describe the drainage of salivary glands along with its importance |
|  | Palate |  | Name the bones forming the hard palate |
|  |  |  | Describe the soft palate along with its muscles, attachments and nerve supply |
|  |  |  | Describe the relations of palate |
|  |  |  | Name the neurovascular supply of palate |
|  | Pharynx |  | Enumerate the division of pharynx |
|  |  |  | Describe the nasopharynx with its clinical significance |
|  |  |  | Describe the oropharynx with its clinical significance |
|  |  |  | Describe the laryngopharynx with its clinical significance |
|  |  |  | Enlist the muscles of pharynx with its nerve supply and actions |
|  |  |  |  |
|  | Extra-cranial course of CN IX, XXi, XII |  | Describe the extra cranial course of CN IX, X, XI and XII |
| Embryology | Tongue |  | Describe the development of anterior 2/3 of the tongue |
|  |  |  | Discuss the role of the third pharyngeal arch in tongue development. |
|  |  |  | Discuss the innervation, blood vessels, and muscles of tongue. |
|  |  |  | Describe the development of papillae, taste buds and salivary glands. |
|  |  |  | Describe the developmental anomalies of tongue. |
|  | Palate |  | Describe the development of primary and secondary palate. |
|  |  |  | Discuss the developmental defects of lip and primary, secondary palate |
| Histology | Submandibular glands |  | Identify the variety of gland according to nature of its acinus. |
|  |  |  | Discuss the capsular structure and its extensions in the gland |
|  |  |  | Differentiate between the stroma and parenchyma of submandibular gland |
|  |  |  | Describe the ductal system of the gland and its differences with parotid gland |
|  |  |  | Describe the detailed structure of serous and mucous acinus |
|  |  |  | Discuss the formation of serous demilune |
|  |  |  | Discuss the opening of Wharton,s duct |
|  |  |  | Discuss different pathological conditions of the gland |
|  | Sublingual glands |  | Identify the variety of gland according to its nature of acinus |
|  |  |  | Differentiate between the stroma and parenchyma of sublingual gland |
|  |  |  | Describe the ductal system of the gland and its lining epithelium |
|  |  |  | Describe the detailed structure of its acinus |
|  |  |  | Discuss the opening of Bartholin ducts |
|  |  |  | Discuss different pathological conditions of the gland |
| Physiology | Sense of Taste |  | Discuss primary sensations of taste |
|  |  |  | Explain threshold for taste |
|  |  |  | Describe the taste bud and its function |
|  |  |  | Describe mechanism of stimulation of taste buds |
|  |  |  | Describe transmission of taste signals into the central nervous system |
| Pediatric surgery | Cleft palate |  | Describe the pathogenesis, clinical features and management of a patient with cleft palate |
| **Skills and affective domain** | | | |
| Histology | Tongue |  | Identify the slide of tongue under the microscope |
| Physiology | Examination ofCranial nerves I, IX, X |  | Examine a standardized patient for cranial nerve I, IX, X examination (sense of smell, taste, gag reflex) |
| **Theme-4 (Diplopia)** | | | |
| **Subject** | **Topic** | **S. No** | **Learning objectives** |
| Gross anatomy | Bony orbit |  | Name the bones forming the bony orbit |
|  |  |  | Identify the foramina, fissures, and fossae associated with the orbit and what are the structures transmitted through these openings**.** |
|  |  |  | Name the contents of orbit |
|  | Eye ball |  | Name the layers of eyeball |
|  |  |  | Describe the fibrous layer of eyeball |
|  |  |  | Describe the pigmented layers of eyeball |
|  |  |  | Describe the inner nervous layer of eyeball |
|  |  |  | Describe the chambers and of eyeball |
|  |  |  | Describe the secretion and drainage of aqueous humor and vitrous humor |
|  |  |  | Describe the neurovascular supply of eye |
|  |  |  | Describe the intra and extraoccualr muscles with their attachment, actions and nerve supply |
|  | Extra cranial course of CN III, IV, VI |  | Describe the course of optic, oculomotor, trochlear and abducent nerve with clinical importance |
| Embryology | Development of eye |  | Define lens placode and formation of retina. |
|  |  |  | Describe the development of ciliary body, iris, lens and choroid. |
|  |  |  | Discuss the formation of sclera, cornea, sphincter and dilator pupillae |
|  |  |  | Discuss the development of virtreous body and optic nerve |
|  |  |  | Describe developmental anomalies of eye |
| Histology | Eye |  | Enlist different histological layers of the eye |
|  |  |  | Discuss retinal pigment epithelium(RPE) in detail |
|  |  |  | Describe the structural details of rods |
|  |  |  | and cones and the supporting cells |
|  |  |  | Discuss structure of macula densa |
|  |  |  | Describe the histological layers of cornea and retina |
| Physiology | Physical Principles of Optics |  | Describe refraction at interface between two media. |
|  |  |  | Describe the physical principles of optics. |
|  |  |  | Apply refractive principles to lenses |
|  |  |  | Describe Focal Length of a Lens |
|  |  |  | Explain formation of image by convex lenses |
|  |  |  | Explain how to measure refractive power of a lens |
|  | Optics of The Eye |  | Explain lens system of the eye. |
|  |  |  | Describe the concept of “Reduced” Eye. |
|  |  |  | Explain accommodation reflex. |
|  |  |  | Explain presbyopia |
|  |  |  | Describe that “depth of focus” of the lens system increases with decreasing pupillary diameter |
|  |  |  | Define visual acuity. |
|  |  |  | Explain the determination of distance of an object from the eye- —“DEPTH PERCEPTION” |
|  |  |  | Describe errors of refraction |
|  | Fluid System of The Eye—Intraocular Fluid |  | Describe the formation of aqueous humor by the ciliary body |
|  |  |  | Describe the outflow of aqueous humor from the eye |
|  |  |  | Describe Regulation of Intraocular Pressure and Glaucoma |
|  | Anatomy and Function of The Structural Elements of The Retina |  | Describe foveal region of the retina and its importance in acute vision. |
|  |  |  | Discuss the functional parts of the Rods and Cones. |
|  |  |  | Describe blood supply of the retina—the central retinal artery and the choroid |
|  | Photochemistry of Vision |  | Explain rhodopsin-retinal visual cycle and excitation of the rods |
|  |  |  | Explain the role of vitamin A for formation of rhodopsin. |
|  |  |  | Describe excitation of the rod when rhodopsin is activated by light |
|  |  |  | Describe receptor potential, and logarithmic relation of the receptor potential to light intensity |
|  |  |  | Describe mechanism by which rhodopsin decomposition decreases membrane sodium conductance—the excitation “cascade.” |
|  |  |  | Explain dark and light adaptation. |
|  | Color Vision |  | Describe photochemistry of color vision by the cones |
|  |  |  | Explain tricolor mechanism of color detection |
|  |  |  | Explain Young-Helmholtz theory of color vision. |
|  |  |  | Explain color blindness. |
|  | Neural Function of The Retina |  | Describe different neuronal cell types and their functions |
|  |  |  | Describe the visual pathway from the cones to the ganglion cells |
|  |  |  | Discuss the retinal neurotransmitters. |
|  |  |  | Discuss retinal ganglion cells and their respective fields |
|  |  |  | Describe lateral inhibition. |
|  |  |  | Explain excitation of ganglion cells. |
|  |  |  | Discuss on and off response of ganglion cells. |
|  | Visual Pathways |  | Discuss the function of the dorsal lateral geniculate nucleus of the thalamus. |
|  |  |  | Describe organization and function of the visual cortex |
|  |  |  | Describe primary visual cortex. |
|  |  |  | Describe secondary visual areas of the cortex. |
|  |  |  | Describe two major pathways for analysis of visual information: (1) the fast “position” and “motion” pathway  and (2) the accurate color pathway |
|  |  |  | Describe neuronal patterns of stimulation during analysis of the visual image |
|  |  |  | Discuss detection of color |
|  | Eye Movements and Their Control |  | Describe muscular control of eye movements. |
|  |  |  | Describe neural pathways for control of eye movements. |
|  |  |  | Describe fixation movements of the eyes |
|  |  |  | Explain mechanism of involuntary locking fixation—role of the superior colliculi. |
|  |  |  | Explain “Fusion” of the visual images  from the two eyes |
|  |  |  | Describe neural mechanism of stereopsis for judging distances of visual objects |
|  | Autonomic control of Accommodation and pupillary aperture |  | Describe autonomic nerves to the eyes |
|  |  |  | Describe control of accommodation |
|  |  |  | Describe control of pupillary diameter |
|  |  |  | Discuss Pupillary reflexes or reactions in central nervous system disease. |
| Community medicine | Prevention of blindness |  | Describe the causative agents and prevention of community blindness |
| Medicine | Ocular nerves palsies |  | Describe the clinical features and etiology of 3, 4 and 6th nerve palsies |
| Ophthalmology | blindness |  | Approach a patient with unilateral and bilateral blindness |
| **Skills and affective domain** | | | |
| Histology | Parotid Gland |  | Identify the histological layers of parotid gland under the microscope |
| Physiology | Visual Acuity |  | Examine a standardized patient for visual acuity and errors of refraction |
|  | Perimetry |  | Examine a standardized patient for visual field function |
| **Theme-6 (Deafness)** | | | |
| **Subject** | **Topic** | **S. No** | **Learning objectives** |
| Gross anatomy | External and middle ear |  | Describe the auricle |
|  |  |  | Describe the external auditory meatus with clinical importance |
|  |  |  | Name the neurovascular supply of external ear |
|  |  |  | Name the boundaries of middle ear |
|  |  |  | Describe the contents of middle ear |
|  |  |  | Describe the auditory tube along with its clinical importance |
|  | Inner ear |  | Describe the bony labyrinth |
|  |  |  | Describe the membranous labyrinth |
|  |  |  | Describe the course of CN VIII along with its clinical importance |
| Embryology | Development of ears |  | Describe the development of external and middle ear |
|  |  |  | Explain the origin of internal ear along the relationship of saccule, utricle, semi-circular canals |
|  |  |  | Describe the development of cochlear duct and organ of corti |
|  |  |  | Enlist the developmental anomalies of external middle and internal ear |
| Physiology | Tympanic Membrane and  The Ossicular system |  | Explain conduction of sound from the tympanic membrane to the cochlea. |
|  |  |  | Describe “Impedance Matching” by the Ossicular System. |
|  |  |  | Describe attenuation of sound by contraction of the tensor tympani and stapedius muscles. |
|  |  |  | Describe transmission of sound through bone. |
|  | Cochlea |  | Describe functional anatomy of the cochlea |
|  |  |  | Describe basilar membrane and resonance in the cochlea. |
|  |  |  | Describe transmission of sound waves in the cochlea—“traveling wave” |
|  |  |  | Describe pattern of vibration of the basilar membrane for different sound frequencies. |
|  |  |  | Describe amplitude pattern of vibration of the basilar membrane. |
|  |  |  | Describe function of the organ of corti |
|  |  |  | Describe Excitation of the Hair Cells |
|  |  |  | Discuss the “place” principle |
|  |  |  | Describe detection of changes in loudness—the power law. |
|  |  |  | Describe threshold for hearing sound at different frequencies. |
|  | Auditory Nervous Pathways |  | Describe auditory pathway. |
|  |  |  | Explain the function of the cerebral cortex in hearing. |
|  |  |  | Describe how to determine the direction from which sounds come. |
|  |  |  | Describe transmission of centrifugal signals from CNS to lower auditory centres |
|  |  |  | Describe different types of deafness. |
|  | Vestibular Sensations and  Maintenance of Equilibrium |  | Describe the physiologic anatomy of vestibular apparatus |
|  |  |  | Describe function of the utricle and  saccule in the maintenance of static equilibrium |
|  |  |  | Describe function of semi-circular ducts |
|  |  |  | Describe Neuronal Connections of the Vestibular Apparatus |
|  |  |  | Describe Vestibular mechanism for stabilizing the eyes |
| ENT | Hearing loss |  | Describe different clinical tests for hearing loss |
|  |  |  | Describe the etiology and management of conduction and sensorineural hearing loss |
| **Skills and affective domain** | | | |
| Physiology | Examination of Cranial Nerves III, IV and VI |  | Examine a standardized patient for oculomotor, abducens and trochlear nerves with an ophthalmoscope |
| Physiology | Tuning fork test |  | Examine a standardized patient for hearing loss with tuning fork (Weber and Rinne`s test) |
| Physiology | Audiometry |  | Examine a standardized patient for functions of inner ear |

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| 0Theme No. | Theme Name | Duration |
| 1 | Flank Pain /Loin Pain | 1 week |
| 3 | Scanty Urine /Urinary retention and Edema | 1 week |
| 2 | Urinary Incontinence | 1 week |

Theme-1 Loin pain/ Flank Pain

|  |  |  |  |
| --- | --- | --- | --- |
| Subject | Topic | S. No | Learning objectives |
| Gross anatomy | Overview of the urinary system |  | List and describe the main components of the urinary system  overview of structure and location of kidneys, ureters, bladder and urethra  Give an overview of the features of neurovascular supply to the urinary system   * overview of structure and location of kidneys, ureters, * bladder and urethra * Main functions of urinary system * Excretion * Fluid and electrolyte balance * Homeostasis * Blood pressure regulation * Arterial supply, venous drainage, nervous supply   (main branches) |
|  | Kidneys |  | Discuss the anatomical structure, location and relations of kidneys to other abdominal organs -Discuss the gross morphological composition of kidneys   * Discuss the vascular system within the kidney * Gross anatomy of kidneys, location and relations to * abdominal organs * Structure of kidneys * Capsule * Pericapsular adipose tissue * Cortex * Medulla * Pelvis * Hilum * Vascular system within kidneys * Arterial supply * Venous drainage * Lymphatic’s * Innervation |
|  |  |  | Enumerate the various coverings of the kidney  Explain the clinical significance of coverings of the kidneys  Describe the structures entering and leaving the hilum of kidney and their relations |
|  | Pelvic wall |  | List and describe the bones forming the pelvic wall  -Discuss the shape, size and structure of the pelvic wall  -Compare and contrast male and female pelvic walls  -List the muscles, ligaments, joints and membranes of  the pelvic wall  -Discuss the nerves and blood vessels passing through  the pelvic wall  -Define and describe pelvic floor  -Name and describe the common fractures of pelvic  Bones   * The components of the pelvic wall * Orientation of pelvis * Bones forming the pelvic wall * Sacrum * Coccyx * Hip bone (Ilium, ischium, pubis) * Ligaments, muscles and membranes of the pelvic wall * Piriformis muscle * Obturator membrane * Obturator internus musle * Sacrotuberous ligament * Sacrospinous ligament * Pelvic fascia * Pelvic diaphragm * Levator ani * Coccygeus * Common fractures * Fracture of the false pelvis * Fractures of true pelvis * Fractures of sacrum and coccyx * Complications of pelvic floor |
|  | Posterior abdominal wall |  | Describe the general features of lumbar vertebrae |
|  |  |  | Describe the special features of lumbar vertebrae |
|  |  |  | Enlist the muscles of posterior abdominal wall. Describe their origin, insertion, nerve supply and actions |
|  |  |  | Explain the course and relations of Abdominal Aorta |
|  |  |  | Enumerate and elaborate the paired branches of abdominal aorta |
|  |  |  | Discuss the formation of inferior vena cava |
|  |  |  | Illustrate the branches and distribution of lumbosacral plexus |
| Embryology | Development of the urinary system |  | Trace the embryological origins and development of the urinary system |
| Histology | Kidney |  | Describe the parenchyma of kidney  Enlist different components of uriniferous tubules  Describe Histological features of the various components of Nephron  Describe the histological features of renal corpuscle  Describe filtration barrier  Enlist the parts of collecting tubules  Describe the microscopic anatomy of collecting duct  Enlist the components of juxtaglomerular apparatus  Describe the blood supply of the kidneys |
|  | The nephron and glomerulus |  | Describe the microscopic structure and composition |
| Physiology | Physiological Anatomy Of the kidneys and Overview of its Functions | 1 | States major functions of the kidneys & brief physiological anatomy of kidney. |
|  |  |  | Define the components of the nephron and their interrelationships: renal corpuscle, glomerulus, nephron, and collecting-duct system. |
|  |  |  | Draw the relationship between glomerulus, Bowman's capsule, and the proximal tubule. |
|  |  | 2 | Describe the 3 layers separating the lumen of the glomerular capillaries and Bowman's space; defines podocytes, foot processes, and slit diaphragms. |
|  |  |  | Define glomerular mesangial cells and states their functions and location within the glomerulus. Detail of renal vessels & Pressure within them. Describe, in general terms, the differences among superficial cortical, midcortical, and juxtamedullary nephrons. |
|  |  |  | List the individual tubular segments in order; states the segments that comprise the proximal tubule, Henle's loop, and the collecting-duct system; defines principal cells and intercalated cells. |
|  |  |  | Define juxtaglomerular apparatus and describes its 3 cell types; states the function of the granular cells. |
|  |  |  | Define the basic renal processes: glomerular filtration, tubular reabsorption, and tubular secretion  Discuss the mechanisms of regulation of tubular reabsorption   * Reabsorption and secretion by the renal tubules * Active and passive transport mechanisms * Mechanism of reabsorption of specific substances (eg. * Water, electrolytes) * Reabsorption and secretion in different parts of the tubules * Glomerular balance * Peritubular and renal interstitial fluid physical forces * Effect of arterial pressure on urine output * Hormonal control of tubular reabsorption * Aldosterone * Angiotensin-II * ADH * Parathyroid hormone * Nervous regulation of tubular reabsorption |
|  | Glomerular Filtration:  Determinants and Equation |  | Describe how molecular size and electrical charge determine filterability of plasma solutes; states how protein binding of a low-molecular-weight substance influences its filterability. |
|  |  |  | State the formula for the determinants of glomerular filtration rate, and states, in qualitative terms why the net filtration pressure is positive. |
|  |  |  | Define filtration coefficient and states how mesangial cells might alter the filtration coefficient; states the reason glomerular filtration rate is so large relative to filtration across other capillaries in the body. |
|  |  |  | Describe how arterial pressure, afferent arteriolar resistance, and efferent arteriolar resistance influence glomerular capillary pressure. |
|  |  |  | Describe how changes in renal plasma flow influence average glomerular capillary oncotic pressure. |
|  |  |  | State the Starling forces involved in capillary filtration. |
|  |  |  | State how changes in each Starling force affect glomerular filtration rate |
|  | Nervous & Hormonal Control of Renal Circulation |  | Define renal blood flow, renal plasma flow, glomerular filtration rate, and filtration fraction, and gives normal values. |
|  |  |  | State the formula relating flow, pressure, and resistance in an organ. |
|  |  |  | Describe sympathetic nerve supply of renal vessels & hormones affecting renal vessels |
|  |  |  | Describe the effects of changes in afferent and efferent arteriolar resistances on renal blood flow |
|  | Auto regulation of GFR and renal blood flow |  | Define auto regulation of renal blood flow and glomerular filtration rate |
|  |  |  | Describe the myogenic and tubuloglomerular feedback mechanisms of auto regulation. |
|  | Review of Transport Mechanisms across the Cell Membrane(Active and Passive transport) |  | Define and state the major characteristics of diffusion, facilitated diffusion, primary active transport, secondary active transport (including symport and antiport) and endocytosis. |
|  |  |  | Define osmolality and osmolarity, and states why osmolarity is commonly used to approximate osmolality. |
|  |  |  | Describe what is meant by the expression "water follows the osmoles." |
|  |  |  | Describe qualitatively the forces that determine movement of reabsorbed fluid from the interstitium into peritubular capillaries. |
|  |  |  | Compare the Starling forces governing glomerular filtration with those governing peritubular capillary absorption. |
|  |  |  | Compare and contrasts the concepts of Tm and gradient-limited transport. |
|  |  |  | Describe 3 processes that can produce bidirectional transport of a substance in a single tubular segment; states the consequences of pump-leak systems. |
|  |  |  | Contrast "tight" and "leaky" epithelia. |
| Biochemistry | Acid-base balance & imbalance |  | Study the sources of Hydrogen Ion, pH & Anion Gap |
|  |  |  | Describe Buffer Systems operating in the Body |
|  |  |  | Describe Respiratory Regulation of Acid Base Balance |
|  |  |  | Describe Renal Regulation of Acid Base Balance |
|  |  |  | Describe Disorders of Acid Base Balance: their causes, mechanisms and compensations of Respiratory Acidosis & Alkalosis and Metabolic Acidosis & Alkalosis |
| PATHOLOGY | Smoky urine |  | List the common kidney symptoms  Discuss the pathophysiology of renal infections  Symptoms associated with renal pathology -Classification of renal diseases - Pathophysiology of renal infections -Treatment of chronic pyelonephritis |
|  | Renal disorders |  | 2. Define the terms Nephrotic syndrome, Nephritic syndrome, Azotemia.  3. Enlist the Causes types of renal stones.  4. Enlist the causes and describe the pathogenesis of urinary tract infection. |
|  | Systemic disease affecting kidneys |  | Explain how systemic diseases can affect renal function  Systemic diseases affecting renal function  - Diabetes  -Cardiovascular disorders (hypertension, CHF)  -Immunological disorders (SLE, glomerulonephritis) -Cancers (myeloma) -Hematological disorders (sickle cell anemia, HUS) |

Practicals

|  |  |  |  |
| --- | --- | --- | --- |
| Anatomy | surface anatomy of the urinary system and radiology |  | * Identify the various bony and soft tissue structures   forming the pelvic wall   * Identify the surface anatomy of the pelvic wall * Examine the radiographic anatomy of the pelvic wall * Identify the gross anatomic features the kidneys, renal pelvis, ureter, urinary bladder and urethra |
| Biochemistry | Titrable acidity of urine |  | Find out PH of urine |

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| Theme-2 Edema and Urinary retention/ Scanty Urine | | | | | | |
| Anatomy | Ureters | |  | | Describe the gross anatomy of ureters | |
|  |  | |  | | Describe the relations of right ureter in males and females | |
|  |  | |  | | Describe the relations of left ureter in males and females | |
|  |  | |  | | Highlight the clinical significance of relations of right and left ureters in both sexes | |
|  |  | |  | |  | |
|  | Urinary bladder | |  | | Describe the gross structure of urinary bladder | |
|  |  | |  | | Discuss the blood supply and nerve supply of urinary bladder | |
|  |  | |  | | Discuss the relations of urinary bladder in males | |
|  |  | |  | | Discuss the relations of urinary bladder in females | |
|  | Prostate gland | |  | | Describe the structure of prostate gland  Embryological development | |
|  |  | |  | | Discuss the common problems resulting from abnormal growth of the prostate. Relate the symptoms to structures | |
|  | Urethra | |  | | Describe the gross anatomy of urethra | |
|  |  | |  | | Enlist the differences between male and female urethra | |
| Embryology | Development of the urinary system  (Kidney and Ureter) | |  | | Enlist the stages of development of kidneys | |
|  |  | |  | | Describe the formation of pronephric, mesonephric and metanephric kidneys | |
|  |  | |  | | Enumerate the derivatives of metanephricblastema and describe their development | |
|  |  | |  | | Enumerate the derivatives of metanephric diverticulum/ureteric bud | |
|  |  | |  | | Describe the changes in position and blood supply of kidneys during development | |
|  |  | |  | | Enlist the various types of developmental anomalies of kidneys along with their embryological causes | |
|  |  | |  | | Enlist the various types of developmental anomalies of ureters along with their embryological causes | |
|  | (Bladder and urethra) | |  | | Describe the development of bladder | |
|  |  | |  | | Discuss the developmental anomalies of bladder | |
|  |  | |  | | Describe the development of male urethra | |
|  |  | |  | | Describe the development of prostate and bulbourethral glands | |
|  |  | |  | | Describe the development of female urethra | |
|  |  | |  | | Discuss the developmental anomalies of male and female urethra | |
|  | Congenital anomalies of the urinary system | |  | | List and describe the common congenital anomalies of | |
| Histology | Ureter | |  | | Describe the microscopic anatomy of ureter | |
|  | Bladder | |  | | Describe the histological features of urinary bladder | |
|  | Prostate | |  | | Describe the microscopic structure of prostate | |
|  | Urethra | |  | | Discuss the microscopic structure of male and female urethra | |
| Physiology | Body fluid compartments | |  | | List the body fluid compartments -Recall the volumes of body fluid compartments -Discuss the interplay in fluid volumes between different fluid compartments -Describes principles of osmosis and osmotic pressure -Discuss the interplay between various pressures -Discuss principles of edema   * Intracellular fluid compartment * Extracellular fluid compartment * Intravascular fluids * Blood * Plasma * Interstitial fluid * Constituents of intra- and extracellular fluid compartments * Calculating fluid volumes * Osmosis and osmotic fluid regulation | |
|  | Reabsorption /Secretion along Different Parts of the Nephron | |  | | List approximate percentages of sodium reabsorbed in major tubular segments. | |
|  |  | |  | | List approximate percentages of water reabsorbed in major tubular segments. | |
|  |  | |  | | Define the term *iso-osmotic volume* reabsorption. | |
|  |  | |  | | Describe proximal tubule sodium reabsorption, including the functions of the apical membrane sodium entry mechanisms and the basolateral sodium-potassium-adenosine triphosphatase. | |
|  |  | |  | | Explain why chloride reabsorption is coupled with sodium reabsorption, and lists the major pathways of proximal tubule chloride reabsorption. | |
|  |  | |  | | State the maximum and minimum values of urine osmolality. | |
|  |  | |  | | Define osmotic diuresis and water diuresis. | |
|  |  | |  | | Explain why there is an obligatory water loss. | |
|  |  | |  | | Describe the handling of sodium by the descending and ascending limbs, distal tubule, and collecting-duct system. | |
|  |  | |  | | Describe the role of sodium-potassium-2 chloride symporters in the thick ascending limb. | |
|  |  | |  | | Describe the handling of water by descending and ascending limbs, distal tubule, and collecting-duct system | |
|  | Concept Of Renal Clearance | |  | | Define the terms clearance and metabolic clearance rate, and differentiates between general clearance and renal clearance. | |
|  |  | |  | | List the information required for clearance calculation | |
|  |  | |  | | State the criteria that must be met for a substance so that its clearance can be used as a measure of glomerular filtration rate; states which substances are used to measure glomerular filtration rate and effective renal plasma flow. | |
|  |  | |  | | Calculate CIn, CPAH, Curea, Cglucose, CNa. | |
|  |  | |  | | Predict whether a substance undergoes net reabsorption or net secretion by comparing its clearance with that of inulin or by comparing its rate of filtration with its rate of excretion. | |
|  |  | |  | | Calculate net rate of reabsorption or secretion for any substance. | |
|  |  | |  | | Calculate fractional excretion of any substance. | |
|  |  | |  | | Describe how to estimate glomerular filtration rate from CCr and describes the limitations. | |
|  |  | |  | | Describe how to use plasma concentrations of urea and creatinine as indicators of changes in glomerular filtration rate. | |
|  | Mechanism of diluted urine formation | |  | | Describe the process of "separating salt from water" and how this permits excretion of either concentrated or dilute urine. | |
|  |  | |  | | Describe how antidiuretic hormone affects water reabsorption. | |
|  |  | |  | | Describe the characteristics of the medullary osmotic gradient. | |
|  |  | |  | | Explain the role of the thick ascending limb, urea recycling, and medullary blood flow in generating the medullary osmotic gradient. | |
|  |  | |  | | State why the medullary osmotic gradient is partially "washed out" during a water diuresis | |
|  |  | |  | | Describe the origin of antidiuretic hormone and the 2 major reflex controls of its secretion; define diabetes insipidus; state the effect of antidiuretic hormone on arterioles. | |
|  |  | |  | | Distinguish between the reflex changes that occur when an individual has suffered iso-osmotic fluid loss because of diarrhea as opposed to a pure water loss (ie, solute-water loss as opposed to pure-water loss). | |
|  |  | |  | | Describe the control of thirst. | |
|  |  | |  | | describe the pathways by which sodium and water excretion are altered in response to sweating, diarrhea, hemorrhage, high-salt diet, and low-salt diet. | |
|  | Renal regulation of Potassium | |  | | State the normal balance and distribution of potassium within different body compartments, including cells and extracellular fluid. | |
|  |  | |  | | Describe how potassium moves between cells and the extracellular fluid, and how, on a short-term basis, the movement protects the extracellular fluid from large changes in potassium concentration. | |
|  |  | |  | | Describe how plasma levels of potassium do not always reflect the status of total-body potassium. | |
|  |  | |  | | State generalizations about renal potassium handling for persons on high- or low-potassium diets. | |
|  |  | |  | | State the relative amounts of potassium reabsorbed by the proximal tubule and thick ascending limb of Henle's loop regardless of the state of potassium intake. | |
|  |  | |  | | Describe how the cortical collecting duct can manifest net secretion or reabsorption; describes the role of principal cells and intercalated cells in these processes. | |
|  |  | |  | | List the 3 inputs that control the rate of potassium secretion by the cortical collecting duct. | |
|  |  | |  | | Describe the mechanism by which changes in potassium balance influence aldosterone secretion. | |
|  |  | |  | | State the effects of most diuretic drugs and osmotic diuretics on potassium excretion. | |
|  |  | |  | | Describe the association between perturbations in acid-base status and the plasma potassium level | |
|  | The prostate | |  | | Discuss the physiological functions of the prostate | |
|  | physiochemical aspects | |  | | Discuss the physiochemical aspects (Diffusion, Adsorption, Viscosity, Colloid Osmotic pressure and role of Albumin in regulation of Osmotic pressure) | |
|  | Regulation of extracellular fluid osmolality and sodium concentration | |  | | Discuss the homeostatic function of the kidneys -Explain the mechanism by which kidneys are able to form diluted or concentrated urine  Mechanism of formation of dilute urine  - Mechanism of formation of concentrated urine  -Requirements for excreting a concentrated urine  -The counter-current mechanism  -Role of distal tubules and collecting ducts  -Quantifying urine concentration and dilution  -Disorders of urine concentration ability | |
|  | Regulation of extracellular fluid osmolarity and sodium concentration-2 | |  | | Discuss the homeostatic function of the kidneys  -Discuss the principles of osmoregulation by the kidneys  Explain how the body regulated the osmolarity of fluid comparts  -Control of extracellular fluid osmolarity and sodium  concentration  -Osmoreceptor-ADH feedback system  -Role of thirst in controlling extracellular fluid osmolarity and concentration  -Salt-appetite mechanism  -Integrated response to sodium intake | |
|  | Regulation of concentration of potassium, calcium, phosphate and magnesium | |  | | Discuss the mechanisms of regulation of concentrations of various ions in the body Describe the processes occurring at cellular level to maintain/excrete various ions in the kidneys -Regulation of potassium --Regulation of calcium -Regulation of phosphate -Regulation of magnesium | |
|  | Short and Long term control of Blood pressure by Kidneys | |  | | Describe the 3 temporal domains of blood pressure control and the major mechanisms associated with them. | |
|  |  | |  | | Describe the relationship between renin and angiotensin II. | |
|  |  | |  | | Describe the 3 detectors that can alter renin secretion. | |
|  |  | |  | | Define pressure natriuresis and diuresis. | |
|  |  | |  | | Define tubuloglomerular feedback and describe the mechanism for tubuloglomerular feedback and autoregulation of glomerular filtration rate | |
| Biochemistry | Renal control of Calcium & Phosphorus | |  | | State the normal total plasma calcium concentration and the fraction that is free. | |
|  |  | |  | | Describe the distribution of calcium between bone and extracellular fluid and the role of bone in regulating extracellular calcium. | |
|  |  | |  | | Describe and compare the roles of the gastrointestinal tract and kidneys in calcium balance. | |
|  |  | |  | | Describe and compare osteocytic osteolysis and bone remodeling. | |
|  |  | |  | | Describe the role of vitamin D in calcium balance. | |
|  |  | |  | | Describe the synthesis of the active form of vitamin D (calcitriol) and how it is regulated. | |
|  |  | |  | | Describe the regulation of parathyroid hormone secretion and state the major actions of parathyroid hormone. | |
|  |  | |  | | Describe renal handling of phosphate. | |
|  |  | |  | | Describe how parathyroid hormone changes renal phosphate excretion. | |
|  | constituents of urine | |  | | Describe the normal constituents of urine | |
| General Surgery | Urinary retention | |  | | Describe the etiology, and management of urinary retention | |
|  |  | |  | | Describe the etiology, clinical features and treatment of Benign prostatic hyperplasia | |
| Pathology | Renal failure | |  | | Enlist the causes of Renal failure/ uraemia and abnormalities related to micturition including incontinence  Discuss the causes and pathophysiology of Chronic Renal failure | |
|  | Urinary stones | |  | | Describe the pathophysiology of Urinary stones | |
| Pharmacology | Nephrotoxic drugs | |  | | Describe the mechanism of drug excretion | |
|  |  | |  | | Enlist nephrotoxic drugs | |
|  |  | |  | | Describe the mechanism of action of diuretic drugs | |
|  | Drugs acting on the renal system (in NW module it’s in theme of Scanty Urine) | |  | | Classify diuretics Illustrate the mechanisms of action of various classes of diuretics Discuss the common indications for the use of diuretics -Classification of diuretics -Mechanism of action of diuretics -Clinical used of diuretics -Adverse effects of diuretics -Anti-diuretics -Drugs for acid-base disorders | |
| Pathology | Glomerular diseases | |  | | Describe the etiology and pathogenesis of glomerulonephritis | |
|  | Classification of kidney disorders | |  | | Classify kidney disorders according to etiology, site of dysfunction and type of dysfunction - Acute/ chronic -Infectious -Immunological -Neoplastic -Vascular/interstitial /parenchymal - Primary/systemic | |
|  |  | |  | | Describe nephrotic syndrome and its etiology | |
| Clinical | Quality of life in problems of prostate | |  | | Discuss quality of life issues in patients with prostate problems  Overview of the concept of quality of life (QoL)  Discuss the significance of quality of life in disease and treatment settings  Discuss quality of life issues in geriatric population | |
| Practical | | | | | | |
| Physiology | Intake output chart maintendiance in bed ridden patients | |  | | Maintain Intake output chart maintenance in bed ridden patients | |
|  | Catheter insertion | |  | | Preform insertion of catheter on dummy | |
| Biochemistry | Urine analysis | |  | | Determine the normal/abnormal constituents in the urine  -Urine sugar -Amino acids -Proteins -Hemoglobin -Uric acid -Urea -Calcium and phosphate  -Ammonia -Ketone bodies -Benzidine test for blood in urine | |
| Theme-3 Urinary incontinence | | | | | |
| Anatomy |  |  | |  | |
|  | The Perineum |  | | Define the pelvis and the perineum Discuss the openings in the pelvis and what passes through them  List and describe the contents of the urogenital triangle List and define the common pathologies of the perineal region -Brief overview of the perineum -Contents of the male urogenital triangle  -Urethral infection -Urethral injuries  -Injury to the perineum in childhood | |
| Physiology | Urinary bladder and micturition |  | | Describe the functional anatomy of urinary bladder  Explain the mechanism of micturition  Explain the micturition reflex and relate structures of the bladder with function  Explain basal cystometrogram  Describe the nervous control of bladder functions | |
|  | Urinary incontinence |  | | Discuss the causes, symptoms and management of patients with urinary incontinence, urgency, frequency, burning micturition etc  Causes of urinary incontinence, urgency, frequency, burning micturition  Terms related to urinary obstruction and incontinence  Clinical presentation of continence disorders  General management of incontinence | |
| Radiology | Radiological diagnosis of urinary pathologies |  | | Identify and describe the various anatomic landmarks of the renal system on radiographs  Discuss special radiological tests to determine renal function and pathologies  Normal radiographs of abdomen and pelvis  Special radiological tests to show renal pathology and function  Abdominal ultrasound | |
| Clinical | Dialysis |  | | Describe the types, indications and the process of dialysis for kidney disease  Types of dialysis -Peritoneal dialysis -Hemodialysis -Hemofiltration -Haemodiafiltration -Intestinal dialysis -indications for dialysis -Disorders of acid-base balance, electrolyte abnormalities uremia or fluid overload resulting from acute and chronic renal failure, and intoxication -The process of hemodialysis and peritoneal dialysis -Dialyzable substances | |
| Clinical | A young woman with excessive urination |  | | Discuss the disorders associated with urine concentrating ability  Plan a line of investigation and management in renal disorders  - Disorders of renal concentration ability -Comparison of excessive urine volume with increased frequency of micturition - Mechanism of secretion and action of ADH -Urine concentrating ability of the various parts of the nephron Proximal convoluted tubule Descending limb of loop of Henle Ascending limb of loop of Henle Collecting system | |
| Clinical | A girl with continuous dribbling of urine |  | | Discuss the causes of urinary incontinence  Discuss the significance of radiological investigations  in cases of urinary incontinence in children  Define and describe enuresis  -Causes of urinary incontinence  -The micturition reflex  -Tests for investigating urinary incontinence  -Enuresis definition, types, causes and treatment | |
|  |  |  | |  | |
| Practicals | | | | | |
| Anatomy | surface anatomy of the perineum and radiology |  | | Identification of the various structures forming the perineum  Identify the radiographic landmarks of the perineum  Examine the surface anatomy of the perineum  Dissection of the perineum and identification of the contents of perineum  Radiographic anatomy of the perineum  Surface anatomy of the perineum | |
|  | Histologic examination urinary system |  | | Identify the characteristic microscopic features of the urinary system -Kidney -Ureter -Urinary bladder -Urethra | |
| Biochemistry | Creatinine and chloride in urine |  | | Find out creatinine in urine.  Find out chloride in urine | |
| Physiology | Arterial blood-gas analysis |  | | -Arterial blood sampling - Analysis and interpretation of arterial blood gases | |

MODULE TITLE

**REPRODUCTION**

YEAR OF MODULE

**Second Prof MBBS**

MODULE CODE

DURATION OF MODULE

(05 WEEKS)

# 

**MODULE COMMITTE**:

MODULE DIRECTOR:

MODULE CO-ORDINATOR:

COURSE CO-ORDINATOR:

MEMBERS:

DOCUMENTATION AND COORDINAATION**:**

Course co-ordinator

MODULE REVIEW**:**

Curriculum committee

Module committee

# 

# LIST OF ABBREVIATIONS:

|  |  |
| --- | --- |
| **ANA** | Anatomy |
| **ANA – E** | Embryology |
| **ANA –H** | Histology |
| **BIO** | Biochemistry |
| **PHY** | Physiology |
| **PHAR** | Pharmacology |
| **PATH** | Pathology |
| **COM MED** | Community medicine |
| **FM** | Forensic Medicine & Toxicology |
| **Med** | Medicine |
| **SURG** | Surgery |
| **PRIME** |  |

**REPRODUCTION MODULE**

WEEKS

|  |  |  |  |
| --- | --- | --- | --- |
| **Course Title** | **Contact Hours (hrs.)** | | |
| **REPRODUCTION Module** | **Lecture** | | Percentage distribution of hours (subject-wise) |
| Gross Anatomy | **14** | |
| Histology | **30** | |
| Embryology | **05** | |
| Physiology | **38** | |
| Biochemistry | **23**  Practical LOs are not mentioned in this module as no facility is available at KIMS Kohat | |
| Pathology | **03** | |
| Pharmacology | **02** | |
| Community medicine | **03** | |
| Forensic medicine | **02** | |
| PRIME | The course contents of PRIME module has not been integrated vertically by CCC that’s why LOs are not mentioned in this module | |

# TABLE OF SPECIFICATION

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Subject** | **Lecture #** | **Course / Content** | **Lecture Contents** | **Learning Outcome** | **MIT & Duration** | **Assessment** | | |
| **EMQ** | **MCQ** | **PRACTICAL** |
| **PHYSIOLOGY** | PHY 201 | Physiologic Anatomy of Male reproductive tract | Parts of Male reproductive tract  Secretions of different components of male reproductive tract and their functions | Describe the physiologic anatomy of the male reproductive tract  Describe the secretions and physiologic functions of the components of the male reproductive tract | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Spermatogenesis | Process of spermatogenesis  Role of Sertoli cells, Leydig cells and basement membrane in spermatogenesis  Hormonal factors that regulate spermatogenesis  Mature sperm | Describe the process of spermatogenesis  Describe the role of Sertoli cells, Leydig cells and basement membrane in process of spermatogenesis  Describe the hormonal factors that regulate the process of spermatogenesis  Explain physiology of mature sperm | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Fertility and Male Sexual Act | Factors effecting male fertility  Stimuli in performance of male sexual act | Enlist factors effecting male fertility sperm count, morphology and motility  Describe the role of nervous, vascular, endocrine and psychogenic stimuli in performance of male sexual act | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Androgens Synthesis and metabolism | Synthesis, transport, mechanism of action, metabolism and chemistry of the testosterone and androgens | Describe the synthesis, transport, mechanism of transport, metabolism and chemistry of the testosterone and androgens. | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Functions of Androgens | target organs and cell types of the testosterone and androgens action  Functions and cellular mechanisms of testosterone and androgens | Enlist the target organs and cell types of the testosterone and androgens action  Describe the actions (functions) and cellular mechanisms of testosterone and androgens | LGF 02 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Regulation of Androgens | Endocrine regulation of androgens secretion | Describe the endocrine regulation of testicular function; the role of GnRH, FSH, LH, Testosterone and inhibin. | LGF 01 HOUR |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PHYSIOLOGY** | PHY | Abnormalities of Androgens | over-secretion and under-secretion of the testosterone and androgens  Abnormalities of Male sexual function | Describe the causes and consequences of over-secretion and under-secretion of the testosterone and androgens during fetal, prepubertal and postpubescent males.  Briefly describe abnormalities of male sexual function | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Pineal Gland | Role of pineal gland | Describe briefly the role of pineal gland in sexual function | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Physiologic Anatomy of Female reproductive tract | Physiologic anatomy of the female reproductive tract | Describe the physiologic anatomy of the female reproductive tract | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Oogenesis | Oogenesis    Changes in the ovarian follicle during ovarian cycle | Describe the process of oogenesis and its relationship to the changes in the ovarian follicle during ovarian cycle | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Female Hormonal System | GnRH,  Gonadotropins (FSH and LH)  Estradiol  Inhibin | Explain the roles of GnRH, Gonadotropins (FSH and LH), estradiol and inhibin in the process of oogenesis and follicular development and maturation | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Ovulation | Ovulation  Role of hormones in ovulation | Describe the process of ovulation and roles of hormones in this process | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Corpus Luteum | Formation and degeneration of the corpus luteum  Role of hormones | Describe the process of formation and degeneration of the corpus luteum and role of hormones | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Estrogens and Progestins | Synthesis, transport, mechanism of action, metabolism and chemistry of the estrogens and progesterone | Describe the synthesis, transport, mechanism of action, metabolism and chemistry of the estrogens and progesterone | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Estrogens and Progestins (functions) | Target organs and cell types of the estrogens and progesterone (progestins)  Functions and cellular mechanisms of estrogens and progesterone (progestins) | Enlist the target organs and cell types of the estrogens and progesterone (progestins) action  Describe the actions (functions) and cellular mechanisms of estrogens and progesterone (progestins) | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Estrogens and Progestins (regulation and abnormalities) | Over-secretion and under-secretion of the hypothalamic-pituitary-ovarian axis in females  Endocrine regulation of ovarian function | Describe the causes and consequences of over-secretion and under-secretion of the hypothalamic-pituitary-ovarian axis in females  Describe the endocrine regulation of ovarian function; the role of GnRH, FSH, LH, estradiol, progestrone and inhibin. | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Female Monthly Cycle | timing of changes in blood levels of FSH, LH, estradiol, progesterone, and inhibin  structural changes in the endometrium and the ovary | Graphically illustrate the timing of changes in blood levels of FSH, LH, estradiol, progesterone, and inhibin, and correlate these with structural changes in the endometrium and the ovary seen during the menstrual cycle | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Senile Changes in Females | aging- related changes in the hypothalamo-pituitary-goandal axis | Briefly describe aging- related changes in the hypothalamo-pituitary-goandal axis that lead to puberty, reproductive maturity and menopause | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Contraception | Female fertility & various methods of contraception | Briefly describe female fertility with regard to various methods of contraception | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Maturation and Fertilization of Ovum | Fertilization of ovum  Capacitation  Acrosome reaction  Movement of the blastocyst to uterus  Process of implantation of blastocyst | Describe the process of fertilization of ovum, process of capacitation, acrosome reaction and movement of the blastocyst to uterus.  Describe the process of implantation of blastocyst to uterus | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Placenta | Anatomy and function of placenta | Describe the development and functions of the placenta | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Sex determination of newborn | Development of male and female reproductive tracts | Compare and contrast the actions of testosterone, dihydrotestosterone, estradiol and Müllerian inhibitory factor in the development of the male and female reproductive tracts. | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Maternal Body changes during pregnancy | Corpus luteum of pregnancy  Hormones secreted by the placenta  Hormonal changes in the mother in response to pregnancy  Effects on the body system of the mother during pregnancy | Compare the normal corpus luteum to the corpus luteum of pregnancy  Enlist the hormones secreted by the placenta and their functions during pregnancy  Briefly describe the hormonal changes in the mother in response to pregnancy  Describe the physiological effects on the body system of the mother during pregnancy | LGF 02 HOURS |  |  |  |
| **PHYSIOLOGY** | PHY | Parturition | Initiation and maintenance of parturition  Mechanism of parturition | Explain the roles of sex steroids, oxytocin, relaxin, and prostaglandins and mechanical factors in the initiation and maintenance of parturition  Describe the mechanism of parturition | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Lactation | Development of mammary gland  Inhibition of milk secretion during pregnancy  Initiation of lactation after parturition.  Regulation of milk secretion and milk ejection.  Composition of human milk  Briefly describe advantages of mothers' milk | Explain the role of hormones in mammary gland development during puberty, pregnancy and lactation.  Explain the basis for the inhibition of milk secretion during pregnancy and the initiation of lactation after parturition.  Describe the neuroendocrine regulation of milk secretion and milk ejection.  Compare the composition of human milk with cow’s milk  Briefly describe advantages of mothers' milk | LGF 01 HOUR |  |  |  |
| **PHYSIOLOGY** | PHY | Fetal and Neonatal Physiology | Development of organ systems in the fetus  Respiratory and circulatory adjustments of the infant to extra uterine life  Immature development of various organ systems  Problems of prematurity in an infant | Briefly describe the physiology of development of organ systems in the fetus  Briefly describe the respiratory and circulatory adjustments of the infant to extra uterine life  Name the functional problems of the neonate due to immature development of various organ systems  Enumerate the special problems of prematurity in an infant | LGF 02 HOURS |  |  |  |
| **PHYSIOLOGY** | PHY | Pregnancy Test | Different methods of Pregnancy test  Perform the pregnancy test by strip method | Enumerate different types of tests for pregnancy test  Describe the Principles of the different tests used to detect beta HCG levels  Perform the pregnancy test by strip method  Interpret the result of strip | PRACTICAL |  |  |  |
| **PHYSIOLOGY** | PHY | Female fertility |  | Interpertation of Hysterosalpingography Xrays  Videos Laproscopy and Dye test | PRACTICAL |  |  |  |
| **PHYSIOLOGY** | PHY | Male fertility | Seminal Analysis | Interpretation of Seminal Analysis Report(WHO Manual) | PRACTICAL |  |  |  |
| **PHYSIOLOGY** | PHY | Contraception | Different methods for contraception | Different methods used for Contraception  Community visit to Family Planning Health Facility of LMH Kohat | PRACTICAL |  |  |  |
| **BIOCHEMISTRY** | BIO | Testosterone | The mechanism of action of testosterone | The mechanism of action of testosterone Describe the mechanism of action and biochemical role of testosterone | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Estrogen | . The chemistry, biosynthesis , mechanism of action and biochemical role estrogen | The chemistry, biosynthesis , mechanism of action and biochemical role estrogen  Describe the chemistry, biosynthesis , mechanism of action and biochemical role estrogen | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Progesterone | . The progestogenic hormones their mechanism of action and metabolic role | The progestogenic hormones their chemistry,biosynthesis,mechanism of action and metabolic role  Discuss progestogenic hormones their chemistry,biosynthesis,mechanism of action and metabolic role | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Placental Hormones | The placental hormones their chemistry and biosynthesis of  placental hormone | The placental hormones their chemistry and biosynthesis of  placental hormone Enumerate the placental hormones .their chemistry and biosynthesis of  placental hormone | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Human Chorionic Gonadotropin | The chemistry , mechanism of action and role of human chorionic gonadotropin | The chemistry , mechanism of action and role of human chorionic gonadotropin  Describe chemistry , mechanism of action and role of human chorionic gonadotropin | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Sommatomammotropins | The chemistry , mechanism of action and role of chorionic somatomammotropins | The chemistry , mechanism of action and role of chorionic somatomammotropins  Describe chemistry , mechanism of action and role of chorionic somatomammotropins | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | FSH | The chemistry,mechanism of action and role of FSH | The chemistry,mechanism of action and role of FSH  Describe chemistry,mechanism of action and role of FSH | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | LH | The chemistry,mechanism of action and role of LH | The chemistry,mechanism of action and role of LH  Describe chemistry,mechanism of action and role of LH | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO |  |  |  | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Androgens | the gonadal hormones chemistry and biosynthesis of androgens | the gonadal hormones chemistry and biosynthesis of androgens  Enumerate the gonadal hormones and explain chemistry and biosynthesis of androgens | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Lactation | the metabolic needs of women during adolescence (menarche) Pregnancy, lactation and menopause | the metabolic needs of women during adolescence (menarche) Pregnancy, lactation and menopause  Identify the metabolic needs of women during adolescence (menarche) Pregnancy, lactation and menopause | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Fetal Development | The biochemical markers in different development & growth of fetus | The biochemical markers in different development & growth of fetus  Describe the biochemical markers in different development & growth of fetus | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Fetal Nutrition | The role of placenta for fetal nutrition, gaseous exchange & endocrine support | The role of placenta for fetal nutrition, gaseous exchange & endocrine support  Explain the role of placenta for fetal nutrition, gaseous exchange & endocrine support | LGF 01 HOUR |  |  |  |
| **BIOCHEMISTRY** | BIO | Blood assay of testosterone |  |  | PRACTICAL |  |  |  |
| **BIOCHEMISTRY** | BIO | Blood assay of estrogen |  |  |  |  |  |  |
| **BIOCHEMISTRY** | BIO | Blood assay of progesterone |  |  |  |  |  |  |
| **BIOCHEMISTRY** | BIO | Serum level of FSH and LH |  |  |  |  |  |  |
| **ANATOMY** | ANA-E | Gonads:  Development of ovaries and testis | * What are the indifferent stages of gonadal development * Development of ovaries * Development of testis | * Describe the origin of gonads from genital ridges * Describe the indifferent stage of gonadal development * Describe the effect of TDF on testicular development * Describe the development of,   -rete testis  -tunica albuginea  -testes cords  - interstitial cells of leyedig   * Describe the influence of testosterone and AMH secretion on testicular development * Describe the influence of XX sex chromosomes on ovarian development * Describe the origin, development & derivatives of the, * Rete ovarii * Primary & secondary sex cords * Primordial follicles * Thecal cells   Tunica albuginea | LGF 01 HOUR |  |  |  |
| **ANATOMY** | ANA-E | Development of genital ducts in males & females | * What are the structures formed by differentiation of mesonephric and para-mesonephric duct * Describe the development of male genital ducts * How the female genital ducts are developed | * Describe the development of the, * Mesonephric duct * Paramesonephric duct * Describe the differentiation of para-mesonephric duct in males into: * Epididymis * Ductus deferens * Ejaculatory duct * Seminal vesicle * Describe the development of prostate & bulbo urethral glands * Describe the development of the: * Uterine tubes * Uterus & cervix * Vagina   Urethral, para urethral & greater vestibular glands | LGF 01 HOUR |  |  |  |
| **ANATOMY** | ANA-E | Development of external genitalia ( indifferent stage) & external genitalia in males & female | Development of male & female external genitalia | * Describe the development of * Cloacal folds * Genital tubercle * Urethral folds * Anal folds * Genital (labio-scrotal swelling) * Describe the development of: * Phallus * Urethral grooves * Urethral plate * Penile urethra * Scrotum * To understand the role of dihydrotestosterone in the differentiation of male genitalia * Describe the causes of the following congenital defects of male genital system. * Hypospadias * Epispadias * Micro penis * Double penis * Describe the differentiation of the adult urethral fold * Genital swellings * Urogenital groove * External genitalia from the:   Genital tubercle | LGF 01 HOUR |  |  |  |
| **ANATOMY** | ANA-E | Descents of gonads & congenital malformation of genital system | * Coverings of spermatic cord & testes   Congenital anomalies related to development & descent of gonads | * Describe the development of: * Gubernaculum * Processus vaginalis * Coverings of spermatic cord & testis * Transabdominal & transinguinal descent of testis * Derivatives of the gubernaculums in both sexes * Describe the causes of, * Agenesis of external genitalia * Undescended & ectopic testes * Anomalies of uterine tubes * Uterine duplication & vaginal anomalies, * Uterus didelphys * Bicornuate uterus * Septate uterus * Cervical atresia * Absence of vagina * Vaginal atresia * Imperforate hymen | LGF 01 HOUR |  |  |  |
| **ANATOMY** | ANA-E | Developmen of placenta | what are various developmental stages of placenta | * Describe development of placenta * Differciate various developmental stages of placenta | LGF 01 HOUR |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of testis | * Microscopic features of testis   + Testicular tubules * Seminiferous tubules * Myoid cellular sheath * Seminiferous epithelium * Sertoli cells * Spermatogonia * Interstitium of testis * Leydig cells * Loose connective tissue * Blood & lymph vessels * Rete testis & tubuli recti * Blood testis barrier | * Describe the microscopic anatomy of testis * Relate the cytological features of following cells of testis with their functions * Sertoli cells * Leydig cells * Spermatogonia * Discuss the structural organization of testicular tubules | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of male genital ducts | * Rete testis * Ductuli deferens * Columnar ciliated epithelium with nonepithelial cells * Cells in ductus epididymis * Cells of ductus deferens and their salient features * Epithelium of ejaculatory ducts | * Differentiate between microscopic features of different sections of male genital ducts * Relate the microscopic features of epithelia with their transitions * Describe the microscopic organization of muscularis of genital ducts * Discuss the ultrastructure of the epithelial cells | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of prostate | * General structure of prostate * Capsule & septal arrangement * Microscopic features of parenchyma of prostate * What is corpora amylacea | * Describe the microscopic features of prostate * Identify the microscopic features of the following components in parenchyma of prostate * Cells of prostatic parenchyma * Smooth muscles * Ducts of prostatic glands & their openings in urethra * Discuss the microscopic organization of capsule of prostate, trabeculae & connective tissue | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of the seminal vesicles | * Epithelium of seminal vesicles (psuedostratified columnar epithelium) * Convoluted tubules with diverticular structure * Bulbourethral glands   (its histological features, capsule, epithelium & ducts) | * Describe the histological features of seminal vesicles * Relate the microscopic features of components of walls of seminal vesicles with organization of its surface epithelium * Describe the microscopic features & functions of bulbourethral glands & ducts of cowpers gland and their epithelia | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of ovary | * Layers of ovary * Cortex of ovary * Medulla of the ovary * Structure of Oocyte and its different stages | * Describe the microscopic anatomy of the ovary * Describe the microscopic features of following structures in cortex of ovary * Follicles & their different stages of maturation * Germinal epithelium * Microscopic features of medulla of ovary | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of uterus | * What are the four layers of myometrium * Describe the vascular layer of myometrium * What is hypertrophy & hyperplasia & relate both these phenomena to gestation * Describe the endometrium in detail, its epithelium, glands & stroma * Zona functionalis & zona basalis * Glands of cervix | * Describe the microscopic organization of different layers of uterus * Identify the microscopic structure of myometrium * Relate the microscopic features of layers of endometrium with cyclical changes in its glands & stroma | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of uterine tubes | * Regions of uterine tubes * What are the layers of the uterine tubes | * Describe the microscopic features of the ovaries * Differentiate between the microscopic features of different regions of uterine tubes * Describe the microscopic organization of layers of wall of the uterine tubes * Discuss the mucosal ultrastructure & epithelial transitions | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of vagina | Describe the mucosa, epithelium, & muscularis mucosa of vagina | * Describe the microscopic organization of vaginal walls * Identify the microscopic features of epithelial structure & muscularis of vagina * Discuss the cytological features of vaginal smears | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of mammary glands | * Lobes of mammary gland & their histological structure * Nipple & separate openings for each lactiferous ducts | * Describe the microscopic structure of mammary gland * Identify the microscopic features of following components of parenchyma of mammary glands * Tubuloalveolar units & their histologic organization * Ducts & their epithelia * Identify the microscopic features of components of stroma of mammary glands * Discuss the histologic significance of nipple & its structure | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – H | Microscopic anatomy of placenta | What are various histological parts of placenta | * Describe microscopic anatomy of placenta * Differentiate various histological components of placenta | LGF 01 HOUR + PRACTICAL |  |  |  |
| **ANATOMY** | ANA – G | Male internal genital organs & prostate | * Describe the course, function, relation with surrounding structures * Formation of ejaculatory ducts * External features of prostate * Relations of prostate * Lobes of prostate * Capsule of prostate   Neurovascular supply of prostate | * Describe the course & relations with surrounding structures * Describe the blood supply & innervation of ductus deferens * Describe the location , function & relation of seminal vesicles * Describe the neurovascular supply of seminal vesicles * Describe the gross features & course of ejaculatory ducts * Describe the location, size & shape of prostate gland * Relate the gross features of prostate with surrounding structures * Relate different lobes of prostate with its clinical importance * Describe the clinical importance of capsule of prostate gland * Describe neurovascular supply of prostate gland | LGF 02 HOURS |  |  |  |
| **ANATOMY** | ANA – G | Female internal genital organs & uterine tubes & ovary | * Extent of vagina, its relations & support * Parts of fallopian tubes, its blood supply & innervation   Structure & Location of ovary, boundaries of ovarian fossa & its neurovascular supply | * Relate the gross features of vagina & its fornices with its surrounding structures * Describe the different structures providing structural support to vagina * Describe blood supply & innervation of vagina * Describe size & function of uterine tubes * Relate the location of ovary & borders of ovarian fossa with surrounding structures * Describe the gross features of ovary, its blood supply & innervation. | LGF 02 HOURS |  |  |  |
| **ANATOMY** | ANA – G | Uterus | * Gross features of uterus, angles of uterus, parts of uterus * How the peritoneum covers the uterus * Broad ligament & its contents * Supports of uterus   Relations of uterus | * Relate the gross features of uterus including angles with the surrounding structures * Describe different parts of uterus * Describe the shape & communication of cervical canal * Relate different parts of broad ligaments with its content * Relate different structures plays role in support of uterus with the surrounding structures * Describe the neurovascular supply of uterus | LGF 02 HOURS |  |  |  |
| **ANATOMY** | ANA – G | Perineum : Introduction, deep & superficial pelvic pouches | * Definition of perineum * Boundaries of perineum * Urogenital diaphragm * Superficial perianal pouch & its contents in males & females * Deep perianal pouch & its contents in males & females * Male external genitalia | * Define the perineum and describe its boundaries * Describe the division of perineum * Define the superficial perineal pouch * Describe its contents in both sexes * Define deep perineal pouch   Enumerate its contents in both sexes | LGF 02 HOURS |  |  |  |
| **ANATOMY** | ANA – G | Perineum: male & female external genitalia | * Contents of male perineum * Superficial perineal muscles * Contents of female perineum | * Describe the contents of male perineum * Describe the superficial perineal muscles * Describe the female external genitalia | LGF 02 HOURS |  |  |  |
| **ANATOMY** | ANA – G | Bony pelvis & cavity | * formation of bony pelvis * bones involved in bony pelvis * boundaries of true pelvis * boundaries of pelvic inlet & outlet | * describe the gross features of pelvis * describe the sexual dimorphism seen in pelvis * enumerate functions of pelvis * describe the contents of true pelvis * discuss the boundaries of true pelvis * relate the pelvic inlet & outlet with its boundaries | LGF 02 HOURS |  |  |  |
| **ANATOMY** | ANA – G | Pelvic fascia, pelvic & diaphragm and | * pelvic fascia and its different parts   pelvic diaphragm | * describe the gross features of pelvic fascia * discuss the pelvic structural organization of pelvic diaphragm | LGF 02 HOURS |  |  |  |
| **PATHOLOGY** | PATHO | Introduction | Introduction to Male Genital Tract | Describe the various causes of pain in the scrotum.  Testicular torsion,  Epididymitis,  Fournier’s gangrene, Trauma,  Testicular rupture,  Abscesses,  BPH, Testicular Atrophy | LGF 01 HOURS |  |  |  |
| **PATHOLOGY** | PATHO | Introduction | Introduction to Female Genital Tract | Define the terms Endometrial Hyperplasia,  Cervical Intraepithelial Neoplasia, Leiomyoma | LGF 01 HOURS |  |  |  |
| **PATHOLOGY** | PATHO | Introduction |  | * Enlist the causes of lump in xthe breast * Enlist the risk factors of Breast Cancers | LGF 01 HOURS |  |  |  |
| **PHARMACOLOGY** | 01 | Introduction | * Classify and explain basic and clinical pharmacology of progestin and oestrogens | * Classification of gonadal hormones | LECTURE 01 HOUR | \_\_ | * 03 | \_\_ |
| **PHARMACOLOGY** | 02 | Introduction | Classify and explain basic and clinical pharmacology of androgens and anti-androgens | Classification of anti-androgens | LECTURE 01 HOUR | \_\_ | * 02 | \_\_ |
| **COMMUNITY MEDICINE** |  | Family Planning | Family planning  Contraceptive methods  Birth spacing | 1. Outline the different family planning methods.  2. Describe appropriate use of different contraceptive methods in different scenarios.  3. Describe the importance of birth spacing. | LGF 01 HOUR |  |  |  |
| **COMMUNITY MEDICINE** |  | Reproductive Tract infection | Reproductive Tract infection  Global burden of disease | 4. Describe the three types of reproductive tract infections.  5. Describe the reproductive health issues of both male and female in adolescence.  6. Identify the global burden of reproductive health related diseases in adolescent and its preventive strategies. | LGF 02 HOURS |  |  |  |
| **FORENSIC MEDICINE** |  | Introduction |  | 1. Define Prematurity  2. Define Infanticide  3. Describe the differences between male and female pelvis  4. Define virginity, Defloration and false virgin  5. Describe the various types of Hyman  6. Describe the anatomical differences between virgin and non-virgin  7. Discuss the circumstances under in which the question of virginity would assume importance (Medico legal Importance). | LGF 02 HOURS |  |  |  |

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# TIME TABLE

The modes of transfer of information will be organized in the form of a weekly timetable

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# ASSESSMENT:

INTERNAL EVALUATION:

FORMATIVE ASSESMENT

SUMMATIVE ASSESMENT

1. FORMATIVE ASSESMENT:

Feedback is given to the students regarding their discussion and assessment of the students in CBL sessions is forwarded to the Principal.

1. SUMMATIVE ASSESMENT:
2. Three theory papers has total 40 marks with
3. Each OSPE 10 marks with total of 30 marks

Theoretical knowledge is tested by a written examination system constituted by multiple choice questions (MCQs). The assessment of practical knowledge involves oral or objective structured practical examinations (OSPE).The block exam will comprise of 120 MCQs and will be compiled according to the shared blueprint

# BLUEPRINT OF BLOOD MODULES

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| subjects | No of LO theme wise | | | | No of hours allocated in TT | Percent distribution (No. of hours allocated in TT for specific subject/total hours x 100) | Percentage distribution of hours (subject-wise) | No. of MCQs | Total subject-wise MCQs out of 120 |
| Theme  1 | Theme  2 | Theme  3 | Total |
| Gross Anatomy |  |  |  |  |  |  |  |  |  |
| Histology |  |  |  |  |  |  |  |
| Embryology |  |  |  |  |  |  |  |
| Physiology |  |  |  |  |  |  |  |  |  |
| Biochemistry |  |  |  |  |  |  |  |  |  |
| Pathology |  |  |  |  |  |  |  |  |  |
| Pharmacology |  |  |  |  |  |  |  |
| Community medicine |  |  |  |  |  |  |  |
| Forensic medicine |  |  |  |  |  |  |  |
| PRIME |  |  |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |  |  |

# 

# OSPE BLUEPRINT

|  |  |  |  |
| --- | --- | --- | --- |
| Specialty | Practical’s | weightage | Number of stations |
| Anatomy |  |  |  |
| Biochemistry |  |  |  |
| PHYSIOLOGY |  |  |  |

# LEARNING RESOURCES:

The learning resources are as follows.

Please mention books related to reproduction module

**ANATOMY**

Clinical Anatomy by Regions by Richard S. Snell

Gray's Anatomy for Students

https://www.youtube.com/user/TheAnatomyZone

http://www.anatomyzone.com/

**PHYSIOLOGY**

Guyton and Hall Textbook of Medical Physiology

Ganong's Review of Medical Physiology

Human Physiology : Lauralee Sherwood

**BIOCHEMISTRY**

Harpers Illustrated Biochemistry

Lippincott's Illustrated Reviews: Biochemistry

# C:\Documents and Settings\User1\My Documents\My Pictures\kmu.bmpKHYBER MEDICAL UNIVERSITY

# INSTITUTE OF MEDICAL SCIENCES, KOHAT

**Campus: Divisional Headquarter Teaching Hospital, K.D.A, Kohat.**

**Ph# + 92-922-9260325, Fax # +92-922-9260365**



**Study Guide**

**MBBS 3rd Professional**

**DEPARTMENT OF PHARMACOLOGY**

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1. **Message of Head of Department**

It is a privilege and pleasure to welcome you to the department of pharmacology KMU-IMS Kohat. The department is committed to teach the principles and applications of pharmacology & therapeutics to the undergraduate students of KMU-IMS Kohat. Pharmacology is mainly focused on drugs and their actions. At present we have well qualified team with substantial teaching skills and impressive knowledge in the said subject. pharmacology is the backbone of the whole medical field. This field will stay with you forever and even if you are physician,surgeon, or gynecologist etc. A sound knowledge of the subject will enable you to prescribe drugs rationally, for the benefit of the humanity.

1. **Vision of KMU**

Khyber Medical University will be the global leader in health sciences academics and research for efficient and compassionate health care.

1. **Mission of KMU**

Khyber Medical University aims to promote professional competence through learning and innovation for providing comprehensive quality health care to the nation.

1. **Vision of KMU-IMS, Kohat**

Khyber Medical University will be the global leader in health sciences academics and research for efficient and compassionate health care.

1. **Mission of KMU-IMS Kohat**

To achieve excellence in quality health provision, medical education, innovation, research, ethics, professionalism and social accountable leadership through national and international collaboration.

**6. MODULE DEVELOPMENT TEAM**

|  |  |  |  |
| --- | --- | --- | --- |
| **Serial No** | **Names** | **Qualification** | **Roles** |
| 1 | Asst Prof Dr. Amjad Mustafa | MBBS,M.Phil. | Module Planner/HOD |
| 2 | Dr. Zakia Subhan | MBBS, M.Phil. | Assistant Professor |
| 3 | Dr. Ghazala Shaheen | MBBS, M.Phil. | Lecturer |
| 4 | Dr. Muhammad Akbar | MBBS | Lecturer |
| 5 | Dr. Muhammad Soban | MBBS | Lecturer |
| 6 | Dr. Asia Kamal | MBBS | demonstrator |
| 7 | Dr.Usman Amin | B.Pharm,MS,PhD | Pharmaceutical chemist |

1. **Overall aims of course**

To impart students the basic knowledge of Pharmacology and make them efficient to utilize the knowledge and Skills in day today basic and clinical practices.

1. **Knowledge and understanding:**

3rd year MBBS student, at the end of one year training in Pharmacology, is expected to:

1. Understand pharmacokinetic and pharmacodynamic principles involved in the use of drugs

2. Understand and identify the various factors that can affect the action of drugs

3. Know the various routes of drug administration with advantages and disadvantages of the various routes

4. Undertake dosage calculations as appropriate for the patient and be able to select the proper drug and dose for the at risk population i.e. patients with kidney or liver disease, elderly, pregnant and lactating females, and children.

5. Understand the importance of rational prescribing of drugs and the concept of essential drugs

6. To be able to identify and monitor adverse drug reactions (ADRs) and appreciate the importance of ADR reporting

7. Know the drugs used in systemic illnesses, infections and chemotherapy etc. with main mechanism(s) of action, pharmacokinetics, uses,

Side-effects and indications

8. Understand the principles and practice of pharmacy

9. Understand the methods in experimental pharmacology, principles of bioassay and be able to correlate drug effects with the action of drugs at the receptors.

10. Have knowledge of common drugs and doses used for different ailments

11. Have an understanding of basic mechanism by which a drug acts

12. Should be able to select rationally from the available drugs

1. **Professional and Practical Skills**

After completion of this course the students of MBBS program will be able to:

* + 1. interpret the data generated in pharmacology lab
    2. Determine the validity of experimental data.

1. **General and transferable skills**

After completion of this course the students of MBBS program will be able to:

* 1. Utilize and express their knowledge in investigating and resolving issues and queries related to Pharmacology

1. **Student Assessment Methods**

a. Class Test to access continuous learning process

b. Terminal Examination to access learning out comes

c. Presentations to access communication skills

d. Assignments to access writing skills

1. **Learning objectives of Pharmacology:**

3rd year MBBS student, at the end of one year training in Pharmacology, is expected to:

1. Understand pharmacokinetic and pharmacodynamic principles involved in the use of drugs

2. Understand and identify the various factors that can affect the action of drugs

3. Know the various routes of drug administration with advantages and disadvantages of the various routes

4. Undertake dosage calculations as appropriate for the patient and be able to select the proper drug and dose for the at risk population i.e. patients with kidney or liver disease, elderly, pregnant and lactating females, and children.

5. Understand the importance of rational prescribing of drugs and the concept of essential drugs

6. To be able to identify and monitor adverse drug reactions (ADRs) and appreciate the importance of ADR reporting

7. Know the drugs used in systemic illnesses, infections and chemotherapy etc. with main mechanism(s) of action, pharmacokinetics, uses, side-effects and indications

8. Understand the principles and practice of pharmacy

9. Understand the methods in experimental pharmacology, principles of bioassay and be able to correlate drug effects with the action of drugs at the receptors.

10. Have knowledge of common drugs and doses used for different ailments

11. Have an understanding of basic mechanism by which a drug acts

12. Should be able to select rationally from the available drugs

**9. 3rd year KIMS pharmacology course distribution**

|  |  |  |
| --- | --- | --- |
| **Name of topics** | **Name of teacher** | **Email address** |
| **General pharmacology** | Dr. amja dmustafa, Dr zakia subhan, Dr.ghazala shaheen,  Dr. mohammad soban, Dr.Asia kamal |  |
| **1.Sympathetic nervous system**  **2. Cardiovascular system and diuretics**  **3. Drugs with actions on blood** | Dr.zakiasubhan | zakiabilal10@gmail.com |
| **1.Parasympathetic nervous system**  **2.chemotherapy** | Dr.amjadmustafa | Drmustafa670@gmail.com |
| **1.Central nervous system**  **2.Anti-fungal drugs**  **3.anti-viral drugs** | Dr.ghazalashaheen | ghazalkhattak59@gmail.com |
| **1.Drugs with important actions on smooth muscle**  **2. Endocrine drugs** | dr.asia kamal | asiakamal321@gmail.com |
| **Drugs used in gastrointestinal disorders, NSAIDs, DMARDs, GOUT** | Dr. mohammad soban | mohammad.soban@yahoo.com |
| **PRACTICALS 1(A and B batch) (mon and thur)** | Dr. mohammad akbar | drakbarkhan80@gmail.com |
| **PRACTICALS 2(A and B batch) (Saturday)** | Dr.usmanamin | musmanamin1999@gmail.com |

**10. COURSE CONTENT**

**Theory**

**(A) General Pharmacology**

a) Introduction: definition, historical perspective, branches and scope of the subject of pharmacology and its relation with other medical disciplines

b) Nature and sources of Drugs, Drug nomenclature and dosage forms

c) Routes of drugs’ administration; advantages and disadvantages of different routes

d) Pharmacokinetic considerations: drug absorption, distribution, biotransformation and excretion

e) Pharmacokinetic concepts of bioavailability, apparent volume of distribution (aVd), half life (t½), and drug clearance (CL)

f) Pharmacodynamics; site and mechanism of drug action, drug receptors and receptor regulation, concepts of agonists, antagonists, partial agonist and inverse agonist drugs

g) Quantitative aspect of drug action: analysis of dose response curve and therapeutic index (safety index)

h) Factors affecting drug action and doses

i) Drug interactions

k) Adverse drug reactions (ADRs)

l) Development of new drugs: pre-clinical and clinical phases of drug evaluation

***(B) Systemic Pharmacology – Drug oriented teaching***

(Here core information about drugs is to be given that should include pharmacological actions, mechanism of action, indications, contraindications, side effects, drug interactions, precautions etc

**Autonomic nervous system & Peripheral nervous system**

a) Neurohumoral transmission

b) Sympathetic nervous system - sympathomimetics, sympatholytics

c) Parasympathetic - Cholinergics, Anticholinergics, Ganglion stimulants and blockers

d) Skeletal muscle relaxants

**Drugs Affecting Autacoids, Inflammation and Gout**

1. Histamine, serotonin and their antagonists
2. Prostaglandins, leukotrienes, thromboxane and PAF
3. Substance P, bradykinin
4. NSAIDs
5. Drug treatment of gout, rheumatoid arthritis & other autoimmune diseases

**Drugs Affecting Kidney Function**

a) Diuretics

b) Antidiuretics

**Drugs Affecting Respiratory System**

1. Antitussives, expectorants, mucolytics
2. Drug treatment of bronchial asthma, COPD

**Drugs Affecting Gastro-intestinal System**

1. Drugs for gastric acidity, peptic ulcer & GERD
2. Antiemetic and prokinetic agents
3. Drugs for constipation and Inflammatory Bowel Disease
4. Antidiarrhoeal agents

**Drugs Affecting Cardiovascular System (CVS)**

1. Drugs affecting vascular tone and volume of circulation, renin angiotensin system and other mechanisms affecting this system
2. Antihypertensive drugs
3. Anti-anginal drugs, management of Myocardial Infarction
4. Drugs for heart failure
5. Anti-arhythmic agents
6. basic concepts of treatment of shock

**Drugs Acting on Blood**

1. Coagulants and anticoagulants
2. Antiplatelet drugs
3. Fibrinolytic, antifibrinolytic

**Drugs Affecting Central Nervous system**

1. Introduction and basic concepts of drugs affecting CNS activity: Neurotransmitters and their pathways and important sites of Central Nervous System effect of drugs
2. Sedative hypnotic drugs
3. General anaesthetics with preanaesthetic medications
4. Antiepileptic drugs
5. Antipsychotic drugs
6. Antianxiety drugs
7. Antidepressant and antimaniac drugs
8. Opioid analgesic and antagonists
9. Antiparkinsonian drugs and drugs for other neurodegenerative and movement disorders
10. Pharmacology of ethyl alcohol and other alcohols
11. Pharmacology of CNS stimulants, psychomimetic drugs, drug dependence and
12. substance abuse

**Drugs Affecting Endocrine System and its Diseases**

1. Pharmacology of pituitary and hypothalamic hormones
2. Thyroid hormones and antithyroid drugs
3. Estrogen, progesterone and inhibitors
4. Oral contraceptives & HRT
5. Androgen
6. Drugs for diabetes mellitus: Insulin and oral antidiabetic agents
7. Adrenocorticosteroids
8. Parathyroid hormones and drugs affecting calcium balance
9. Drugs acting on uterus
10. Drug treatment for infertility

**Pharmacology of Chemotherapeutic Agents**

1. Introduction and basic principles of chemotherapy of infection, infestation and neoplastic diseases and concepts of resistance to chemotherapeutic agents, rational use of antibiotics

b) Chemotherapeutic agents - Penicillins, cephalosporins, fluoroquinolones, macrolides, aminoglycoside, tetracyclines, chloramphericol and polypeptide antibiotics etc.

1. Chemotherapy of tuberculosis, leprosy, UTI & STDs
2. Chemotherapy of parasitic infection
3. Chemotherapy of fungal infections
4. Antiviral, anti-AIDS drugs
5. Cancer Chemotherapy

**Immunopharmacology**

1. Vaccines, immunomodulators

**Miscellaneous Topics**

1. Vitamins, and probiotics
2. Drugs acting on skin and mucous membrane
3. Drug therapy of glaucoma and cataract
4. Treatment of poisoning
5. Antiseptics and disinfectants

**PRACTICALS**

1. **Experimental pharmacology exercise on isolated organ**
2. General principles of pharmacology
3. Different routes of drug administration

b) Assay of various drugs using rabbit ileum, Rabbit’s eye

1. Identification of unknown drugs by evaluating its action antagonism and drug interaction on Rabbit ileum

**B) Experimental exercise on pharmacy**

1. General principles of pharmacy
2. Prescription writing exercises
3. Dose calculations

c) Dosage forms, formulations, Sources of drugs

d) Use of inhalers, nebulizers

1. Preparation and dispensing of powders, emulsions ointments, mixtures, liniments, solutions and syrups

**C) Spotting exercise**

Identify the commonly used items and specimens in Pharmacology

**11. TEACHING AND LEARNING METHODOLOGY**

The pharmacology teaching shall be done with the goal of making the student understand the concept of rational use of drug.

**General pharmacology and systemic pharmacology**

It shall be taught by way of lectures. Each lecture session will be planned to deliver maximum relevant Information to the student. The clinical aspects as well as rationality of use of a given drug shall be discussed with the students. In addition, presentations on some important topics will be planned in which the topic will be discussed in detail by a student.

**Practicals**

The given practical exercise shall be discussed and demonstrated beforehand to the students. In addition, the students will learn prescription writing and dose calculations. Students shall also be shown various spots. The spots shall include various chemicals, drugs, specimens, apparatuses and instruments used in pharmacology.

**12. TIME TABLE FOR 3rdYEAR MBBS SESSION 2019-20**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Days** | **08:00 – 08:55** | **08:55 – 09:50** | **09:50 – 10:20** | **10:20 – 01:05** | | **01:05 – 02:00** | |
| **Monday** | **PRACTICAL**  **Pathology (Batch-A)** | | **BREAK** | **Hospital Work** | | **Pharmacology** | |
| **Pharmacology (Batch-B)** | |
| **Tuesday** | **Pharmacology** | **Pathology** | **Hospital Work** | | **Pathology** | |
| **Wednesday** | **Pathology** | **Pharmacology** | **Hospital Work** | | **Pathology** | |
| **Thursday** | **ENT/EYE** | **Surgery/Medicine** | **10:20-11:15**  **Pathology** | **11:15-12:10**  **Pharmacology** | **12:10 – 02:00**  **PRACTICAL**  **Pathology (Batch-B)** | |
| **Pharmacology (Batch-A)** | |
| **Friday** | **Forensic Medicine** | **Pharmacology** | **10:20 – 11:15 am**  **Behavioral Science** | | **11:15 – 1:05**  **Hospital Work  (2 hours)** | **Friday Prayers**  **1:05 pm – 2:00 pm** |
| **Saturday** | **PRACTICAL**  **Pathology (Batch-B)** | | **10:20 – 11:15**  **Community Medicine** | **11:15 – 01:05**  **Practical Pathology (Batch-A)** | **01:05 – 02:00**  **Forensic Medicine** | |
| **Pharmacology (Batch-A**) | | **Pharmacology (Batch-B)** |

(Batch A=1 to 50 & Batch B=51 to 100)

**13. Sources of study/ learning:**

1) Text Books

2) Homework assignments

3) Previous tests

4) Notes (prepared by students during lectures)

5) Self-directed learning through Internet and library

6) Hospital/ward visits

**TEXT-BOOKS RECOMMENDED**

1. Basic & Clinical Pharmacology by Katzung 12th and 14thEdn.
2. Basis of Pharmacology by Goodman & Gillman 12thEdn.
3. [Lippincott's Illustrated Reviews: Pharmacology](http://www.amazon.com/Lippincotts-Illustrated-Reviews-Pharmacology-4th/dp/0781771552/ref=sr_1_11?ie=UTF8&s=books&qid=1272267132&sr=1-11) by Richard A Harvey, [Pamela C. Champe](http://www.amazon.com/Pamela-C.-Champe/e/B000APHLSY/ref=sr_ntt_srch_lnk_11?_encoding=UTF8&qid=1272267132&sr=1-11), Richard Finkel, and [Luigi X. Cubeddu](http://www.amazon.com/Luigi-X.-Cubeddu/e/B001IGSJLC/ref=sr_ntt_srch_lnk_11?_encoding=UTF8&qid=1272267132&sr=1-11). 5thEdn.

**Facilities required for teaching and learning:** Multimedia, availability of Text and recommended books, online access to the journals, chemicals and neurotransmitters. Animal house and feedings for experimental animals, Dissection boxes, drugs, computer and printer.

**Contact hours:**

MBBS 3rd year w.e.f 01-10-2019

Pharmacology 280 hours

Lectures: 1 hour of each= 5/week

Practicals: 2 hours of each= 4/week

**14. KMU-IMS, Kohat**

**Department of Pharmacology**

**Curriculum Map 2019-2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Term 1 | Date | Term 2 | Date | Term 3 | Date | University exam |  | Date |
| Curriculum as per course template | 28-11-2019 | Curriculum as per course template | 04-03-2020 | Curriculum as per course template | 22-5-2020 | Preparatory break | Annual Exam  September 2020 | Start of class October 2020 |

**EXAMINATION AND MARKS DISTRIBUTION**

Total Marks 300

Internal Assessment total 30

Internal assessment theory 10

Internal assessment practical 20

Professional Examination 270

**Internal Assessment:** three assessments in theory and one in practicals are held as given above:

**Professional Examination**

Theory Paper 140

OSPE 70

VIVA 60

INTERNAL ASSESMENT TOTAL marks 30

**15. TOS PHARMACOLOGY   
MBBS 3rd PROFESSIONAL**

**Pharmacology**

|  |  |  |
| --- | --- | --- |
| **Area** | **No. of MCQs**  **(01 Marks each)** | **No. of SEQs**  **(10 Marks each)** |
| **Principles of pharmacology**   1. **Pharmacokinetics** 2. **Pharmacodynamics** 3. **Drug development and safety** | **05** | **01** |
| **Autonomic and Neuromuscular Pharmacology**   1. **Acetylcholine Receptor Agonists** 2. **Acetylcholine Receptor Antagonists** 3. **Adrenoceptor Agonists** 4. **Adrenoceptor Antagonists** | **05** | **02** |
| **Cardiovascular, Renal and Hematologic Pharmacology**   1. **Antihypertensive Drugs** 2. **Antianginal Drugs** 3. **Drugs for heart failure** 4. **Diuretics** 5. **Antiarrhythmic Drugs** 6. **Drugs for Hyperlipidemia** 7. **Anticoagulant,antiplatelet and fibrinolytic Drugs** 8. **Hematopoietic Drugs** | **08** | **02** |
| **Central Nervous System Pharmacology**   1. **Sedative-Hypnotic and anxiolytic Drugs** 2. **Antiepileptic drugs** 3. **Local and Outgeneral Anesthetics** 4. **Psychotherapeutic Drugs** 5. **Opioid Analgesics and Antagonists** 6. **Drugs for Neurodegenerative Diseases** 7. **Drugs of Abuse** | **10** | **02** |
| **Pharmacology of Respiratory and other System**   1. **Autacoid Drugs** 2. **Drugs for Respiratory Tract Disorders** 3. **Drugs for Gastrointestinal Tract Disorders** 4. **Drugs for headache** 5. **Drugs for Pain, inflammation and Arthritic Disorders** | **07** | **02** |
| **Endocrine Pharmacology**   1. **Hypothalamic and Pituitary Drugs** 2. **Thyroid Drugs** 3. **Adrenal Steroids and Related Drugs** 4. **Drugs Affecting Fertility and Reproduction** 5. **Drugs for Diabetes Mellitus** 6. **Drugs Affecting Calcium and Bone** | **05** | **02** |
| **Chemotherapy**   1. **Principles of antimicrobial chemotherapy** 2. **Inhibitors of Bacterial Cell Wall Synthesis** 3. **Inhibitors of Bacterial Protein Synthesis** 4. **Quinolones, Antifolate Drugs and Other antimicrobial agents** 5. **Antimycobacterial Drugs** 6. **Antifungal Drugs** 7. **Antiviral Drugs** 8. **Antiparasitic Drugs** 9. **Antineoplastic and immunomodulating Drugs** | **10** | **01** |
| **Total** | **50** | **12** |

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# INSTITUTE OF MEDICAL SCIENCES, KOHAT

**Campus: Divisional Headquarter Teaching Hospital, K.D.A, Kohat.**

**Ph# + 92-922-9260325, Fax # +92-922-9260365**



**Study Guide**

**MBBS 3rd Professional**

**DEPARTMENT OF PATHOLOGY**

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1. **Message of Head of Department**

I am glad to be here as HOD Pathology KMU-IMS, Kohat, I am very grateful to principle KMU-IMS, Kohat to give the opportunity of serving this department. Pathology is the basis of surgery and medicine. We all are trying our best to impart knowledge and practical procedures to the students, which will be very fruitful for them while applying their knowledge in surgery and medicine.

1. **Vision of KMU**

Khyber Medical University will be the global leader in health sciences academics and research for efficient and compassionate health care.

1. **Mission of KMU**

Khyber Medical University aims to promote professional competence through learning and innovation for providing comprehensive quality health care to the nation.

1. **Vision of KMU-IMS, Kohat**

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1. **Mission of KMU-IMS Kohat**

To achieve excellence in quality health provision, medical education, innovation, research, ethics, professionalism and social accountable leadership through national and international collaboration.

1. **MODULE DEVELOPMENT TEAM**

|  |  |  |  |
| --- | --- | --- | --- |
| **Serial No** | **Names** | **Qualification** | **Roles** |
| 1 | Prof.Dr.Aziz Marjan | MBBS,M.Phil | Module Planner/HOD |
| 2 | Dr. Tahira Atta | MBBS, M.Phil | Associate Professor |
| 3 | Dr.Yasar Mehmood Yousafzai | MBBS, PhD | Assistant Professor |
| 4 | Dr.Asif Ali | MBBS, PhD | Assistant Professor |
| 5 | Dr.Noor Ul Amin | MBBS | Lecturer |
| 6 | Dr. Nowshad Asim | MBBS | Lecturer |
| 7 | Dr. Saad Ejaz | MBBS | Demonstrator |
| 8 | Dr. Anoosha Naseem | MBBS | Demonstrator |

1. **Program objectives:**

To enable students to gain knowledge of:

1. Normal human structure and function at the molecular, genetic, cellular, tissue, organ-system and whole-body level
2. The mechanisms involved in the pathogenesis and treatment of human diseases and their influence on clinical presentation and therapy.
3. The epidemiology of pathological diseases
4. The basic scientific and ethical principles of clinical research.
5. **Patient Care**

* To enable students to apply scientific methods to the practice of pathology for the identification of problems, data collection, hypothesis formulation, and the application of deductive reasoning to problem solving, clinical reasoning, and decision-making.
* To successfully integrate collected clinical information to carry out appropriate diagnostic and treatment plans for patients across the broad spectrum of acute and chronic conditions.
* To perform basic risk assessments and formulate plans to promote patient wellbeing.

1. **Interpersonal and Communication Skills**

* To affectively counsel and educate patients and their families.
* To design diagnostic and treatment options in a manner that will help the participation of patients and their families in shared decision-making.
* To effectively communicate with members, including both doctor and non-doctor professionals, of the health care team.

1. **Professionalism**

* To exhibit high standards of professionalism and demonstrate an awareness of potential conflicts of interest.
* To apply legal and ethical principles governing the doctor-patient relationship to interactions with patients and their families.
* To act in the patient's best interest and serve as a patient advocate.
* To work collaboratively and effectively in inter-professional team.

1. **Learning objectives of Pathology:**

1. The student will be able to explain the basic nature of disease processes from the standpoint of causation, epidemiology, natural history, and the structural and functional abnormalities that result (including molecular, biochemical and cellular mechanisms for maintaining homeostasis) and knowledge of population health, epidemiology principles and the scientific basis of research methods.

2. The student will be able to classify diseases of various body systems and how they manifest clinically and histopathologically, that is the pathogenesis of diseases, interventions for effective treatment, and mechanisms of health maintenance to prevent disease.

3. The student will be able to devise likely diagnoses from clinical scenarios by recognizing key manifestations of congenital, hemodynamic, inflammatory, infectious, metabolic, environmental, and neoplastic diseases. More broadly it is the knowledge of basic clinical skills required to meet the skills objectives, including interviewing, physical diagnosis, communication and clinical reasoning processes.

4. The student will be able to apply knowledge of pathology’s role in the diagnosis, staging, and management of disease. That is the pathogenesis of diseases, interventions for effective treatment, and maintenance to prevent disease.

1. The student will be able to utilize high quality peer-reviewed literature to maintain currency in the management of pathologic conditions.
2. Demonstrate ability to give and receive feedback, respect for self and peers.
3. Demonstrate empathy and care to patients.
4. Develop respect for the individuality and values of others - (including having respect for oneself) patients, colleagues and other health professionals
5. Organize& distribute tasks
6. Exchange opinion & knowledge
7. Develop communication skills and etiquette with sense of responsibility.
8. To equip themselves for teamwork
9. Regularly attend the classes
10. Demonstrate good laboratory practices

**SYLLABUS OUTLINE & COURSE SPECIFICATION TEMPLATE**

**3rd year MBBS (PMDC RECOMMENDED) wef 01 oct 2019.**

**Pathology 260 hours (145 Hours Classes, 116 Hours Practical work)**

**Lectures: one hour of each = 05/week and Practicals: two hours of each 4/week**

***The total hours (29 weeks session) are divided into 3 terms. Each term consists of ac*tive teaching followed by examination week.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | **Course specification, Hours and teaching faculty given below** | | | | | | | | | | |
| **Week** | **Course codes** | | | **Pathology**  **First term 9 Weeks period** | **Name of faculty** | | **Week** | **Course codes** | | **Pathology**  **First term 9 Weeks period** | | | **Name of faculty** |
| **Week** **1**  Classes | **321 (Introduction)** | | | 1. Introduction to parasitology/ study guide 2. Introduction to bacteriology/ kochs postulates 3. Introduction of immunology 4. Introduction to general pathology 5. Plan of study in pathology (etiology, morphology pathogenesis, diagnosis and prevention) | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta | | **Week** 2  Classes | **322**  **(General bacteriology)** | | 1. Comparison of bacterial cells with other cell 2. Bacterial growth/ growth curve/ aerobic & anaerobic metabolism 3. Classification of medically important bacteria, normal flora of the human body and its importance 4. Bacterial genetics & gene transformations Host defenses & diseases 5. Laboratory diagnosis of diseases/ ELISA | | | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan |
| **Relevant**  **Practical work** |  | | | Use of microscope, tissue processing, slide preparation and mounting | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | | **Relevant**  **Practical work** |  | | Use of microscope, tissue processing, slide preparation and mounting | | | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha |
| **Week** 3 | **322(General bacteriology)** | | | * 1. Anti-microbial drugs: mechanism of actions   2. Anti-microbial drugs: resistance in bacteria   3. Prevention of disease/ vaccines/ vaccination schedules   4. Sterilization & disinfection/ antiseptics   5. Control of infection at working sites/ monitoring indicators of autoclaves | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan | | **Week** 4  Classes | **327**  **Immunology** | | 1. Introduction to immunology/Innate and Acquired / Humoral 2. Cellular/Active/Passive Immunity 3. Antigens/ Structure of Antibodies/classification 4. Mechanism and Comparison of Primary and Secondary Immune response 5. MHC / Organ Transplantation /Graft Rejections | | | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta |
|  |  | | | H and E staining procedure  Methylene blue staining  Motility of bacteria | Dr.Noor ul Amin,  Dr.Nowshad  Dr.Saad  Dr. Anoosha | | **Relevant**  **Practical work** |  | | Gram stain  Culture and sensitivity | | | Dr.Noor ul Amin,  Dr.Nowshad,  Dr.Saad  Dr. Anoosha |
| **Week** **5**  Classes | **327**  **Immunology** | | | 1. Complement System/Effects/Clinical Aspects    2. Hypersensitivity Reactions Anaphylactic reaction  3.Cytotoxic reaction  4.Immune Complex  5.Delayed reaction | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta | | **Week** 6  Classes | **327**  **Immunology** | | 1.Autoimmune Diseases Mechanism,    2.SLE/Graves disease  3.Amyloidosis    4. Rheumatic Heart Disease/ R. Arthritis/Multiple Sclerosis  5. Antigen-Antibodies Reactions in Lab, ELISA/Compliment Fixation/ Coomb Test | | | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta |
| **Relevant**  **Practical work** |  | | | RA factor/ ANF/ Coombs test (direct-indirect) | Dr.Noor ul Amin,  Dr.Nowshad,  Dr.Saad  Dr. Anoosha | | **Relevant**  **Practical work** |  | | Serial dilutions of serum for antigen-antibody reactions, Blood grouping and  Cross match (major, minor) | | | Dr.Noor ul Amin,  Dr.Nowshad,  Dr.Saad  Dr. Anoosha |
| **Week** **7**  Classes | **331**  **(Special Bacteriology)** | | | 1. Pathogenesis/Discussion/ diseases of Staphylococci. 2. Pathogenesis/Discussion/ diseases of Staphylococci. 3. Pathogenesis/Discussion /Disease of Streptococci. 4. Pathogenesis/Discussion/Diseases of **spore forming Gram +** bacilli. 5. Pathogenesis/Discussion/Diseases of **non**- **spore forming Gram +** bacilli | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan | | **Week** **8**  Classes | **331**  **(Special Bacteriology)** | | 1. Mycobacterium leprae 2. GNR primarily related to animal sources. (Zonotic organisms) 3. GNR primarily related to animal sources. (Zonotic organisms) 4. Diseases of Actinomycaetes 5. Diseases of mycoplasmas | | | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan |
| **Relevant**  **Practical work** |  | | | Culture Media  Catalase/ coagulase test | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | | **Relevant**  **Practical work** |  | | Culture Media (L.J medium)  Widal test | | | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha |
| **Week** 9  Classes | **331**  **(Special Bacteriology)** | | | * 1. Diseases of Spirochetes.   2. Diseases of Chlamydia.      * 1. Diseases of Rickettesiae.   2. Minor Bacterial diseases   3. STI’s | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan | | **Week 10** |  | | **1st stage(SAQ,OSPE,VIVA)** | | |  |
| **Relevant**  **Practical work** |  | | | Culture Media  Gram staining of discharge |  | |  |  | | **1st stage(SAQ,OSPE,VIVA) continued** | | |  |
| **Second term 9 Weeks period** | | | | | | | | | | | | | |
| **Week** **11**  Classes | | **331**  **(Special Bacteriology)** | | 1. Gram Negative Rods (GNR) related to pathogenesis primarily in GIT. 2. GNR primarily related to Respiratory system.      1. Mycobacterium tuberculosis (transmission/pathogenesis/complications/lab 2. diagnosis/treatment/prevention 3. Atypical mycobacteria transmission/pathogenesis/complications/lab diagnosis/treatment/prevention | | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan | **Week 12**  Classes | | **331**  **(Special Bacteriology)** | | 1. Pathogenesis/Discussion/ Diseases of **Non- spore forming Gram+** bacilli. 2. Pathogenesis/Discussion/ Diseases of  **spore forming Gram +** bacilli. 3. Diseases/complications of Nisseria meningitides. 4. Diseases/complications of Nisseria meningitides. 5. Diseases/complications of Nisseria gonorrhea. | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan | |
| **Relevant**  **Practical work** | |  | | Culture media (bacteria)  ZN stain | | Dr.Noor ul Amin  Dr Nowshad  Dr.Saad  Dr. Anoosha | **Relevant**  **Practical work** | |  | | Culture Media  Oxidase test | Dr.Noor ul Amin  Dr Nowshad  Dr.Saad  Dr. Anoosha | |
| **Week 13**  Classes | | **331**  **(Special Bacteriology)** | | 1. Diseases/complications of Nisseria gonorrhea. 2. Coliform bacteria and public health/properties of enterobacteriaceae 3. Coliform bacteria and public health/properties of enterobacteriaceae 4. Diseases/properties by strains of E.coli/Organs infection 5. Diseases/properties by strains of Samonella /Organs infection | | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan | **Week** 14  Classes | | **330**  **Virology** | | 1. Introduction to virology 2. classification of Viruses 3. Viral like Particles. Pathogenesis of Viral Diseases.      1. Diseases by **RNA enveloped viruses** (Influenza/Measles/Mumps) 2. Rubella/Rabies/HCV | Dr.Saad Ejaz  Dr.Saad Ejaz  Dr.Saad Ejaz  Dr.Saad Ejaz  Dr.Saad Ejaz | |
| **Relevant**  **Practical work** | |  | | Culture Media/ Indol test/ KIA media | | Dr.Noor ul Amin,  Dr.Nowshad  Dr.Saad  Dr. Anoosha | **Relevant**  **Practical work** | |  | | ICT methods of viral diseases/ ELISA | Dr.Noor ul Amin,  Dr.Nowshad,  Dr.Saad  Dr. Anoosha | |
| **Week** 15  Classes | | **330**  **(Virology)** | | 1.Diseases by **RNA Non-enveloped Viruses** -Polio/ Rota/Coxsackie B/Hepatitis A  2.Diseases by **DNA enveloped Virus** HBV/ HSV1/HSV2/VZV/EBV/CMV/HHV8  3.Diseases by **DNA Non-enveloped** Viruses.HPV/Parvo  4.Hepatitis Viruses/Pathogenesis/ Diagnosis  5.Chronic Viral Diseases/HIV-AIDS/Kuru/**CJD** | | Dr.Saad Ejaz  Dr.Saad Ejaz  Dr.Saad Ejaz  Dr.Saad Ejaz  Dr.Saad Ejaz | **Week** **16**  Classes | | **329**  **(Mycology)** | | 1. Introduction/Diseases  2. Cutaneous diseases by Fungi  3. Subcutaneous Fungal Diseases  4. Systemic Mycosis  5. Opportunistic Mycosis | Dr.Anoosha Naseem  Dr.Anoosha Naseem  Dr.Anoosha Naseem  Dr.Anoosha Naseem  Dr.Anoosha Naseem | |
| **Relevant**  **Practical work** | |  | | L.D. bodies  Giardia lamblia | | Dr.Noor ul Amin,  Dr.Nowshad,  Dr.Saad  Dr. Anoosha | **Relevant**  **Practical work** | |  | | Culture Media (fungal)  Skin scrapings | Dr.Noor ul Amin,  Dr.Nowshad,  Dr.Saad  Dr. Anoosha | |
| **Week 17**  Classes | | **323**  **(Cell injury)** | | 1. Types and causes of cell injury and its general bio chemical mechanism 2. Ischemic/ hypoxic cell injury 3. Free radical induced cell injury/ chemical injury 4. Necrosis (types, clinical significance 5. Apoptosis | | Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta | **Week** **18**  Classes | | **323**  Cell injury | | 1. Cellular adaptation (atrophy, hypertrophy, hyperplasia, metaplasia 2. calcification (causes, types, sites) 3. cellular infiltration, fatty change 4. Pigmentation (melanin, bilirubin 5. Pigmentation (iron) | Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta | |
| **Relevant**  **Practical work** | |  | | Necrosis  Atrophy Testis | | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | **Relevant**  **Practical work** | |  | | BPH  Calcification | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | |
| **Week 19**  Classes | | **324**  **(Acute Inflammation)** | | 1. Inflammation (Aims and vascular events) 2. Acute inflammation (chemotaxis, phagocytosis 3. Acute inflammation (chemotaxis, phagocytosis) 4. Chemical mediators of inflammation 5. Chemical mediators of inflammation. | | Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta | **Week** 20 | |  | | **2nd stage(SAQ,OSPE,VIVA)** |  | |
| **Relevant**  **Practical work** | |  | | Acute inflammatory cells, acute appendicitis | | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha |  | |  | | **2nd stage(SAQ,OSPE,VIVA) continued** |  | |
|  | |  | | **Third term 8 Weeks** | |  |  | |  | |  |  | |
| **Week** 21  Classes | | **324**  **(Chronic inflammation, repair)** | | 1. Chronic inflammation , Granulomatous diseases 2. wound healing (resolution, organization, regeneration and repair) 3. wound healing (resolution, organization, regeneration and repair) 4. wound healing of skin by primary and secondary intentions 5. complications of wound healing | | Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta  Dr.Tahira Atta | **Week** 22  Classes | | **326**  **(Hemodynamics)** | | 1. Thrombosis 2. Embolism 3. Infarction 4. Odema 5. Shock | Dr.Nowshad Asim  Dr.Nowshad Asim  Dr.Nowshad Asim  Dr.Nowshad Asim  Dr.Nowshad Asim | |
| **Relevant**  **Practical work** | |  | | Chronic cholecystitis  Tuberculosis | | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | **Relevant**  **Practical work** | |  | | Granulation tissue  Passive venous congestion | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | |
| **Week** 23  Classes | | **326**  **(parasitology)** | | 1. General characteristics of nematodes, Entrobius vermicularis, Ankylostoma, Ascaris Lumbricoides  2. Trichuris/ trichinella/ strongyloides  3. tissue nematodes (wuchereria bancrofti), Onchocerca/ loa-loa  4. Dracunculus medenesis  5. General characteristics of cestodes Taenia saginata, Taenia solium, Hymenolepis nana, Diphylobothrium latum | | Dr.Noor ul amin  Dr.Noor ul amin  Dr.Noor ul amin  Dr.Noor ul amin  Dr.Noor ul amin | **Week** 24  Classes | | **327**  **(parasitology)** | | 1. Echinoccus granulosis 2. schistosoma haematobium, Schistosoma japonicum Schistosoma mansoni, paragonium westermani 3. General characteristics of protozoa 4. Plasmodium (vivax, ovale, malariae) Plasmodium falciparum   5.Toxoplasma, Trichomonas  Entamoeba histolytica, giardia lamblia | Dr.Noor ul amin  Dr.Noor ul amin  Dr.Noor ul amin  Dr.Noor ul amin  Dr.Noor ul amin | |
| **Relevant**  **Practical work** | |  | | Ascaris Lumbricoides  Entrobius vermicularis, Ankylostoma, Trichuris | | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | **Relevant**  **Practical work** | |  | | Taenia saginata, Taenia solium  Hymenolepis nana | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | |
| **Week** 25  Classes | | **327**  **(Parasitology)** | | 1. Leishmania (L.donovani, L.tropica)   2.Leishmania (L.mexicana, L.braziliensis)  3.Trypansoma (cruzi)  4.Trypansoma (gamfiense, rhodesiense)  5.Trypansoma (gamfiense, rhodesiense) | | Dr.Noor ul amin  Dr.Noor ul amin  Dr.Noor ul amin  Dr.Noor ul amin  Dr.Noor ul amin | **Week** 26  Classes | | **326**  Neoplasia | | * 1. Introduction to neoplasia   2. Classification of tumors      * 1. Nomenclature of tumors arising from specialized tissues   2. Differences between benign and malignant tumors   3. Carcinogenesis(chemical), Carcinogenesis(physical, biological) | Dr. Nowshad  Dr. Nowshad  Dr. Nowshad  Dr. Nowshad  Dr. Nowshad | |
| **Relevant**  **Practical work** | |  | | Plasmodia  Entamoeba histolytica | | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | **Relevant**  **Practical work** | |  | | Lipoma  Adenoma breast | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | |
| **Week** 27  Classes | | **326**  Neoplasia | | 1. Tumor spread(embolic),Tumor spread(direct) 2. Staging and grading of cancers,  **period** Premalignant lesions 3. Tumor markers, Laboratory diagnosis of malignancy 4. Effects of tumors(mechanical and secretory effects of benign tumors) 5. Carcinomatous and paraneoplastic syndrome | | Dr. Nowshad  Dr. Nowshad  Dr. Nowshad  Dr. Nowshad  Dr. Nowshad | **Week 28** | | **324**  **325**  **Genetics** | | 1. Amyloidosis i 2. Amyloidosis ii 3. Introduction to human genetics 4. Autosomal dominant and recessive disorders 5. Genetic mutations, diagnosis of genetic disorders | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Nowshad  Dr. Nowshad  Dr. Nowshad | |
| **Relevant**  **Practical work** | |  | | Squamous cell carcinoma,Basa cell carcinoma, Carcinoma breast | | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | **Relevant**  **Practical work** | |  | | Fatty change  Amyloidosis | Dr.Noor ul amin  Dr. Nowshad  Dr.Saad  Dr. Anoosha | |
| **Week 29** | |  | | **3rd stage(SAQ,OSPE,VIVA)** | |  |  | |  | |  |  | |

**TIME TABLE FOR 3rd YEAR MBBS SESSION 2019-20**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Days** | **08:00 – 08:55** | **08:55 – 09:50** | **09:50 – 10:20** | **10:20 – 01:05** | | **01:05 – 02:00** | |
| **Monday** | **PRACTICAL**  **Pathology (Batch-A)** | | **BREAK** | **Hospital Work** | | **Pharmacology** | |
| **Pharmacology (Batch-B)** | |
| **Tuesday** | **Pharmacology** | **Pathology** | **Hospital Work** | | **Pathology** | |
| **Wednesday** | **Pathology** | **Pharmacology** | **Hospital Work** | | **Pathology** | |
| **Thursday** | **ENT/EYE** | **Surgery/Medicine** | **10:20-11:15**  **Pathology** | **11:15-12:10**  **Pharmacology** | **12:10 – 02:00**  **PRACTICAL**  **Pathology (Batch-B)** | |
| **Pharmacology (Batch-A)** | |
| **Friday** | **Forensic Medicine** | **Pharmacology** | **10:20 – 11:15 am**  **Behavioral Science** | | **11:15 – 1:05**  **Hospital Work  (2 hours)** | **Friday Prayers**  **1:05 pm – 2:00 pm** |
| **Saturday** | **PRACTICAL**  **Pathology (Batch-B)** | | **10:20 – 11:15**  **Community Medicine** | **11:15 – 01:05**  **Practical Pathology (Batch-A)** | **01:05 – 02:00**  **Forensic Medicine** | |
| **Pharmacology (Batch-A**) | | **Pharmacology (Batch-B)** |

(Batch A=1 to 50 & Batch B=51 to 100)

**Teaching Methods**

1) Lectures

2) Practicals

3) Assingments

4) SGD

5) PBL

6) Tutorials

**KMU-IMS, Kohat**

**Department of Pathology**

**Curriculum Map 2019-2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Term 1 | Date | Term 2 | Date | Term 3 | Date | University exam |  | Date |
| Curriculum as per course template | 23-11-2019 | Curriculum as per course template | 10-03-2020 | Curriculum as per course template | 27-5-2020 | Preparatory break | Annual Exam  September 2020 | Start of class October 2020 |

Table of Specification (TOS)

General Pathology & Microbiology

**General Pathology**  **MCQs SEQs (10 Mks each)**

|  |  |  |
| --- | --- | --- |
| Cell Injury | 03 | 01 |
| Cell Infiltration | 01 |
| Calcification, Necrosis etc | 01 |
| Inflammation |  | 01 |
| 1. Acute Inflammation | 03 |
| 1. Chronic Inflammation (including granuloma) | 03 |
| Hemodynamics (Oedema, Shock, Thrombosis, Infarction) | 03 | 01 |
| Repair | 01 | 01 |
| Genetics | 01 |
| Neoplasia | 04 | 01 |

**Microbiology**  **MCQs SEQs(10 Mks each)**

|  |  |  |
| --- | --- | --- |
| General Bacteriology | 05 | 02 |
| Special Bacteriology | 13 | 03 |
| Immunology | 03 | 01 |
| Virology | 01 |  |
| Parasitology | 07 | 01 |
| Mycology | 01 |  |
| **Total** | **50** | **12** |

**Sources of study/ learning:**

1) Text Books

2) Homework assignments

3) Previous tests

4) Notes (prepared by students during lectures)

5) Self directed learning through Internet and library

6) Hospital/ward visits

**Contact hours:**

MBBS 3rd year w.e.f 01-10-2019

Pathology 260 hours (

Lectures: 1 hour of each= 5/week

Practicals: 2 hours of each= 4/week

**DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY**

**KHYBER MEDICAL UNIVERSITY,**

**INSTITUTE OF MEDICAL SCIENCES**

**(KMU-IMS),**

**KOHAT**

**STUDY GUIDE**

**FOR**

**FORENSIC MEDICINE AND TOXICOLOGY**

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**THIRD PROFESSIONAL MBBS**

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| --- | --- |
| **LIST OF ABBREVIATIONS** | |
| **MIT** | Mode of information Transfer |
| **LGD** | Large group discussion |
| **SGD** | Small group discussion |
| **MCQs** | Multiple choice questions |
| **SAQs** | Short answer questions |
| **EMQs** | Extended multiple choice questions |
| **OSPE** | Objectively structured practical examination |
| **PM&DC** | Pakistan Medical & Dental Council |

**STUDY GUIDE**

**FOR**

**THEORY**

As per Pakistan Medical & Dental Council (PM&DC) curriculum, the syllabus of Forensic

Medicine and Toxicology has 100 contact hours.

Theory content comprises of forty percent (40%) of syllabus, which is covered in

Lecture / Large group discussion, i.e., two (02) contact hours per week.

Total session is of thirty-two (32) weeks, that is divided into three (3) terms. After the

end of each term, there is a week of periodic assessment.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **WEEK No.** | **CONTACT SESSION** | | **COURSE / CONTENT** | **LEARNING OUTCOMES** | **LECTURE CONTENTS** | **TEACHER / FACILITATOR** | **M I T** | **DURATION** | **ASSESSMENT** | | |
| **MCQs** | **SAQs** | **OSPE** |
| **1** | **1** | | **INTRODUCTION TO FORENSIC MEDICINE** | * Define Forensic Medicine * Define Medical Jurisprudence * Enlist the Branches of Forensic Medicine. | * Introduction of Forensic Medicine * Branches of Forensic Medicine | **Dr Bilal** | LGD | One Hour | √ | √ |  |
| **2** | | **INTRODUCTION TO GENERAL TOXICOLOGY** | * Define Forensic Toxicology? * Define Poison? * Describe the Relevant Acts? * Classification of Poisons? * Describe the Routes of Administration? * Describe the Factor affecting action of Poison? | * Forensic Toxicology Definition, * Poison definition, * Relevant Acts, * Classification of Poisons, * Routes of Administration and Fate of Poison * Factor affecting action of Poison and Diagnosis of a Poisoning case | **Dr Khurram** | LGD  SGD | One Hour | √ | √ |  |
| **2** | **3** | | **INTRODUCTION TO PERSONAL IDENTITY** | * Describe Personal Identity? * Enlist different Parameters for identification? * Describe different Methods for Identification? | * Personal Identity * Parameters of identity * Methods of Identifications | **Dr Bilal** | LGD | One Hour | √ | √ |  |
| **4** | | **GENERAL TOXICOLOGY** | * Write the Diagnosis of Poisoning case? * Describe the Postmortem findings in poisoning death cases? * Describe the methods of Preservation of Viscera and other Materials in Poisoning Death cases. * Enlist Laboratory tests for poisoning? | * Postmortem findings in poisoning death cases * Preservation of Viscera and other Materials in Poisoning Death cases * Laboratory tests in poisoning cases | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **3** | **5** | | **PERSONAL IDENTITY** | * Describe the methods for estimation of Age? * Describe the Medico legal Aspects of age?, * Define the Civil Right of Adults? * Describe the changes which occur in Puberty and at Old age? | * Age- Medico legal Aspects, * Civil Right of Adults, * Age Estimation (Height and Weight) * Changes at Puberty, * Changes at Old age | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **6** | | **GENERAL TOXICOLOGY** | * Describe the General Principles of Treatment of Any Poising Case? * Describe different Characteristics of Poisons according to the Motive or Nature of Poisoning? | * General Principles of Treatment of Any Poising Case * Characteristics of Poisons according to the Motive or Nature of Poisoning (Suicidal, Homicidal) | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **4** | **7** | | **PERSONAL IDENTITY** | * How can one Estimate age through Dental data? * Describe the Medico legal Aspects of Dental data? * What are the Types of Teeth? * Define and explain the Incremental lines? | * Age Estimation- Dental data * Medico legal Aspects of Dental data * Types of Teeth (Temporary and Permanent) * Incremental lines | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **8** | | **SPECIAL TOXICOLOGY**  **CORROSIVE POISONS** | * What are the Corrosive Poisons? * Classify different Corrosive Poisons? * Describe the characteristic, clinical signs/   Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Sulphuric acid.   * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Nitric acid. * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Hydrochloric acid * Describe Vitriolage? | * Corrosive Poisons * Their Classification * Sulphuric acid * Nitric acid * Hydrochloric acid * Vitriolage | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **5** | **9** | | **PERSONAL IDENTITY** | * How can you estimate Age from Skeletal data? * What are the Evidence of Sex? * Define and Explain Nuclear sexing? | * Age Estimation from Skeletal data * Evidence of Sex * Nuclear sexing | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **10** | | **SPECIAL TOXICOLOGY**  **CORROSIVE POISONS** | * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Oxalic acid? * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Phenol (Carbolic acid) | * Corrosive Poisons * Oxalic acid * Phenol (Carbolic acid) | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **6** | **11** | | **PERSONAL IDENTITY** | * Define and explain Intersex states. * What is Dactylography and what is its medico legal importance? * What is aTrace Evidence? * Explain Locard’s Principle and its MLI. * **Assignment**; Race | * Intersex states, * Dactylography * Trace Evidence, * Locard’s Principle and its MLI * Acquired peculiarities * Race | **Dr Bilal** | LGD  SGD | One Hour | √ | √ |  |
| **12** | | **SPECIAL TOXICOLOGY**  **IRRITANT**  **POISONS** | * What are Irritant Poisons? * Classify Irritant Poisons * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Mechanical Irritant poisoning * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Chemical Irritant poisoning * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of White Phosphorus (Acute and Chronic) poisoning * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Copper poisoning | * Irritant Poisons * Classification * Mechanical Irritant * Chemical Irritant * White Phosphorus (Acute and Chronic) * Mercury (Acute and Chronic), * Copper | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **7** | **13** | | **PERSONAL IDENTITY** | * What is Mass Disasters? * What are the methods of Identification in mass disasters? * What are the Parameters of Identifications in Mass Disasters | * Identification in Mass Disasters * Parameters of Identifications in Mass Disasters-1 | **Dr Bilal** | LGD  SGD | One Hour | √ | √ |  |
| **14** | | **SPECIAL TOXICOLOGY**  **IRRITANT**  **POISONS** | * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Arsenic (Acute and Chronic) poisoning | * Chemical Irritant * Arsenic (Acute and Chronic) | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **8** | **15** | | **PERSONAL IDENTITY** | * What are the methods of Identification in mass disasters? * What are the Parameters of Identifications in Mass Disasters | * Identification in Mass Disasters * Parameters of Identifications in Mass Disasters-2 | **Dr Bilal** | LGD  SGD | One Hour | √ | √ |  |
| **16** | | **SPECIAL TOXICOLOGY**  **IRRITANT**  **POISONS** | * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of acute Lead poisoning. * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Chronic Lead poisoning | * Lead Poisoning * Characteristics , * Clinical signs/ symptoms, Treatments and ML aspects of Lead (Acute and Chronic) poisoning | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **9** | **17** | | **FORENSIC SEXOLOGY** | * What is pregnancy? * What are the ML aspects of pregnancy? * What are the signs ofpregnancy? | * Pregnancy * the ML aspects of pregnancy. * Signs ofpregnancy? | **Dr Bilal** | LGD  SGD | One Hour | √ | √ |  |
| **18** | | **SPECIAL TOXICOLOGY**  **IRRITANT**  **POISONS** | * What are the Agricultural Poisons? * Classify Organophosphorus Compounds (Organopolyphosphates) * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Halogenated hydrocarbons | * Agricultural Poisons * Classification, * Organophosphorus Compounds * (Organopolyphosphates) * Halogenated hydrocarbons | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **10** | | **ASSESSMENT 1** | | | | | | | | | |
| **11** | **19** | | **FEEDBACK**  **LAW** | * What is Law? * What are the different Types of Law? * What are the Courts laws in Pakistan? | * Law * Types of Law * Law Courts in Pakistan * Legal Definitions | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ |  |
| **20** | | **FEEDBACK**  **FORENSIC SEXOLOGY** | * What is Delivery? * What are the signs of delivery in alive and dead women? * Describe the medico legal importance of delivery? | * Delivery * Signs of delivery in alive and dead women * Medico legal importance of delivery | **Dr Bilal** | LGD  SGD | One Hour | √ | √ |  |
| **12** | **WINTER VACATIONS** | | | | | | | | | | |
| **13** | **21** | | **LAW** | * What is PM&DC? * What is the structure of PMDC? * What are the importance of PMDC? * What is Evidence? * What are the different Types of Evidence? * What are the different Stages and representation of Evidence in Court? | * PM&DC * Evidence * Types of Evidence * Stages of Evidence in Court | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ |  |
| **22** | | **FORENSIC SEXOLOGY** | * What is Impotence and Sterility? * what are the differences between Impotence ,sterility and Infertility? * What are difference between natural and unnatural sexual offences? * How to Medical examination the victim and assailant regarding sexual offences? * What are the procedures for the collection of specimen regarding sexual offences? * What are the required certification regarding sexual offences? * Assignment; Virginity | * Impotence and Sterility * Infertility * difference between natural and unnatural sexual offences * Medical examination of victim and assailant * collection of specimen * required certification * Virginity | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **14** | **23** | | **LAW**    **AND**  **MEDICAL ETHICS** | * What is Hurt? * What are the differences between hurt and injury? * What are the different Types of hurt (Islamic Law)? * What is Consent? * What are the different types of consent? * What is Medical Negligence and Professional Secrecy? | * Hurt and Its Types (Islamic Law) * Consent * Medical Negligence * Professional Secrecy | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ |  |
| **24** | | **FORENSIC SEROLOGY** | * Describe the procedure of Examination of;  1. a stain 2. Blood 3. Semen 4. Hair 5. saliva 6. vomitus 7. Breath 8. Urine.  * What are the different Method of their collection ,preservation and dispatch? * What are the common lab tests performed? | * Examination of a stain, Blood, Semen, Hair, Saliva, Vomitus, Breath, Urine * Method of their collection , preservation, dispatch * The common lab tests performed. | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **15** | **25** | | **FORENSIC PSYCHIATRY**  **AND**  **MEDICAL ETHICS** | * What is Professional Misconduct? * what Dying Deposition and Dying Declaration? * What are the differences between Dying Deposition and Dying Declaration? * What are the General presumptions and Exceptions in Law regarding insanity?, * What is McNaughten’ and Durham rule? * Assignment; Medical Ethics and Medical Documentations | * Professional Misconduct * Dying Deposition * Dying Declaration * General presumptions and Exceptions in Law * McNaughten’s rule * Durham rule * Medical Ethics and Medical Documentations | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ |  |
| **26** | | **FORENSIC THANATOLOGY** | * What is Death? * What are the different Modes of Death? * What are the different stages of death? * What are the different changes after death? * Enlist Immediate Changes after Death? * Describe Algor Mortis? * What are the Changes in Eye after death? * What is the proper method of Certification of death according to WHO guidelines? | * Definition of Death * Modes and stages of Death * Immediate Changes after Death * Algor Mortis * Changes in Eye. * Certification of death according to WHO guidelines. | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **16** | **27** | | **VIOLENT ASPHYXIAL**  **DEATHS** | * What is asphyxia? * What are the differences between asphyxia and hypoxia? * what are the different Classification for asphyxia? * What is meant by Hanging? * What are the different types of Hanging? | * Asphyxia * Classification and description * Hanging and its types | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ | √ |
| **28** | | **FORENSIC THANATOLOGY** | * What is meant by Postmortem Lividity? * What is medico legal significance of PM? * What muscular changes occur after Death? * What is meant by Primary Relaxation, Rigor Mortis and Secondary Relaxation? * What are the medico legal importance of Muscular Changes after death? | * Postmortem Lividity * Muscular changes after death. * Primary Relaxation * Rigor Mortis * Secondary relaxation. | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **17** | **29** | | **FEEDBACK**  **VIOLENT ASPHYXIAL DEATHS** | * What is meant by strangulation? * What are the different types of Strangulation? * What are the medico legal importance of the strangulation? | * Strangulation * Its types and their description | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ | √ |
| **30** | | **FEEDBACK**  **FORENSIC THANATOLOGY** | * What are the late changes occur after death ? * what is meant by Putrefaction? * What are the MLI of Putrefaction? * Assignment; Death from Starvation, Cold and Heat | * Late changes after death. * Putrefaction * Adipocere Formation * Mummification * Death from Starvation, Cold and Heat | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **18** | **31** | | **MECHANICAL INJURIES** | * What is meant by mechanical injury? * Classify different types of mechanical injuries? * What are the medico legal significances of mechanical injury? * What is meant by Abrasion and Bruise? * What are the differences between Abrasion and Bruise? | * Definition of mechanical injury * Classification of mechanical injury * Abrasion * Bruise | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ | √ |
| **32** | | **FORENSIC THANATOLOGY** | * What is meant by Adipocere Formation? * What are the MLI of Adipocere Formation? * Explain Mummification | * Late changes after death. * Putrefaction * Adipocere Formation * Mummification | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **19** | **ASSESSMENT 2** | | | | | | | | | | |
| **20** | **33** | | **FEEDBACK**  **MECHANICAL INJURIES** | * What is meant by Laceration? * What is Incised Wounds & Stab Wounds? * What are the differences between incised and stab wounds? * Assignment; Road Traffic Accidents, Railway and Aircraft Injuries | * Laceration * Incised Wounds & Stab Wounds * Road Traffic Accidents, Railway and Aircraft Injuries | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ | √ |
| **34** | | **FEEDBACK**  **FORENSIC**  **AUTOPSY** | * What is Post mortem examination? * What is Autopsy? * What are the different types of Autopsy? * What are the prerequisites of Autopsy? | * Post mortem examination | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **21** | **35** | | **FORENSIC BALLISTICS** | * What is meant by Forensic Ballistics? * What is Fire Arm Injuries? | * Fire Arm Injuries | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ | √ |
| **36** | | **FORENSIC**  **AUTOPSY** | * What is meant by Autopsy Artifacts? * Enlist different types of Artifacts regarding Autopsy? * What are the different incisions used during autopsy? | * Post mortem examination * Post mortem Artifacts | **Dr Bilal** | LGD  SGD | One Hour | √ | √ | √ |
| **22** | **37** | | **FORENSIC BALLISTICS** | * Classify different types of Fire Arm Injuries? * What are the medico legal importance of FAI? | * Fire Arm Injuries | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ | √ |
| **38** | | **FORENSIC**  **AUTOPSY** | * What is meant by Exhumation? * What is medico legal importance of exhumation? * What are the prerequisites for performing Exhumation? * What are Postmortem Artifacts? * What is meant by Autopsy Artifacts? * Enlist different types of Artifacts regarding Autopsy? * Assignment; Battered Baby Syndrome | * Exhumation * Medico legal importance of exhumation * Prerequisites for performing Exhumation * Postmortem Artifacts * Autopsy Artifacts * Types of Artifacts regarding Autopsy * Battered Baby Syndrome | **Dr Bilal** | LGD  SGD | One Hour | √ | √ |  |
| **23** | **39** | | **SPECIAL TOXICOLOGY**  **IRRITANT**  **POISONS** | * What are the Animal Irritant Poison * How to classify Animal Irritant Poison * Explain and Describe the characteristics, clinical signs/ symptoms, Treatments and ML aspects of Animal Irritant Poison * Classify Snakes according to Poison. * Describe the characteristic, clinical signs/symptoms, treatment & medico legal aspects of Snakes bite. | * Animal Irritant Poison * Snakes (Elapidae, Viperidae) * Scorpions * Cantherides | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **40** | | **SEXUAL OFFENCES** | * What is mean by sexual Assault? * What is Zina and Hudood Ordinance? * What is rape? * What are different types and punishments for rape in PPC? * How to examine Rape victim and Accused? | * Sexual Assault * Zina and Hudood Ordinance * Rape (Definition, Examination of a Rape Victim & Accused) | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ | √ |
| **24** | **SPORTS WEEK** | | | | | | | | | | |
| **25** | **SPRING VACATIONS** | | | | | | | | | | |
| **26** | **41** | | **FEEDBACK**  **SPECIAL TOXICOLOGY**  **IRRITANT**  **POISONS** | * What are the Vegetable Irritant Poisons * How to classify Vegetable Irritant Poisons * Explain and Describe the characteristics, clinical signs/ symptoms, Treatments and ML aspects of Hydrocyanic acid * Explain and Describe the characteristics, clinical signs/ symptoms, Treatments and ML aspects of Abrus precatorius (Ratti Seeds) | * Vegetable Irritant Poisons * Hydrocyanic acid * Abrus precatorius (Ratti Seeds), * Miscellaneous | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **42** | | **SEXUAL ASSAULT,**  **ZINA AND HUDOOD ORDINANCE** | * What is mean by sexual Assault? * What is zina and hudood ordinance? * What is Sodomy? * What are different types and punishments for Sodomy in PPC? * How to exam Sodomy victim and Accused? * Assignment: Electric / Burn injuries.   Burns, Electricity and Lightening | * Sodomy (Definition, Examination Of A Victim & Accused) * Electric / Burn injuries. * Burns, Electricity and Lightening | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ | √ |
| **27** | **43** | | **SPECIAL TOXICOLOGY**  **CEREBRAL**  **POISONS** | * What are the Cerebal Poisons * How to classify Cerebal Poisons * Describe the characteristics, clinical signs/ symptoms, Treatments and ML aspects of Cerebal Poisons * What are the Inebriant Cerebral poisons? * How to classify Inebriant Cerebral poison? * Explain and Describe the characteristics, clinical signs/ symptoms, Treatments and ML aspects of Ethyl Alcohol * Assignment; Somniferous- Opium and Morphine, Heroin | * Cerebal Poisons * Inebrients-   Ethyl Alcohol  Methyl Alcohol   * Somniferous-   Opium and Morphine,  Heroin | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **44** | | **INFANTICIDE/ CHILD ABUSE** | * What is meant by Abortion? * What are the different types of Abortions? * How to examine a woman for abortion? * What is MLI of Abortion and infanticide? | * Abortion and Infanticide * Identification of infanticide | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ |  |
| **28** | **45** | | **SPECIAL TOXICOLOGY**  **CEREBRAL**  **AND**  **SPINAL POISONS** | * Describe & classify cerebal Poisons * Classify Deliriant cerebral- poisons * Explain and Describe the characteristics, clinical signs/ symptoms, Treatments and ML aspects of Dhatura and Cannabis indica poisoning * Define and classify Spinal Poison * Describe the characteristics, clinical signs/ symptoms, Treatments and ML aspects of Strychnine (Nux vomica) | * Cerebal Poisons * Deliriant cerebral-   Dhatura  Cannabis indica   * Spinal Poisons   Strychnine (Nux vomica) | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **46** | | **INFANTICIDE/ CHILD ABUSE/ REGIONAL INJURIES** | * Describe different Criminal and non-accidental violence or abuse to a newborns infant or child. * Describe regional Injuries? * What is the significance of regional injuries? | * Criminal and non-accidental violence or abuse to a newborns infant or child , * Regional Injuries   (skull and spinal cord) | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ |  |
| **29** | **47** | | **SPECIAL TOXICOLOGY**  **CARDIAC**  **POISONS** | * Describe and Classify Cardiac Poisons * Describe the characteristics, clinical signs/ symptoms, Treatments and ML aspects of Aconite poisoning | * Cardiac Poisons * Classification * Aconite | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **48** | | **PAKISTAN LEGAL SYSTEM** | * What are The powers and jurisdiction of courts? * Describe different procedures for inquest? * How to apply for legal section of penal court? | * The powers and jurisdiction of courts, * procedures for inquest, * Legal procedures and terms, * application of legal section of penal court | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ |  |
| **30** | **49** | | **SPECIAL TOXICOLOGY**  **ASPHYXIANTS** | * What are the Asphyxiant Poisons * Classify Asphyxiant Poisons * Explain and Describe the characteristics, clinical signs/ symptoms, Treatments and ML aspects of Carbon Monoxide & Carbon Dioxide Poisoning. | * Asphyxiant Poisons- * Classifications * Carbon Monoxide * Carbon Dioxide | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **50** | | **PAKISTAN LEGAL SYSTEM** | * Describe the Role of a medical doctor in Medico legal system? * How to take/ give medical evidences in courts? * What are the procedure for the Preparation of legal documentation? * Describe the procedure of court attendance and recording of evidences? | * Role of a medical doctor in Medico legal system * Give medical evidences in courts * Preparation of legal documentation * Procedure of court attendance * Recording of evidences | **Dr Musarart Ali** | LGD  SGD | One Hour | √ | √ | √ |
| **31** | **51** | | **VIOLENT ASPHYXIAL**  **DEATHS** | * Define Drowning? * Enlist different types of drowning? * Describe the Post mortem findings Of a case of drowning? * Describe the medico legal importance of drowning? | * Drowning * Its types * Post mortem findings * MLA | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **52** | | **VIOLENT ASPHYXIAL**  **DEATHS** | * Define Suffocation? * Enlist the different types of Suffocation? * Describe the Post mortem findings Of a case of Suffocation? * Describe the medico legal importance of Suffocation? | * Suffocation * Its types * Post mortem findings * MLA | **Dr Khurram** | LGD  SGD | One Hour | √ | √ | √ |
| **32** | **ASSESSMENT 3** | | | | | | | | | | |
| **PREPARATORY LEAVES** | | | | | | | | | | | |
| **ANNUAL EXAMINATION** | | | | | | | | | | | |

**STUDY GUIDE**

**FOR**

**PRACTICAL**

As per Pakistan Medical & Dental Council (PM&DC) curriculum, the syllabus of Forensic

Medicine and Toxicology has 100 contact hours.

Practical content comprises of sixty percent (60%) of the syllabus, which is covered

in Forensic medicine ward / Small group discussion.

The whole Class of 3rd Professional MBBS is divided into eight (08) batches / Small

groups. Each batch stays in the Forensic Medicine and Toxicology department for

four (04) weeks period. After the foresaid period, new batch comes and the cycle

repeats eight (08) times for each batch per annum.

During their stay in the Forensic Medicine and Toxicology department, there are

Small group discussions four (04) days a week, each comprising of three (03) contact

hours, with (02) hours on Friday.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **WEEK No.** | **CONTACT SESSION** | **COURSE / CONTENT** | **LEARNING OUTCOMES** | **LECTURE CONTENTS** | **TEACHER / FACILITATOR** | **MODE OF INFORMATION TRANSFERT** | **DURATION (Hour)** | **ASSESSMENT** | | |
| **MCQs** | **SAQs** | **OSPE** |
| **1** | **1** | **MEDICO LEGAL CASES** | * Main Concept * How to handle an MLC * Documentation | * Main Concept * How to handle an MLC * Documentation | **Dr Bilal** | SGD | Three | √ | √ |  |
| **2** | **INJURIES** | * Mechanical Injuries * Definition * Types * Torso / model Learning | * Mechanical Injuries * Definition * Types * Torso / model Learning | **Dr Khurram** | SGD | Three | √ | √ | √ |
| **3** | **LAW** | * Main Concept/Definition * Types * Laws of PPC related to medicine | * Main Concept/Definition * Types * Laws of PPC related to medicine | **Dr Musarart Ali** | SGD | Three | √ | √ |  |
| **4** | **POST MORTEM CASES** | * Main Concept * How to handle PMC * Documentation of Autopsies (10) * Log book maintenance | * Main Concept * How to handle PMC * Documentation of Autopsies (10) * Log book maintenance | **Dr Bilal** | SGD | Two | √ | √ | √ |
| **2** | **5** | **PERSONAL IDENTITY** | * BLOOD   (differences between animal, human blood and stain mark)   * HAIR   (differences between human, animal hair and fibers/threads) | * BLOOD * (differences between animal, human blood and stain mark) * HAIR * (differences between human, animal hair and fibers/threads) | **Dr Bilal** | SGD | Three | √ | √ | √ |
| **6** | **TOXICOLOGY** | * Definition of poison and drug * Diagnosis in living & dead * Procedure of preservation, dispatch of biological and other evidentiary materials * General principles of treatment * Special toxicology * Learning from specimen | * Definition of poison and drug * Diagnosis in living & dead * Procedure of preservation, dispatch of biological and other evidentiary materials * General principles of treatment * Special toxicology * Learning from specimen | **Dr Khurram** | SGD | Three | √ | √ | √ |
| **7** | **LAW** | * Main Concept * Definition * Types * Laws of PPC related to medicine | * Main Concept * Definition * Types * Laws of PPC related to medicine | **Dr Musarart Ali** | SGD | Three | √ | √ |  |
| **8** | **BALLISTICS** | * Firearm   (Definition, parts, types)   * Cartridge   (Definition, parts, types)   * Firearm injuries, its types * Torso / model Learning | * Firearm * (Definition, parts, types) * Cartridge * (Definition, parts, types) * Firearm injuries, its types * Torso / model Learning | **Dr Khurram** | SGD | Two | √ | √ | √ |
| **3** | **9** | **PERSONAL IDENTITY** | * BONES   (gender pelvis and skull bones difference, Forensic radiology)   * Teeth   (age estimation and MLI of teeth) | * BONES * (gender pelvis and skull bones difference, Forensic radiology) * Teeth * (age estimation and MLI of teeth) | **Dr Bilal** | SGD | Three | √ | √ | √ |
| **10** | **ASPHYXIA** | * Definition * Classification * Postmortem findings * Torso / model Learning | * Definition * Classification * Postmortem findings * Torso / model Learning | **Dr Khurram** | SGD | Three | √ | √ | √ |
| **11** | **SEXUAL OFFENCES** | * Types * How to investigate cases of Rape/Sodomy * Documentations | * Types * How to investigate cases of Rape/Sodomy * Documentations | **Dr Musarart Ali** | SGD | Three | √ | √ | √ |
| **12** | **INSANITY** | * Definition * Types * Laws about Insanity * How to examine a case * Documentation | * Definition * Types * Laws about Insanity * How to examine a case * Documentation | **Dr Khurram** | SGD | Two | √ | √ | √ |
| **4** | **13** | **AUTOPSY** | * Definition * Types of Postmortem examination * Incisions and Documentations | * Definition * Types of Postmortem examination * Incisions and Documentations | **Dr Bilal** | SGD | Three | √ | √ | √ |
| **14** | **THANATOLOGY** | * Definition * Types of death * Stages of death * Modes of death * Changes after death * Torso / model Learning | * Definition * Types of death * Stages of death * Modes of death * Changes after death * Torso / model Learning | **Dr Khurram** | SGD | Three | √ | √ | √ |
| **15** | **LOG BOOK** | * Checking of Log Book | * Checking of Log Book | **Dr Bilal** | SGD | Three |  |  |  |
| **16** | **ASSESSMENT** | | | | | | | | |

**REFERENCE BOOKS**

1. Parikh's Textbook of Medical Jurisprudence Forensic Medicine and Toxicology, 6e 2011
2. Spitz and Fisher's Medicolegal Investigation of Death: Guidelines for the Application of Pathology

to Crime Investigation

1. Forensic Medicine & Toxicology for MBBS By Anil Aggarwal
2. Principles and practices of Forensic Medicine Forensic medicine by Naseeb R Awan
3. Principles of Forensic Medicine: Including Toxicology by [Apurba Nandy](https://www.amazon.in/s/ref=dp_byline_sr_book_1?ie=UTF8&field-author=Apurba+Nandy&search-alias=stripbooks)
4. [Textbook of Forensic Medicine & Toxicology by Paras](https://amzn.to/2KM9wSL)
5. [Essentials of Forensic Medicine and Toxicology by Jaypee Brothers Medical Publishers](https://amzn.to/2KM5KZM)
6. The Essentials of Forensic Medicine and Toxicology - by Dr. Reddy
7. Principles of Forensic Medicine and Toxicology - by Dr. Rajesh Bardale
8. Textbook of Forensic Medicine and Toxicology by -- Dr. Vv Pillay
9. Synopsis of Forensic Medicine and toxicology, Handbook of Forensic Medicine and toxicology -

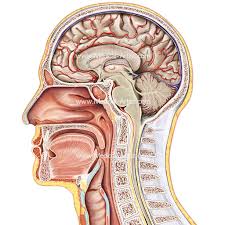
by Dr. Reddy

1. Modi’s Textbook of Medical Jurisprudence and Toxicology
2. Textbook of Forensic Medicine & Toxicology: Principles & Practice, 5th Edition, Krishan Vij
3. Gunshot Wounds: Practical Aspects of Firearms, Ballistics, and Forensic Techniques, Third Edition (Practical Aspects of Criminal and Forensic Investigations)
4. Color Atlas of Forensic Medicine and Pathology, by Govindiah
5. Forensic Pathology (Practical Aspects of Criminal and Forensic Investigations)

**ENT CLERKSHIP MODULE**

**DEPARTMENT OF OTORHINOLARYNGOLOGY**

**KMU INSTITUTE OF MEDICAL SCIENCES KOHAT**

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**STUDENT’S GUIDE BOOK**

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**INTRODUCTION TO ENT CLERKSHIP**

Ear, Nose and Throat disorders are very common in our community and form a major portion of clinical practice of a general/ family physician. ENT problems like pharyngitis, tonsillitis, otitis media, rhinosinusitis, nasal allergy, deafness, vertigo & balance problems can be diagnosed by the primary care physician. Majority of these problems can be treated by the general practitioner/ community doctor and only few require specialist referral.

The expected outcomes and objectives of ENT clerkship would be as follows:

**EXPECTATIONS FROM THE STUDENTS**

The aim of clerkship in ENT is to equip our students with the skills of

* Practical application of the knowledge acquired as a medical student
* To diagnose common ENT problems in the community, provide treatment and if appropriate, refer them for specialist opinion/ management.
* Development of effective communication skills, not only with the patient but also with their senior colleagues
* Educate the patients and community regarding common ENT related health issues.

**GOALS & OUTCOMES/ COMPETENCIES OF CLERKSHIP:**

By the end of the ENT clerkship module, the students should be able to:

1. Take detailed patient history and make accurate observation of clinical features by performing clinical examination
2. Apply the basic concepts to solve clinical problems
3. Interpret common ENT investigations
4. Communicate effectively with the patient and colleagues
5. Treat common ENT diseases in the community
6. Provide initial management in ENT emergencies
7. Decide when to refer a patient with ENT problem for expert opinion/ management.
8. Educate the patient/ community regarding common ENT related health problems
9. Learn concepts of EBM and lifelong learning

**LEARNING SITUATIONS & STRATEGIES:**

The venue of various learning activities in ENT clerkship modules are as follows:

* ENT Outpatient clinics
* ENT Male / Female Wards
* ENT Operation Theatre
* Audiology Lab in ENT OPD
* Tutorial Rooms in ENT OPD
* Clinical Skill Lab

The teaching strategies will include:

1. Case based Discussion

* One minute preceptor
* Short cases in OPD
* Bedside Discussion

2. Teaching Ward Rounds

3. Small Group Discussion

4. Skill Lab Activity

5. Observation of ENT operations in OT

**DURATION OF ENT CLERKSHIP AND CONTACT HOURS**

Duration of ENT clerkship= 4 weeks

Total Contact Hours = 140 (35 Hours per week)

Monday to Friday (8:00am to 3:00 pm)

**ENT CORE CLINICAL PROBLEMS**

|  |
| --- |
| * Deafness * Nasal obstruction * Sore throat * Hoarseness * Oral ulcer * Neck mass |

**THEMES & CORE CONTENTS**

Course Contents Covered Under ENT Core Clinical Problems & Required Level Of Competencies

|  |  |
| --- | --- |
| **THEME** | **CONTENTS** |
| Deafness | Otitis externa C3  Wax C3  Foreign body C3  Otitis media C3  Otosclerosis C3  Eustachian tube dysfunction C3  Sensorineural Hearing loss C3  Facial nerve paralysis C3  Congenital deafness C2  BPPV C2  Minere’s disease C2  Vestibular neuronitis C2  Interpretation of audiological tests C3 |
| Nasal obstruction | Rhino-sinusitis C3  Foreign body nose C3  Deviated nasal septum C3  Nasal polypiC3  Nasal tumor C2  Epistaxis C3  Trauma nose C3  CSF rhinorrhoea C2  Interpretation of X-rays Paranasal sinuses C3  Interpretation of X-rays # Nasal bone C3  Identification of normal radiological anatomy on CT scan nose & paranasal sinuses C2 |
| Sorethroat | Pharyngitis  Tonsillitis  Neck space abscesses  Oesophageal foreign body C2  Oesophageal stricture/web C2  Tumors of pharynx C2  Interpretation of X-rays soft tissue neck lateral view C3 |
| Hoarseness | Laryngitis C3  Laryngeal tumor C3  Laryngomalacia C3  Vocal cord paralysis C3  Foreign bodies tracheobronchial tree C3  Interpretation of X-rays chest of patient with foreign bodies tracheobroncheal tract C3 |
| Oral Ulcer | Apthous ulcers C3  Malignant oral ulcer C3 |
| Neck mass | Cervical lymphadenopathy C3 |

**LEARNING OBJECTIVES RELATING TO CORE CLINICAL PROBLEMS**

**Theme: DEAFNESS**

|  |
| --- |
| **Learning Objectives** |
| Differentiate among the diseases producing conductive hearing loss in the external ear on the basis of clinical features. |
| Differentiate among the diseases producing conductive hearing loss in the middle ear cleft on the basis of clinical features. |
| Differentiate the diseases producing sensorineural hearing loss. |
| Discuss the ear diseases which produce vertigo |
| Compare the diseases producing otalgia on the basis of clinical features |
| Interpret the results of tuning fork test |
| Interpret the results of pure tone audiometry |
| Interpret the results of tympanometry |
| Formulate a treatment plan for a deaf patient. |
| Demonstrate history taking of ear complaints. |
| Perform clinical examination of the ear. |
| Perform aural toilet by mopping and syringing. |
| Demonstrate the procedure of mastoid dressing. |
| Counsel the patient with ear disease regarding ear surgery. |
| Educate the patient of chronic Suppurative Otitis Media regarding precautions to prevent water entry in the ear. |
| Communicate with the patient regarding the effects of noise pollution on hearing. |

**Theme: NASAL OBSTRUCTION**

|  |
| --- |
| Differentiate among the diseases producing unilateral nasal obstruction on the basis of clinical features. |
| Differentiate among the diseases producing bilateral nasal obstruction on the basis of clinical features. |
| Differentiate among the diseases responsible for nasal discharge on the basis of clinical features. |
| Describe the steps of examination of a nasal trauma patient. |
| Formulate a treatment plan for management of epistaxis. |
| Demonstrate history taking of nasal complaints. |
| Perform clinical examination of the nose. |
| Interpret the findings on X-rays paranasal sinuses |
| Interpret the findings on X-rays nasal bone in a trauma case |
| Identify the normal radiological anatomy on CT scan paranasal sinuses |
| Demonstrate the procedure on nasal packing. |
| Demonstrate the procedure of foreign body removal from nose. |
| Counsel the patient with nasal disease regarding surgery. |
| Educate the patient about preventive measures regarding pollen allergy |

**Theme: SORETHROAT**

|  |
| --- |
| Differentiate among the diseases producing sorethroat on the basis of clinical features. |
| Describe the clinical features of neck space infections |
| Discuss the management of oesophageal foreign body. |
| Demonstrate history taking of patient with sorethroat. |
| Perform clinical examination of the throat. |
| Interpret the findings on X-rays soft tissue neck lateral view. |
| Counsel the patient (or parents) of chronic tonsillitis regarding tonsillectomy |
| Educate the patient about thorat hygiene |

**Theme: HOARSENESS**

|  |
| --- |
| Differentiate among the diseases producing hoarseness on the basis of clinical features. |
| Correlate the pathophysiology of stridor with clinical presentation of laryngeal diseases |
| Formulate a treatment plan for the emergency management of obstructed upper airway. |
| Take history of a patient with hoarseness. |
| Perform indirect laryngoscopy |
| Interpret the X-rays chest of patients with foreign body tracheobronchial tract |
| Demonstrate the method of dislodging foreign body impacted in upper aerodigestive tract. |
| Demonstrate the method of laryngotomy on dummy. |
| Demonstrate the method of endotracheal intubation on a dummy. |
| Educate the patient about the effect of smoking in producing throat cancer. |
| Councel the patient with thorat cancer (Breaking bad news) |
| Educate the parents about the prevention of foreign body impaction in aerodigestive tract in children. |

**Theme: ORAL ULCER**

|  |
| --- |
| Differentiate among the diseases which produce oral ulcer on the basis of clinical features. |
| Perform clinical examination of oral cavity. |
| Educate the patient about the effect of Pan &Niswar in producing cancer of oral cavity. |

**Theme: NECK MASS**

|  |
| --- |
| Differentiate among the diseases which present as neck mass on the basis of clinical features. |
| Formulate a treatment plan in a patient with enlarged neck lymph nodes. |
| Perform clinical examination of neck |

**STEPS OF CLINICAL EXAMINATION**

|  |
| --- |
| **Clinical Examination of Nose**   1. Introduction to patient 2. Consent for Examination 3. Focusing of light (with headlight) 4. Inspection of nose and Paranasal sinuses 5. Patency test (with metallic tongue depressor) 6. Examination of the nose by tilting the tip of the nose 7. Examination of nose with Killian’s nasal speculum 8. Examination of post Nasal space (Posterior Rhinoscopy) 9. Consent for Examination 10. Identification of Posterior Rhinoscopic mirror 11. Warning the mirror and checking the Temperature of Mirror 12. Depressing the tongue with tongue depressor and proper introduction of Mirror. |

**Requirements:**

* Headlight
* Metallic tongue depressor
* Wooden tongue depressor
* Posterior rhinoscopic mirror
* Lighter to warm the mirror
* Killian’s Nasal speculum

**Clinical Examination of sense of smell**

|  |
| --- |
| 1. Greet, introduce, explain the procedure & take consent |
| 1. Ask the subject if his/her nose is not blocked due to common cold |
| 1. Check the nasal patency |
| 1. Ask the subject to close his/her eyes & occlude one nostril |
| 1. Now have the subject smell & distinguish the odors of each of the smell substance one by one |
| 1. Repeat the procedure on the other nostril |
| 1. Repeat on other nostril |

**Requirements:**

* Metallic tongue depressor
* Clove oil
* Peppermint oil
* Soap
* Perfume

**Clinical Examination of Pharynx & Larynx**

|  |
| --- |
| 1. Greet, introduce and take consent |
| 1. Examination of lips, buccal mucosa, gums, teeth, palate, tongue, floor of mouth with head light & tongue depressor. |
| 1. Examination of oropharynx with tongue depressor |
| 1. Examination of posterior 1/3rd of tongue, larynx, hypopharynx with indirect laryngoscopy |
| 1. Examination of neck including neck nodes |
| 1. Thanks |

**Requirements:**

* Headlight
* Metallic tongue depressor
* Wooden tongue depressor (1 pack)
* Indirect laryngoscopic mirror
* Lighter to warm the mirror
* Guaze 1 pack

**Clinical Examination of Ear**

|  |
| --- |
| Greets the patient. |
| Introduce himself / herself. |
| Explain the procedure |
| Seek permission from the subject. |
| Wear the head light correctly. |
| Turn the patient to one side |
| Focus the light on the ear. |
| Select & hold the ear speculum of appropriate size correctly. |
| Introduce the ear speculum by holding the pinna and gently pulling it upward, backward and laterally |
| Perform otoscopy with the help of otoscope by   1. Turn on the otoscope 2. Holding the otoscope correctly 3. Introducing the otoscope into the ear canal correctly 4. Examine the pars flaccid by gently tilting the otoscope upward 5. Turn off the otoscope |
| Thanks |

**Requirements:**

1. Head light
2. Ear speculum (Small, medium, large)
3. Otoscope

**Steps of Rinne’s Test**

|  |
| --- |
| Greets the patient. |
| Introduce himself/ herself. |
| Explain the procedure |
| Seek permission from the subject |
| Strike the tunning fork properly. |
| Hold the tunning fork properly against the ear tested to check air conduction of sound. |
| Hold the tunning fork properly against the ear tested to check air conduction of sound. |
| Place the tunning fork properly on the mastoid process to check bone conduction of sound. |
| Describe the results of tunning fork test correctly. |
| Interpret the result of tunning fork test correctly |
| Thanks |

**Requirements:**

Tuning fork 512 Htz

**Steps of Weber test**

|  |
| --- |
| Greets the patient. |
| Introduce himself/ herself. |
| Explain the procedure |
| Seek permission from the subject |
| Strike the tunning fork properly. |
| Hold the tunning fork properly against the ear tested to check air conduction of sound. |
| Hold the tunning fork properly against the ear tested to check air conduction of sound. |
| Place the tunning fork properly on the vertex to check bone conduction of sound. |
| Describe the results of tunning fork test correctly. |
| Interpret the result of tunning fork test correctly |
| Thanks |

**Requirements:**

1. Tunning fork 512 Htz

**Clinical Examination of Facial Nerve**

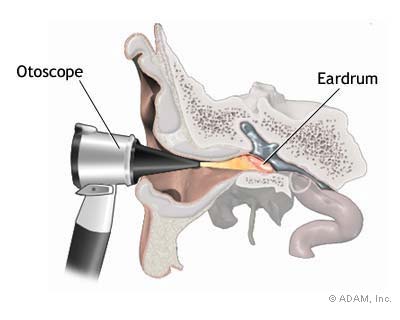
|  |
| --- |
| Greets the patient. |
| Introduce himself/ herself |
| Explain the procedure |
| Seek permission from the subject. |
| Ask the patient to show teeth & check for any asymmetry of facial movements. |
| Ask the patient to blow & check for any asymmetry of facial movements. |
| Ask the patient to tightly close the eyes & check for any asymmetry of facial movements. |
| Ask the patient to frown & check for any asymmetry of facial movements. |
| Describe and interpret the findings of clinical examination of facial nerve. |
| Thanks |

**SKILL LAB. ACTIVITIES FOR ENT CLERKSHIP**

**EAR SKILL LAB. ACITIVITIES**

**1. PRACTICE OTOSCOPY ON MANIKIN**

**Objectives:** To learn how to do otoscopic examination.



**Place:** Clinical Skill Lab

**Requirements:**

Following equipment and materials are required for this skill activity.

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
| 1. | Ear Diagnostic Trainer | 01 |
| 2. | Otoscope | 03 |

**Steps of performing otosocpy:**

1. Turn on the otoscope
2. Holding the otoscope correctly
3. Introducing the otoscope into the ear canal correctly
4. Examine the pars flaccid by gently tilting the otoscope upward
5. Turn off the otoscope

**Documentation:**

After performing otoscopy, document the following:

* Condition of External auditory canal
* Condition of Tympanic membrane (Intact or not, Appearance, Position)
* If Tympanic membrane is perforated, draw your findings.

**2. MASTOID DRESSING:**

**Objective:**

Mastoid dressing is required in the management of trauma to pinna and peri-auricular area, it is also required after ear surgery.

Students will practice doing mastoid dressing on manikin or fellow student.

**Place:**

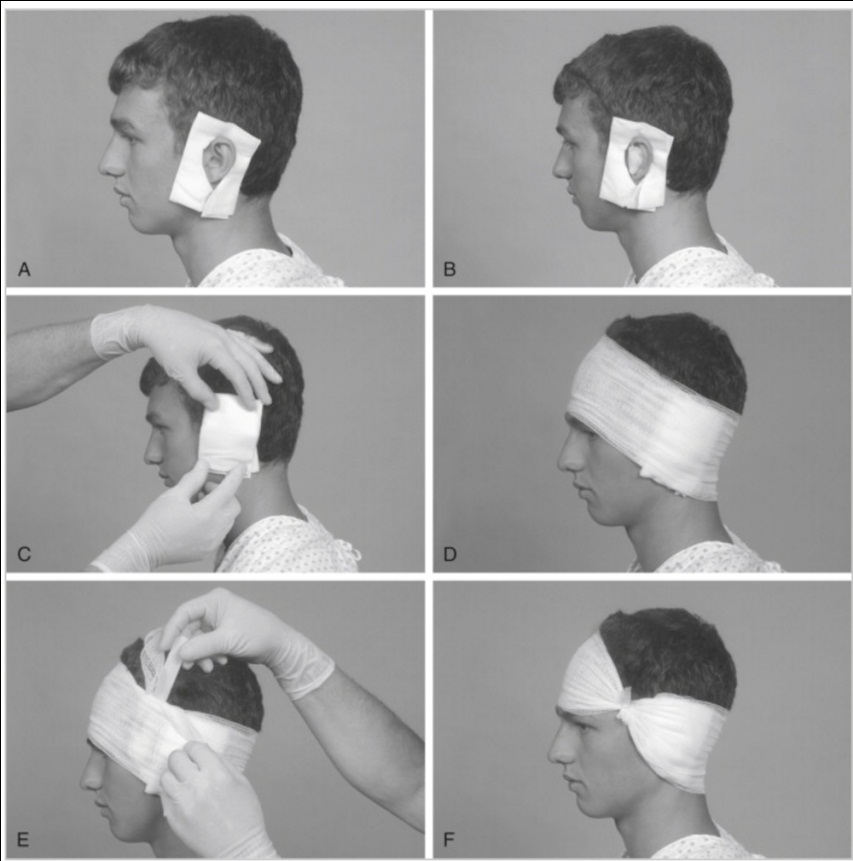
Clinical skill lab

**Requirements:**

Following equipment and materials are required for this skill activity.

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
| 1. | Ear Diagnostic Trainer | 01 |
| 2. | Gauze (4 by 4 inches) | 03 |
| 3. | Crepe Bandage (4 inches) | 01 |
| 4. | Dressing Scissors | 01 |

**Steps of mastoid dressing procedure:**



**3. EAR DROPS & THEIR CORRECT INSTILLATION:**

**Objectives:**

Various types of ear drops are used to treat ear diseases. Student will identify these drops, discuss the utility of these drops in the treatment of various ear diseases and demonstrate proper instillation of these drops on manikin.

**Place:**

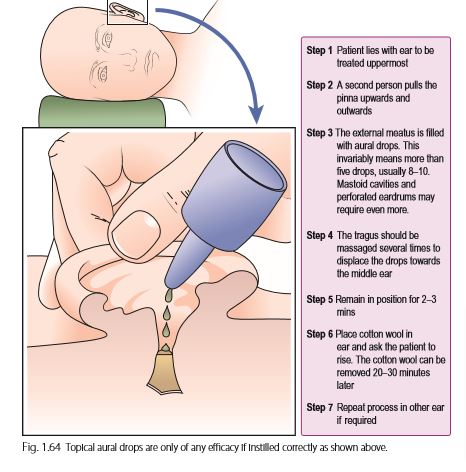
Clinical Skill Lab

**Requirements:**

Following equipment and materials are required for this skill activity.

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
| 1. | Ear Diagnostic Trainer | 01 |
| 2. | Ear drops (water in ear drop bottle) | 03 |
| 3. | Common Ear Drops preparation | 04 |

**Correct Method of Instillation of Topical Ear Drops**



**Common Topical Ear Preparations (Brands Names)**

****

**Common Topical Aural Preparations, Uses and side effects**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Active Ingredients** | **Use** | **Trade Names** | **Side Effects** |
| Wax Softeners (ceruminolytics) | Sodium Bicarbonate in Glycerin | To soften hard wax before cleansing | Wax Aid Drops | Softening of wax results in temporary increase in blocking sensation |
| Astringents (Anti-inflammatory) | * Ichthammol Glycerin * Betamethasone * Aluminium acetate | To reduce odema& inflammation of otitis externa | * Ichthammol Glycerin Ear Drops * Betnesol Drops * Burrow’s otic drops |  |
| Anti-Bacterial Agents | * Gentamicin * Tobramycin * Ciprofloxacin * Ofloxacin * Polymyxin | To treat purulent bacterial infections of external & middle ear | * Genticyn Ear Drops * Ototob, Dexatob ear drops * Otoflox ear drops * Otosoporin ear drops | Aminoglycosides are ototoxic.  Over use results in fungal infections.  May cause allergic reactions to medication |
| Antifungal Agents | Clotrimazole | To treat otomycosis | * Clotrim lotion * Dermosporin * Stiemazole | May cause irritation on instillation |
| Analgesics | Lignocaine (usually combined with antibiotic) | To treat painful infections of ear | * Lidosporin * Cipocain |  |
| Topical Steroids | Dexamethasone  Hydrocortisone  (usually combined with antibiotic) | To treat inflammation in bacterial infections of external & middle ear | * Dexatob * Genticyn HC * Cipotic D |  |

**4. EAR SYRINGING FOR WAX REMOVAL:**

**Objective:**

Student should be able to clean ear by doing ear syringing. They should demonstrate the procedure on manikin. Discussion include indications, contra-indications and complications of ear syringing.

**Place:**

Clinical Skill Lab

**Requirements:**

Following equipment and materials are required for this skill activity.

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
| 1. | Ear Diagnostic Trainer | 01 |
| 2. | Otoscope | 01 |
| 3. | Ear syringe | 01 |
| 4. | Kidney Tray | 01 |



Fig. Ear syringe

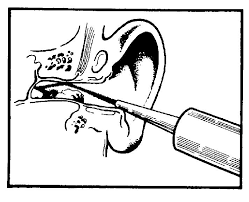


Fig. Ear syringing procedure

1. **FOREIGN BODY REMOVAL FROM EAR:**

**Objective:**

Students practice the removal of foreign body from the external ear canal on manikin. They demonstrate the procedure of removing the foreign body with the help of foreign body hook (pearl, metallic bead) and with crocodile forceps (piece of paper, cotton etc.)

**Place:**

Clinical Skill Lab

**Requirements:**

Following equipment and materials are required for this skill activity.

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
| 1. | Ear Diagnostic Trainer | 01 |
| 2. | Otoscope | 01 |
| 3. | Foreign body hook | 01 |
| 4. | Crocodile Forceps | 01 |
| 5. | Foreign Body (Metallic bead, cotton, pearl etc.) | 01 |

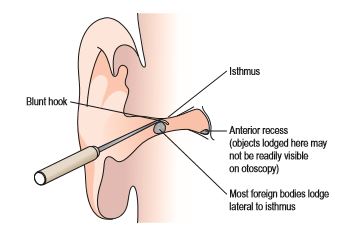
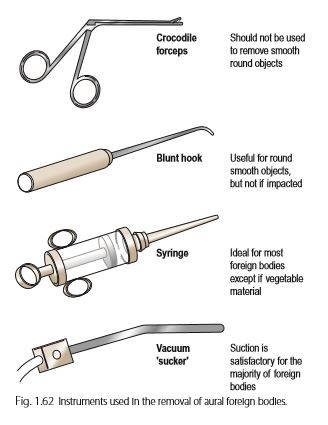


Fig. Removal of a round foreign body form ear canal with foreign body hook.



**NOSE – SKILL LAB ACTIVITIES**

1. **NASAL PACKING TECHNIQUE ON MANIKIN**

**Objectives:** To learn how to do anterior nasal packing

**Place:** Clinical Skill Lab

**Requirements:**

Following equipments and materials are required for this skill activity.

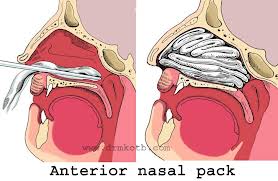
|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
|  | Manikin for nasal packing | 1 |
|  | Kidney Tray | 1 |
|  | Bandage 4 inch | 4 |
|  | Vaseline | 1 |
|  | Nasal Dressing Forceps | 1 |
|  | Gauze 4 by 4 inch | 4 |
|  | Adhesive plaster | 1 |
|  | Scissors | 1 |
|  | Disposable gloves | 1 0 |
|  | Disposable mask | 10 |
|  | Protective eye glasses | 4 |
|  | Head light | 1 |

**Steps of Anterior Nasal Packing:**

**Instruments used:**

Tilley's Nasal Dressing Forceps Killian's Nasal Speculum

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****

* Prepare your equipment and material required on the trolley.
* Maintain aseptic technique during the procedure.
* Protect yourself by wearing mask, gloves and protective eye glasses.
* Explain the procedure to the patient and take consent.

|  |  |
| --- | --- |
| 1 | Wear mask, gloves, protective eye glasses and headlight |
| 2 | Make a ribbon gauze 1.5 cms wide |
| 3 | Lubricate ribbon gauze with lubricant (vaseline) |
| 4 | Perform nasal suction |
| 5 | Perform anterior nasal packing with nasal dressing forceps |
| 6 | Apply external nasal dressing |

**Documentation:**

* When you have finished the procedure, document the following:
* When packing should be removed.
* Special care/ instructions to patient/ staff
* Antibiotics prescribed with drug and dosage.

1. **REMOVAL OF FOREIGN BODY NOSE**

**Objective:**

To remove foreign body from nasal cavity.

**Place:**

Clinical skill lab.

**Requirements:**

Following equipment and materials are required for this skill activity.

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
| 1 | Manikin | 1 |
| 2 | Eustachian Tube catheter | 1 |
| 3 | Foreign body hook | 1 |
| 4 | Crocodile forceps | 1 |
| 5 | Nasal Dressing Forceps | 1 |
| 6 | Gauze 4 by 4 inch | 2 |
| 7 | Head light | 1 |

****

**THROAT/ LARYNX- SKILL LAB ACTIVITIES**

1. **TRACHEOSTOMY SUCTION & DRESSING TECHNIQUE ON MANIKIN**

**Objectives:**

To learn how to take care of a patient with tracheostomy tube

**Place:**

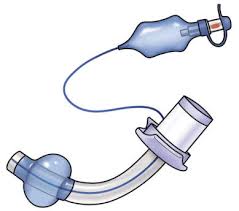
Clinical Skill Lab

**Requirements**

Following equipments and materials are required for this skill activity.

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
|  | Tracheostomy tube care manikin | 1 |
|  | Disposable mask | 10 |
|  | Disposable Gloves | 10 |
|  | Controlled Suction catheter | 2 |
|  | Gauze 4 by 4 inch 1 pack | 4 |
|  | Disposable syringe 10cc | 1 |
|  | Scissors | 1 |

**Tracheostomy Tube with Cuff**

****

**Tracheostomy tube care involves:**

1. Inflate/ deflate tracheostomy tube cuff
2. Suction of tracheostomy tube
3. Change dressing of tracheostomy tube
4. Removal /insertion of tracheostomy tube in tracheal stoma

**Care ofTracheostomy tube involves:**

* Prepare your equipment and material required on the trolley.
* Maintain aseptic technique during the procedure.
* Protect yourself by wearing mask, gloves and protective eye glasses.
* Explain the procedure to the patient and take consent.

|  |  |
| --- | --- |
|  | Wear gloves and mask |
|  | Perform suction of tracheostomy tube with controlled suction catheter |
|  | Change dressing of tracheostomy tube |
|  | Inflate and deflate cuff of tracheostomy tube |
|  | Put wet gauze over tracheostomy tube |
|  | Remove / reinsert the tracheostomy tube |

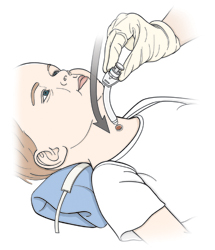
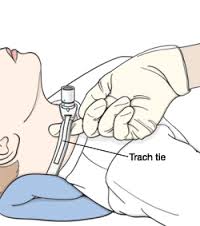
**Documentation:** When you have finished the procedure, document the following:

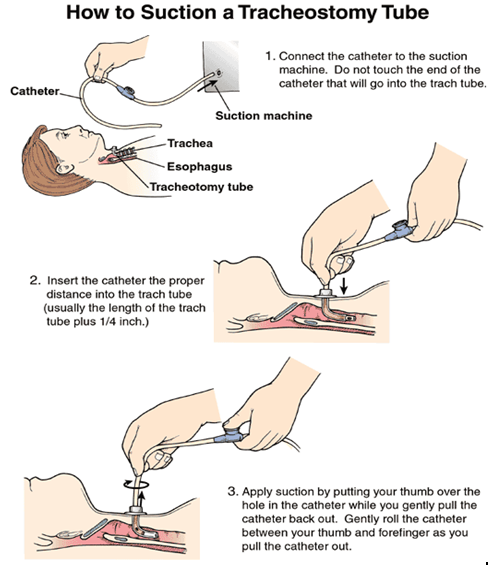
* Size of Tracheostomy tube/ status of cuff (inflated/ deflated)
* Special Care / Instructions to staff about suction, cuff inflation/ deflation, dressing change, humidification.
* Special care/ instructions to patient

**Dressing of Tracheostomy Tube**

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**Tracheostomy Tube Tie** should not be tight, it should admit a finger beneath it.



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1. **CRICOTHYROIDOTOMY TECHNIQUE ON MANIKIN**

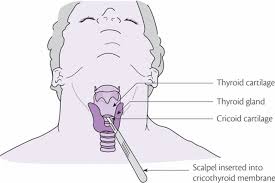
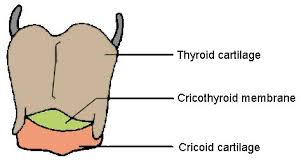
**Objectives:** To learn how to perform cricothyrodotomy on manikin

**Place:** Clinical Skill Lab

**Requirements:**

Following equipments and materials are required for this skill activity.

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
|  | Cricothyroidotomy Manikin | 1 |
|  | Disposable gloves | 10 |
|  | BP handle | 1 |
|  | Surgical blade No. 15 | 2 |
|  | I/v canula no. 16 | 2 |
|  | Disposable masks | 10 |
|  | Protective eye glasses | 4 |
|  | AMBU bag | 1 |



**Steps of Cricothyrodotmy:**

Cricothyroidotomy is a life saving procedure. It is required when upper air way is compromised and patient cannot breathe.

* Prepare your equipment and material required on the trolley.
* Maintain aseptic technique during the procedure, if possible.
* Protect yourself by wearing mask, gloves and protective eye glasses.

|  |  |
| --- | --- |
|  | Wear gloves and mask |
|  | Identify the surface landmarks for cricothyroidotomy by palpation |
|  | Mark the site of cricothyroidotmy on Manikin |
|  | Perform cricothyroidotomy with surgical blade on BP Handle |
|  | Open the cricothyridotomy hole with bake of BP Handle |
|  | Insert the tube or Large bore cannula through cricothyroid membrane |
|  | Attach AMBU bag with the cannula and ventilate |

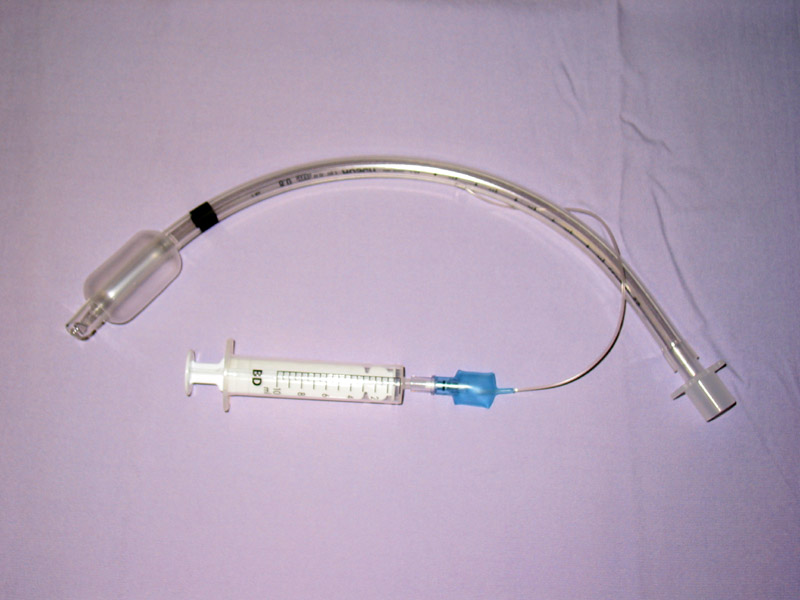
1. **ENDOTRACHEAL INTUBATION ON MANIKIN**

**Objectives:** To learn how to perform endotracheal intubation on manikin

**Place:** Clinical Skill Lab

**Requirements:**

Following equipments and materials are required for this skill activity.

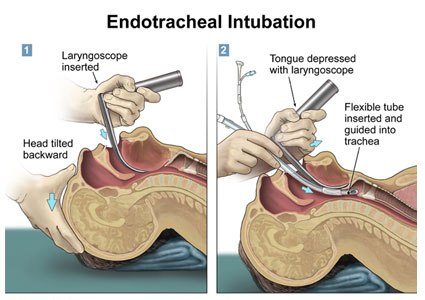


|  |  |  |
| --- | --- | --- |
| **S.No.** | **Equipment/ Instruments Required** | **Qty.** |
|  | Endotracheal tube intubation Manikin | 1 |
|  | ETT with cuff no. 8 | 2 |
|  | Laryngoscope with tongue blades | 1 |
|  | Disposable gloves | 10 |
|  | Disposable syringe 20cc | 1 |
|  | Disposable Masks | 10 |

**Steps of Endotracheal Tube Intubation:**

* Prepare your equipment and material required on the trolley.
* Maintain aseptic technique during the procedure.
* Protect yourself by wearing mask& gloves.

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|  | Wear gloves and mask |
|  | Attach the appropriate size tongue blade to the laryngoscope |
|  | Introduce the laryngoscope and visualize glottis |
|  | Introduce the appropriate size endotracheal tube into glottis |
|  | Inflate the cuff of ETT |
|  | Check for the proper positioning of endotracheal tube by auscultation of chest |



**First aid measures in case of foreign body impaction in airway:**

**Manual removal of foreign body from oral cavity of a child**



**Heimlich’s Maneuver**



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| **WEEKLY TIME TABLES** | | | | | | | | |
| **FIRST WEEK ENT CLERKSHIP** | | | | | | | | |
| **Days/Date** | ***8:00 to 9:00*** | ***9:00 to 10:00*** | ***10:00 to 10:20*** | ***10:20 to 11:20*** | | ***12:20 to 1:00pm*** | ***1:00 to 2:00*** | ***2:00 to 3:00pm*** |
| ***Monday***  ***01-01-18*** | ENT Clerkship Orientation Session  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Symptoms of Ear diseases + History Taking *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | *B*  *R*  *E*  *A*  *K* | Deafness & its causes  Tuning Fork Tests  *Prof Dr. Jamalullah*  *ENT OPD Tutorial Room* | | L  U  N  C  H  &  P  R  A  Y  E  R  B  R  E  A  K | SGDs  Pure Tone & Speech Audiometry  Dr. Eid Muhammad  *ENT OPD Tutorial Room* | |
| ***Tuesday***  ***02-01-18*** | Introduction to Ear Diseases   * Diseases of Pinna * Diseases of External Ear Canal   *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Clinical Examination of Ear  Demonstration and practice session  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Tympanometery  Evaluation of Deafness in children  *Prof Dr. Jamalullah*  *ENT OPD Tutorial Room* | | Skill Lab Activity   1. Otoscopic technique 2. Hearing Assessment (Tuning Fork Tests) 3. Mastoid Dressing 4. Ear Drops 5. Ear Syringing Techniques 6. F.B removal from Ear   Dr. Junaid  *Skill Lab* | |
| ***Wednesday***  ***03-01-18*** | Tutorial  Diseases of Middle Ear  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | OMPs in ENT OPD  Short Cases/ OMP Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counseling  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counsel*ing*  *Prof. Dr. Jamalullah*  *ENT OPD Tutorial Room* | | SGD(3 Case Senario)   * Presbyacusis * Deaf & Mute child   *Dr. Eid Muhammad*  *ENT OPD Tutorial Room* | |
| ***Thursday***  ***04-01-18*** | Tutorial  Evaluation & Management of Chronic Ear Discharge  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | OMPs in ENT OPD  Short Cases/ OMP Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counseling  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counseling  *Prof. Dr. Jamalullah*  *ENT OPD Tutorial Room* | | SGD (3 Case Senario)   * Otalgia * Discharging Ear   Dr. Junaid  *ENT OPD Tutorial Room* | |
| ***Friday***  ***05-01-18*** | Tutorial  Evaluation & Management of Vertigo/Dizziness  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Management plan  *Prof. Dr. Jamalullah*  *ENT OPD Tutorial Room* | Consolidation/ Revision /Supervised Learning  Dr. Junaid  *ENT OPD Tutorial Room* |  | | SGD(3 Case Senario)   * Blocked Ear * Vertigo   *Dr. Eid Muhammad*  *ENT OPD Tutorial Room* | |

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| **SECOND WEEK ENT CLERKSHIP** | | | | | | |
| ***Days/Date*** | ***8:00 to 9:00 am*** | ***9:00 to 10:00 am*** | ***10:00 to 10:20 am*** | ***10:20 to 12:20*** | ***12:20 to 1:00 pm*** | ***1:00 pm to 3:00 pm*** |
| ***Monday***  ***08-01-18*** | Introduction to Nasal Diseases  Prof Dr. Azeem Aslam  ENT OPD Tutorial Room | History & Clinical Examination of Nasal Diseases  Prof Dr. Azeem Aslam  ENT OPD Tutorial Room | B  R  E  A  K | OMPs in ENT OPD  Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counseling  *Prof. Dr. Jamalullah*  ENT OPD Tutorial Room | L  U  N  C  H  &  P  R  A  Y  E  R  B  R  E  A  K | SGD’s (2 Case Senario)   * Allergic Rhinitis * Epistaxis   Dr. Eid Muhammad  ENT OPD Tutorial Room |
| ***Tuesday***  ***09-01-18*** | Introduction to Nasal Diseases  Symptoms/ signs of Nasal Diseases, Management I  *Prof. Dr. Azeem Aslam*  ENT OPD Tutorial Room | History & Clinical Examination of Nasal Diseases  *Prof. Dr. Azeem Aslam*  ENT OPD Tutorial Room | OMPs in ENT OPD  Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counseling  *Prof. Dr. Jamalullah*  ENT OPD Tutorial Room | Skill Lab. Nose   * Nasal Packing Skills on Manikin * Removal of Foreign Body Nose   Dr. Junaid  Skill Lab |
| ***Wednesday***  ***10-01-18*** | Symptoms/ signs of Nasal Diseases, Management II  *Prof. Dr. Azeem Aslam*  ENT OPD Tutorial Room | OMPs in ENT OPD  Short Cases/ OMP Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counseling  *Prof. Dr. Azeem Aslam*  ENT OPD Tutorial Room | OMPs in ENT OPD  Short Cases/ OMP Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counseling  *Prof. Dr. Jamalullah*  ENT OPD Tutorial Room | SGD’s(2 Case Senario)   * Foreign Body nose/ Rhinolith * Sinusitis   Dr. Eid Muhammad  ENT OPD Tutorial Room |
| ***Thursday***  ***11-01-18*** | Tutorial   * D/D of Nasal Diseases * X-rays Nose & PNS   *Prof. Dr. Azeem Aslam*  ENT OPD Tutorial Room | | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counseling  *Prof. Dr. Jamalullah*  ENT OPD Tutorial Room | SGD’s(1 Case Senario)   * Trauma nose   *Dr. Junaid*  ENT OPD Tutorial Room |
| ***Friday***  ***12-01-18*** | Mid Clerkship Examaination (Theory/ OSCE’s)  *Prof Dr. Jamallullah*  ENT OPD Tutorial Room | | OMPs in ENT OPD  Short Cases/ Formulate Management plan, counseling  *Prof. Dr. Azeem Aslam*  ENT OPD Tutorial Room | Consolidation/ Revision/ Supervised Learning  *Dr. Eid Muhammad*  ENT OPD Tutorial Room |

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| **THIRD WEEK ENT CLERKSHIP** | | | | | | | |
| ***Days/Date*** | ***8:00 to 9:00 am*** | ***9:00 to 10:00 am*** | ***10:00 to 10:20*** | ***10:20 to 12:20 pm*** | ***12:20 to 1:00 pm*** | ***1:00 to 2:00 pm*** | ***2:00 to 3:00 pm*** |
| ***Monday***  ***15-01-18*** | Introduction to Throat Diseases  *Prof Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | History & Clinical Examination of Throat Diseases  *Prof Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | B  R  E  A  K | OMPs in ENT OPD  Short Cases / OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council  *Prof. Dr. Jamalullah*  *ENT OPD Tutorial Room* | L  U  N  C  H  &  P  R  A  Y  E  R  B  R  E  A  K | SGDs   * Acute Tonsillitis * Complications of Tonsillectomy   Dr. Eid Muhammad  *ENT OPD Tutorial Room* | |
| ***Tuesday***  ***16-01-18*** | Symptoms/ signs of Throat Diseases, Management  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | History & Clinical Examination of Throat Diseases  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | OMPs in ENT OPD  Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council  *Prof. Dr. Jamalullah*  *ENT OPD Tutorial Room* | Skill Lab. Nose  Management of Compomized upper Airway   * First aid measures * Endotracheal Intubation on Manikins * Cricothyroidotomy on Manikin * Care of Tracheostomy   Dr. Junaid  Skill Lab | |
| ***Wednesday***  ***17-01-18*** | Symptoms/ signs of Laryngeal Diseases, Management  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | OMPs in ENT OPD  Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | OMPs in ENT OPD  Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council  *Prof. Dr. Jamalullah*  *ENT OPD Tutorial Room* | SGD’s   * Upper airway Obstructions * Foreign Body Bronchus   Dr. Eid Muhammad  *ENT OPD Tutorial Room* | |
| ***Thursday***  ***18-01-18*** | Tutorial   * D/D of Laryngeal Diseases * X-rays Soft tissue Neck Lat view   *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council  *Prof. Dr. Jamalullah*  *ENT OPD Tutorial Room* | SGD’s   * Dysphonia   *Dr. Junaid*  *ENT OPD Tutorial Room* | |
| ***Friday***  ***19-01-18*** | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | | OMPs in ENT OPD  Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Consolidation/ Revision  Dr. Eid Muhammad  *ENT OPD Tutorial Room* | |

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| **FOURTH WEEK ENT CLERKSHIP** | | | | | | |
| ***Days/Date*** | ***8:00 to 9:00 am*** | ***9:00 to 10:00 am*** | ***10:00 to 10:20 am*** | ***10:20 to 12:20 pm*** | ***12:20 to 1:00 pm*** | ***1:00 to 3:00 pm*** |
| ***Monday***  ***22-01-18*** | Diseases of the Oral Cavity  *Prof Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | History & Clinical Examination of Neck Diseases  *Prof Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | B  R  E  A  K | OMPs in ENT OPD  Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, counseling  *Prof. Dr. Jamallullah*  *ENT OPD Tutorial Room* | L  U  N  C  H  &  P  R  A  Y  E  R  B  R  E  A  K | SGDs ( Case Senario)   * Oral Ulcer * Dysphagia   Dr. Eid Muhammad  *ENT OPD Tutorial Room* |
| ***Tuesday***  ***23-01-18*** | D/D of Lateral Neck Mass  *Prof. Azeem Aslam*  *ENT OPD Tutorial Room* | | OMPs in ENT OPD   * Short Cases/ OMP * Focused history & Clinical Exam * D/D, Order & interpret investigation, * Formulate Management plan, counseling   *Prof. Dr. Jamalullah*  *ENT OPD Tutorial Room* | SGDs ( Case Senario)   * Lateral Neck Mass   Dr. Junaid  *ENT OPD Tutorial Room* |
| ***Wednesday***  ***24-01-18*** | Hoarseness & its management  *Prof. Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council  *Prof Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council  *Dr. Jamalullah*  *ENT OPD Tutorial Room* | SGD’s ( Case Senario)   * Revision   *Dr. Eid Muhammad*  *ENT OPD Tutorial Room* |
| ***Thursday***  ***25-01-18*** | Revision / Consolidation  *Prof Dr. Azeem Aslam*  *ENT OPD Tutorial Room* | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council *Prof. Dr. Azeem Aslam* | Short Cases/ OMP  Focused history & Clinical Exam., D/D, Order & interpret investigation, Formulate Management plan, council *Prof. Dr. Jamalullah* | SGD’s ( Case Senario)   * Revision   *Dr. Junaid*  *ENT OPD Tutorial Room* |
| ***Friday***  ***26-01-18*** | End Clerkship Exam Practical /Viva | | | | | |

**ASSESSMENT**

**Summative Assessment**

1. MCQs (One best response)
2. OSCE
3. Short Cases
4. SAQs

**Formative Assessment**

All students will be continuously assessed on the basis of their participation in clinical clerkship session, completion of assigned tasks, punctuality and behavior with patients, teaching faculty and their colleagues.

**Feedback:**

* At the completion of clerkship (After ward test on Last day of clerkship)
* Predesigned Performa

**TEAM & PERSON IN-CHARGE**

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| 1 | Dr. Arshad farzooq | Prof. & HOD ENT |
| 2 | Dr. Muhammad saleem Afridi | Prof. & Module Co-ordinator |

**LEARNING RESOURCES**

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| **S.No.** | **Name of book** | **Author** | **Ed** |
| 1. | Ear, Nose, Throat and Head & Neck Surgery | R.S. Dhillon  C.A. East | 5th |
| 2. | ABC of Ear, Nose & Throat | Ludman | 5th |
| 3. | Lecture Notes on Diseases of Ear, Nose & Throat | Peter Bull | 10th |
| 4. | Diseases of Ear, Nose and Throat | P L Dhingra | 5th |

**DEPARTMENT OF OPHTHALMOLOGY KIMS, KOHAT**

**3rd YEAR MBBS Study Schedule For Theory Classes**

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| **S.No** | **Topic** | **Learning Objectives** |
| 1 | Refractive error | * Ammetropia and emmetropia * Types of refractive error * Myopia, astigmatism, presbyopia, hyperopia, * Treatment options |
| 2 | Eyelid | * Anatomy of lids * Functioning of eyelids * Blood supply and innervations of eyelids * Common eyelid disease like ectropion, entropion, stye, trichiasis. |
| 3 | Nasolacrimal system | * Anatomy of lacrimal system * Epiphora and its causes * Diseases of lacrimal system like acute and chronic dacrocystitis * Regurgitation test: how to elicit it and its importance * Sign and symptoms of dacrocystitis * Dacrocystorhinostomy and other surgical options |
| 4 | Anatomy of conjuctiva | * Anatomy of conjunctiva(palpebral, bulbar, fornices, caruncle) * Nerve supply * Blood supply |
| 5 | Conjunctivitis | * Sign symptoms of conjunctivitis * Common organism involved * Treatment options |
| 6 | Trachoma/VKC | * Pathology of disease, organism involved * Stages of disease * WHO classification * Treatment options |
| 7 | Anatomy  /physiologyof cornea | * Anatomical location * Histological layers of cornea * Nerve supply * Function of cornea |
| 8 | Bacterial/Fungal Keratitis | * Meaning of Keratitis * Sign & symptoms of corneal ulcer * Types of corneal ulcer * Investigations, stain used to identify different organism * Identify the risk factors for Keratitis * Treatment options |
| 9 | Blepharitis | * Blepharitis and its types * To differentiate between anterior and posterior blepharitis * Different glands with eyelids |

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|  |  | * Symptoms and signs of blepharitis and its treatment * Chalazion and stye there clinical differentiation and treatment options |
| 10 | Ptosis | * Definition of ptosis * Causes of ptosis * Clinical signs and measurement of ptosis * Treatment option including medical and different surgical options |
| 11 | Cataract | * Defination of cataract * Types and causes of cataract * Surgical options * Intracapsular/ extracapsular surgery differences * Intraocular lens types * Important surgical complications |
| 12 | Squint | * Phoria * Tropia * Extraocular movements * Esotropia * Exotropia * Paralytic and non paralytic squint * Measurement of ocular deviation by hurschburg test * Cover-uncover test * Extraocular motility in different positions of gazes |
| 13 | Red Eye (Scleritis , Episcleritis) | * Causes of red eye * How to differentiate between different causes * Treatment |

**DEPARTMENT OF OPHTHALMOLOGY KIMS, KOHAT**

**4TH YEAR MBBS Study Schedule For Theory Classes**

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| **S.No** | **Topic** | **Learning Objectives** |
| 1 | Introduction | * General introduction about ophthalmology field * Importance of eyes & vision * Anatomical layers of eyes * Function of eyes |
| 2 | Glaucoma | * Glaucoma & its global burden * Types of glaucoma * What is intraoclur pressure * Risk factors for glacuma * Signs & syptoms * Viual field, tonometry and other investigations * Treatment options including medical, surgical & lasers |
| 3 | ACG | * Iridocorneal angle * Risk factors for ACG * Singns & symptoms * Types & grades * Treatment options including drugs, lasers & surgery |
| 4 | Childhood Glaucoma | * Congential & infantile glaucoma * Infantile glaucoma * How to diagnose them * Treatment options in pediatric glaucoma * Buphthalmus & its typical clinical picture |
| 5 | Secondary Glacuma | * Difference between primary   & secondary glacuma   * Types & causes of secondary glacuma * Investigations * Treatment |
| 6 | Keratoconus | * Corneal ectisa causes * Signs of keratoconus * Investigations required * CXL, keratoplasty as treatment options for keratoconus |
| 7 |  | * What is luxation & subluxation? |

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|  | Ectopia Lentis | * Causes of ectopia lentis * Important systemic diseases associated with ectopia lentis * Patient problems associated with this condition * Treatment options |
| 15 | Uveitis | * Anatomy of uvea * Classification of uveitis * Causes * Natural course of the disease * Anterior uvietis, signs syptoms & management |
| 16 | Diabetic retinopathy | * Disease burden * Stages of diabetic retinopathy * FFA, OCT * Lasers, Anti-VEGF role in diabetic retinopathy |
| 17 | Hyertensive Retinopathy | * Disease burden * Stages of hypertensive retinopathy * FFA, OCT * Treatment * Complications |
| 18 | ARMD | * Classification of ARMD * Risk factors * Investigations * Choroidal neovascularization & its treatment |
| 19 | Retinal Vascular occlusion | * Arterial & venous occlusion * Causes & risk factors * Clincial picture * Investigatons * Treatment options |
| 20 | Retinal Detachment | * Layers of retina * Types of retinal detachment * Risk factors * Treatment options for rhegmatogenous, exudative and tractional |
| 21 | Optic Nerve Diseases | * To highlight the importance of optic nerve, its different functions * Also students will be taught about optic atrophy, its causes, types & clinical implications & treatment options. |
|  | Papilloedema |  |

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|  |  | * To teach student about different causes of optic disc swelling * Definition of papilloedema * Signs, & symptoms * Investigation in papilloedema case * Treatment options |
| 8 | Optic Neuritis | * Classification of optic neuritis * Systemic disease associated * Signs and symptoms * Investigations * Treatment |
| 9 | Pupil & Various clinical aspects | * Functions of pupil * Anatomy of iris & , muscles/ nerves involved * Pupillary reflexes & its pathway * Pupillary abnormalities |
| 10 | Anatomy of Orbit | * Walls of orbit & its bony constituents * Contents of orbit * Its relation with para nasal sinuses |
| 11 | Preseptal & Orbital cellulitis | * To emphasize the importance of orbital infections with regard to its etiology & morbidity related not only to eye but also surrounding structures & highlight the life threating aspect of orbital cellulitis as well. * Etiology * Signs & symptoms * Treatment of these diseases |
| 12 | Proptosis | * Definition of proptosis * Causes of proptosis * Clinical signs & measurement of proptosis * Treatment options including medical & different surgical options |
| 13 | Ocular Trauma | * Classification of traumatic injuries * Closed globe & open globe injuries * Lacerations |
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|  | Hyphema | * Definitions * Causes * Management including indications for surgical evacuations |
| 22 | Chemical Burns | * Different chemical burns Acids & alkali * Manifestations of burns * Complications * Emergency management * Visual rehabilitation |
| 23 | Cranial Nerve Palsies | * Etiology of these palsies * Signs, symptoms * Investigations * Treatment options |
| 24 | Retinoblastoma | * Clinical features * Types * Treatment options * Counselling of parents |
| 25 | Differential diagnosis of common eye diseases | * Summarize different common ocular pathologies * Highlight their differentiating & key points from each other * Differential diagnosis of common disease like conjunctivitis, red eye, corneal ulcer, eye pain, leukocoria, retinal hemorhages & squint |
| 26 | Ptosis | * Definition of ptosis * Causes of ptosis * Clinical signs & measurement of ptosis * Treatment options including medical & different surgical options |
| 27 | Amblyopia | * Definition of amblyopia * Causes of amblyopia * How to diagnose a patient with amblyopia * Treatment options including penalization & patching |

**SYLLABUS OUTLINE & COURSE SPECIFICATION TEMPLATE**

**4th year MBBS community medicine (PMDC RECOMMENDED)**

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| **Week** | **Course codes** | **Pathology**  **First term 9 Weeks period** | **Faculty** |  |
| **Week** **1**  Classes | 401  **(cvs)** | 1. Atherosclerosis-i 2. Atherosclerosis-ii 3. Aneurysm 4. Vasculitides |  |  |
| **Relevant**  **Practical work** |  | Hemangioma |  |  |
| **Week** 2  Classes | 401 | 1. Hypertensive vascular diseases 2. Tumors of vessels 3. Ischemic heart disease-i 4. Ischemic heart disease-ii | 421 |  |
| **Relevant Practical work** |  | Cardiac enzymes |  |  |
| **Week** 3  Classes | 401 | 1. Rheumatic heart disease  2. Hypertensive heart disease  3. Congenital heart disease  4. Endocarditis | 421 |  |
| **Relevant** **Practical work** |  | ASO titer, blood culture |  |  |

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| **Week** 4  Classes | 402  **(Git)** | 1.Endocarditis  2.Cardiomyopathy  3.Ulcerative, paraneoplastic and neoplastic lesions of the oral cavity  4.Salivary gland and esophageal tumors | 421 | 1. Epidemiological transition. Association and causation-i 2. Epidemiological transition. Association and causation-ii 3. Investigation of an outbreak or an epidemic. Screening for disease. Community diagnosis-i 4. Investigation of an outbreak or an epidemic. Screening for disease. Community diagnosis-ii |
| **Relevant**  **Practical work** |  | Pleomorphic adenoma |  | **Practical exercises on investigation of an outbreak\ student presentation on communicable diseases** |
| **Week** 5  Classes | 402 | 1. Gastritis and peptic ulcer disease 2. Tumors of stomach 3. Malabsorption Syndromes 4. G I lymphoma and carcinoid tumors | 421 | 1. Research and survey methodology 2. Research and survey methodology 3. Research and survey methodology 4. Research and survey methodology |
| **Relevant**  **Practical work** |  | Pleomorphic adenoma |  | **Literature review with practical assignments** |
| **Week** 6  Classes | 402 | 1. Inflammatory bowel diseases 2. G I polyps and colorectal carcinoma 3. Jaundice 4. Hepatitis-i | 421 | 1. Research and survey methodology-i 2. Research and survey methodology-ii 3. Research and survey methodology-iii 4. Research and survey methodology-iv |
| **Relevant**  **Practical work** |  | Colorectal carcinoma |  | **Results** |
| **Week** 7  Classes | 402 | 1. Hepatitis-ii 2. Cirrhosis-i 3. Cirrhosis-ii 4. Tumors of liver | 422  **(statistics)** | 1. Concepts and uses, Data and its types 2. Rates, ratios and proportions (Crude, specific and standardized rates) 3. Collection and registration of vital events in Pakistan. Sources of health related statistics 4. Measures of central tendency, (Mean, Median, Mode) |
| **Relevant**  **Practical work** |  | Liver function tests |  | **Analysis and discussion** |

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| **Week** 8  Classes | 402 | 1. Cholecystitis 2. Gall stones 3. Tumors of gall bladder 4. Pancreatitis-i | 422 | 1. Measures of dispersion (Range, Standard deviation, Standard error)-i 2. Measures of dispersion (Range, Standard deviation, Standard error)-ii 3. Normal distribution curve 4. Methods of data presentation (tables, graphs & diagrams) |
| **Relevant**  **Practical work** |  | Serum amylase |  | **Student presentation on communicable diseases** |
| **Week** 9  Classes | 402 | 1. Pancreatitis-ii 2. Tumors of pancreas 3. Diabetes mellitus-i 4. Diabetes mellitus-ii | 422 | 1. Interpretation of data (t-test and Chi-square test) -i 2. Interpretation of data (t-test and Chi-square test)-ii 3. Sampling and its various techniques 4. Health Management Information System |
| **Relevant**  **Practical work** |  | Detection of sugar in urine  Detection of ketone bodies in urine |  | Visit E.P.I center |
| **Week 10** |  | **1st stage(SAQ,OSPE,VIVA)** |  | **1st stage(SAQ,OSPE,VIVA)** |
|  |  | **Second term 9 Weeks period** |  | **Second term 9 Weeks period** |
| **Week** **11**  Classes | **Skin**(403) | 1. Acute inflammatory diseases 2. Chronic inflammat. diseases including psoriasis 3. Blistering diseases 4. Tumors | 423  **(communicable diseases)** | 1. Diseases transmitted through Faeco-oral route.-i 2. Diseases transmitted through Faeco-oral route.-ii 3. Diseases transmitted through Faeco-oral route.-iii 4. Diseases transmitted through Faeco-oral route.-iv |
| **Relevant**  **Practical work** |  | Basal cell carcinoma |  | **Student presentation\ visit to T.B center** |

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| **Week** 12  Classes | **Male genital system** (404) | 1. Testicular infections 2. Testicular tumors 3. BPH and prostatitis 4. Carcinoma prostate | 423 | 1. Arthropod borne diseases -i 2. Arthropod borne diseases -ii 3. Concept of health: Definition of health (Dimensions, physical, mental, social and spiritual). Spectrum of health, Determinants of health. Responsibility for health. Indicators of health. 4. Concept of disease: Concept of causation (all theories including ecological triad, (agent, host & environmental factors). Spectrum of disease. Iceberg phenomenon. Natural history of disease. Levels of prevention. Disease elimination and eradication. Disease surveillance. |
| **Relevant**  **Practical work** |  | Seminoma |  | **Visit to N.G.O** |
| **Week** 13  Classes | 405  **(CNS)** | 1. Meningitis 2. Encephalitis 3. Brain tumors-i 4. Brain tumors-ii | 423 | 1. Diseases of animals conveyed to man-i 2. Diseases of animals conveyed to man-ii 3. Diseases of animals conveyed to man-iii 4. Diseases of animals conveyed to man-iv |
| **Relevant**  **Practical work** |  | CSF Examination |  | **Student presentation and visit to family planning center** |
| **Week** 14  Classes | 406  **(Endocrine system)** | 1. Pituitary tumors 2. Hypo and Hyper Thyroidism 3. Hypo and Hyper Pituitrism 4. Thyroid tumors | 424  **(environment and health)** | 1. Diseases due to direct contact 2. Diseases due to direct contact 3. Air: Composition of air. Causes of Air pollution. Purification of Air. Diseases caused by impurities in air and their prevention 4. Water: Sources of Water. Daily water requirement. Water pollution its causes and prevention. Purification of Water. Water quality Standards. Diseases due to polluted water |
| **Relevant**  **Practical work** |  | Goiter |  | **Visit to Factory** |

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| **Week** 15  Classes | 406 | 1. Diseases of parathyroid gland 2. Hyper and hypo adrenalism 3. Tumors of adrenal cortex 4. Diseases of adrenal medulla | 424 | 1. Climate: Climate and weather. Global environmental concerns (Green house effect, depletion of ozone layer, Acid rains). Effect of extremes of temperature, humidity, atmospheric pressure on human health and their prevention 2. Radiation: Sources, types, causes, hazards and prevention 3. Noise: Definition, causes, acceptance level, hazards and control 4. Concepts (Nutrition, Nutrient, Food, Diet). Food groups and their functions. Role of fiber in diet |
| **Relevant**  **Practical work** |  | VMA by chromatography |  | **Visit to school for blind\ deaf and Dumb** |
| **Week** **16**  Classes | 407  **(Respiratory system)** | 1. Atelectasis 2. Chronic bronchitis 3. Emphysema/ bronchiactasis 4. Asthma | 425  **(Nutrition**  **and**  **Health)** | 1. Balanced Diet , Dietary requirements of normal human being at different stages of life 2. Malnutrition at all stages of life its types causes and prevention. Common nutritional problems of public health importance and their prevention and control, Assessment of nutritional status of a Community 3. Malnutrition at all stages of life its types causes and prevention. Common nutritional problems of public health importance and their prevention and control, Assessment of nutritional status of a Community 4. Food hygiene, Pasteurization, fortification, additives & adulteration and preservation, Food Poisoning |
| **Relevant**  **Practical work** |  | Pleural fluid examination |  | **Demo on Nutritional assessment/Growth Chart** |
| **Week 17**  Classes | 407 | 1. Pneumonia 2. Pulmonary tuberculosis 3. Tumors of lung 4. Pleural effusion/ occupational lung diseases | 426  **(Demography)** | 1. Concept, demographic principles and demographic processes, Census, definition, methodology, types-i 2. Concept, demographic principles and demographic processes, Census, definition, methodology, types-ii 3. Determinants of fertility, mortality, Population Pyramid, and its interpretation 4. Demographic Transition, Demographic Trap and its public health importance |
| **Relevant**  **Practical work** |  | Ca lung |  | **I.M.C.I** |

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| **Week** **18**  Classes | 408 **(Musculo-skeletal system)** | 1. Osteoporosis/ rickets/ osteomalacia 2. Osteomyelitis 3. Bone tumors 4. Arthritis (osteo/ rheumatoid/ gout)-i | 426 | 1. Demographic and social implication of high population growth, Social Mobilization, Urbanization-i 2. Demographic and social implication of high population growth, Social Mobilization, Urbanization-ii 3. Concept, uses and criteria for screening 4. Sensitivity and Specificity |
| **Relevant**  **Practical work** |  | Giant cell tumor of bone |  | **Visit to Islamabad\ Lahore (public health sites)** |
| **Week 19**  Classes | **Female reproductive and genital system (409)** | 1. Arthritis (osteo/ rheumatoid/ gout)-ii 2. Introduction to myopathy and Myesthenia.gravis 3. Pelvic inflammatory disease 4. Cervical tumors | 427 (**Non-**  **communicable diseases)** | 1. Cardiovascular Diseases (CVD) 2. Coronary Heart Disease (CHD), Hypertension (HTN) 3. Rheumatic Heart Diseases (RHD) 4. Diabetes Mellitus (DM) |
| **Relevant**  **Practical work** |  | R. A. Factor |  | **Demo: on nutritional counseling to pregnant and lactating women** |
| **Week** 20 |  | **2nd stage(SAQ,OSPE,VIVA)** |  | **2nd stage(SAQ,OSPE,VIVA)** |
|  |  | **Third term 8 Weeks period** |  | **Third term 8 Weeks period** |
| **Week** 21  Classes | 409 | 1. Endometriosis/ adenomyosis 2. Endometrial tumors 3. Leiomyoma uteri 4. Ovarian tumors-ii | 428  (Maternal and child health care) | 1. Cancer 2. Safe motherhood and its components: (Ante-natal, Post-natal, Family Planning & Emergency Obstetric Care)-i 3. Safe motherhood and its components: (Ante-natal, Post-natal, Family Planning & Emergency Obstetric Care)-ii 4. Maternal mortality: causes and prevention |
| **Relevant**  **Practical work** |  | Leiomyoma/ Teratoma |  | **Visit to MCH** |

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| **Week** 22  Classes | 409 | 1. Placental tumors 2. Fibrocystic disease of breast and inflammation-i 3. Fibrocystic disease of breast and inflammation-ii 4. Breast tumors | 428 | 1. Infant care: Growth and development. Breast feeding, common causes of morbidity and mortality, their prevention and control 2. Child Care: Health promotion strategies. Common ailments, home accidents, child mortality prevention. Strategic approaches of Integrated Management of Childhood Illness (IMCI) Health of school age children 3. Urogenital infections: Guidelines for management of STD’s-i 4. Urogenital infections: Guidelines for management of STD’s-ii |
| **Relevant**  **Practical work** |  | Carcinoma breast |  | **Visit to MCH** |
| **Week** 23  Classes | 410  **(Renal system)** | 1. Glomerulonephritis-i 2. Glomerulonephritis-ii 3. Nephritic/ nephrotic syndromes 4. Pyelonephritis | 429  **(Mental health)** | 1. Role of teachers and role of doctor in maintenance of health, Procedures for determining health status of school age children 2. Common health problems of school children 3. Concept. Common mental health problems, their causes, prevention and control-i 4. Concept. Common mental health problems, their causes, prevention and control-ii |
| **Relevant Practical work** |  | Detection of albumen in urine |  | **School visit** |
| **Week** 24  Classes | 410 | 1. Acute kidney injury 2. Cystic diseases of kidney 3. Nephrolithiasis 4. Acute/ chronic renal failure | 430  **(Occupational Health)** | 1. Concept. Aims and objectives, approaches used in public health, Contents, principles and stages of health education, 2. Communication methods, barriers and Skills in health education, Planning, organizing and evaluating a health education program, Social Marketing 3. Concepts, of occupational health, occupational medicine and occupational hygiene. Ergonomics and its importance 4. Occupational hazards. Principles of control, general principles of occupational disease prevention |
| **Relevant**  **Practical work** |  | Microscopic examination of urine |  | **Visit to factory** |

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| **Week** 25  Classes | **Haemo-poietic system (** 411) | 1. Tumors of kidney  2. Urinary bladder inflammation and tumors  3. introduction and haemopoiesis  4. iron deficiency anemia | 430  431  **(Hospital waste management)** | 1. Organization of occupational health services, Health Insurance and Social Security Schemes 2. Organization of occupational health services, Health Insurance and Social Security Schemes 3. Contents, hazards and safety measures for solid and liquid 4. Domestic, Industrial and Hospital waste |
| **Relevant** **Practical work** |  | Hemoglobin estimation |  | **Demonstration on hospital waste management** |
| **Week** 26  Classes | 411 | 1. Aplastic/ megaloblastic anemia 2. Thalasemia major/ minor 3. Sickle cell disease 4. Hemolytic anemia | 432  **(Disaster management)** | 1. Definition, classification, (natural disasters like earthquake, floods, man-made disasters, accidents, thermo nu clear warfare, causes and prevention) 2. Definition, classification, (natural disasters like earthquake, floods, man-made disasters, accidents, thermo nu clear warfare, causes and prevention) 3. Magnitude and effects of disaster and Public Health consequences. 4. Disaster: preparedness and management |
| **Relevant**  **Practical work** |  | Absolute values , ESR |  | **Visit to disaster places** |
| **Week 27**  Classes | 411 | 1. Introduction and classification of leukemia 2. Acute leukemias 3. Chronic leukemias 4. Introduction and classification of lymphomas | 433  **(Health care of the community)** | 1. Concept, attitudes, health and illness behavior, Role of physical exercise in health and disease 2. Concept, attitudes, health and illness behavior, Role of physical exercise in health and disease 3. Drug abuse, addiction and smoking 4. Child abuse and child labor |
| **Relevant Practical work** |  | TLC |  | **Visit to drug abuse centre** |

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| **Week 28**  Classes | 411 | 1. Hodgkin lymphoma 2. Non Hodgkin lymphoma 3. Thrombocytopenia and hemophilia 4. Lab: investigation of bleeding disorders | 427 | Epidemiology, control and prevention of non-infectious diseases of Public Health importance:   1. Obesity, 2. Stroke 3. Blindness 4. Accidents and injuries |
| **Relevant** **Practical work** |  | DLC |  | **Visit to DHQ** |
| **Week 29** |  | **3rd stage(SAQ,OSPE,VIVA)** |  | **3rd stage(SAQ,OSPE,VIVA)** |



**Study Guide**

**MBBS 4th Professional**

**DEPARTMENT OF PATHOLOGY**

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1. **MODULE DEVELOPMENT TEAM**

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| --- | --- | --- | --- |
| **Serial No** | **Names** | **Qualification** | **Roles** |
| 1 | Prof.Dr.Aziz Marjan | MBBS,M.Phil | Module Planner/HOD |
| 2 | Dr. Tahira Atta | MBBS, M.Phil | Associate Professor |
| 3 | Dr.Yasar Mehmood Yousafzai | MBBS, PhD | Assistant Professor |
| 4 | Dr.Asif Ali | MBBS, PhD | Assistant Professor |
| 5 | Dr.Noor Ul Amin | MBBS | Lecturer |
| 6 | Dr. Nowshad Asim | MBBS | Lecturer |
| 7 | Dr. Saad Ejaz | MBBS | Demonstrator |
| 8 | Dr. Anoosha Naseem | MBBS | Demonstrator |

1. **Program objectives:**

To enable students to gain knowledge of:

1. Normal human structure and function at the molecular, genetic, cellular, tissue, organ-system and whole-body level
2. The mechanisms involved in the pathogenesis and treatment of human diseases and their influence on clinical presentation and therapy.
3. The epidemiology of pathological diseases
4. The basic scientific and ethical principles of clinical research.
5. **Patient Care**

* To enable students to apply scientific methods to the practice of pathology for the identification of problems, data collection, hypothesis formulation, and the application of deductive reasoning to problem solving, clinical reasoning, and decision-making.
* To successfully integrate collected clinical information to carry out appropriate diagnostic and treatment plans for patients across the broad spectrum of acute and chronic conditions.
* To perform basic risk assessments and formulate plans to promote patient wellbeing.

1. **Interpersonal and Communication Skills**

* To affectively counsel and educate patients and their families.
* To design diagnostic and treatment options in a manner that will help the participation of patients and their families in shared decision-making.
* To effectively communicate with members, including both doctor and non-doctor professionals, of the health care team.

1. **Professionalism**

* To exhibit high standards of professionalism and demonstrate an awareness of potential conflicts of interest.
* To apply legal and ethical principles governing the doctor-patient relationship to interactions with patients and their families.
* To act in the patient's best interest and serve as a patient advocate.
* To work collaboratively and effectively in inter-professional team.

1. **Learning objectives of Pathology:**

1. The student will be able to explain the basic nature of disease processes from the standpoint of causation, epidemiology, natural history, and the structural and functional abnormalities that result (including molecular, biochemical and cellular mechanisms for maintaining homeostasis) and knowledge of population health, epidemiology principles and the scientific basis of research methods.

2. The student will be able to classify diseases of various body systems and how they manifest clinically and histopathologically, that is the pathogenesis of diseases, interventions for effective treatment, and mechanisms of health maintenance to prevent disease.

3. The student will be able to devise likely diagnoses from clinical scenarios by recognizing key manifestations of congenital, hemodynamic, inflammatory, infectious, metabolic, environmental, and neoplastic diseases. More broadly it is the knowledge of basic clinical skills required to meet the skills objectives, including interviewing, physical diagnosis, communication and clinical reasoning processes.

4. The student will be able to apply knowledge of pathology’s role in the diagnosis, staging, and management of disease. That is the pathogenesis of diseases, interventions for effective treatment, and maintenance to prevent disease.

1. The student will be able to utilize high quality peer-reviewed literature to maintain currency in the management of pathologic conditions.
2. Demonstrate ability to give and receive feedback, respect for self and peers.
3. Demonstrate empathy and care to patients.
4. Develop respect for the individuality and values of others - (including having respect for oneself) patients, colleagues and other health professionals
5. Organize& distribute tasks
6. Exchange opinion & knowledge
7. Develop communication skills and etiquette with sense of responsibility.
8. To equip themselves for teamwork
9. Regularly attend the classes
10. Demonstrate good laboratory practices

**SYLLABUS OUTLINE & COURSE SPECIFICATION TEMPLATE Session 2018-19 for KMU-IMS Kohat**

**MBBS 4th year (PMDC RECOMMENDED) wef; 20th Oct 2019**

**Pathology 200 hours (100 Hours Classes, 100 Hours Practical work)**

**Lectures: one hour of each = 05/week and Practicals: two hours of each 2/week**

***The total hours for active session (29 weeks session) are divided into 3 terms. Each term consists of ac*tive 9 weeks teaching followed by 1 week for examination.**

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| **Week** | **Course codes** | **Pathology**  **First term 9 Weeks period** | **Faculty** |
| **Week** **1**  Classes | 401  **(Hematology)** | 1. introduction and haemopoiesis  2. Iron deficiency anemia  3.Aplastic  4. Megaloblastic anemia  5.Thalasemia major/ minor | Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin |
| **Relevant**  **Practical work** |  | Absolute values,ESR | Dr.Noor ul amin  Dr. Nowshad Asim  Dr. Saad  Dr. Anoosha |
| **Week** 2  Classes | 401  Hematology | 1. Sickle cell disease  2. Hemolytic anemia  3.Introduction and classification of leukemia  4.Acute myeloid leukemia  5.Chronic myelogenous leukemia | Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin |
| **Relevant Practical work** |  | Hb estimation | Dr.Noor ul amin  Dr. Nowshad Asim  Dr. Saad  Dr. Anoosha |
| **Week** 3  Classes | 401 | 1.Acute lymphoblastic Leukemia  2.Chromic lymphocytic leukemia  3.Introduction and classification of lymphomas  4.Hodgkin lymphoma  5.Non Hodgkin lymphoma | Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin |
| **Relevant** **Practical work** |  | TLC | Dr.Noor ul amin  Dr. Nowshad Asim  Dr. Saad  Dr. Anoosha |
| **Week** 4  Classes | 401 | 1.Thrombocytopenia 2.Hemophilia  3.Lab: investigation of bleeding disorders  4.Von willibrand disease  5.DIC | Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin  Dr.Noor ul Amin |
| **Relevant**  **Practical work** |  | DLC | Dr.Noor ul amin  Dr. Nowshad Asim  Dr. Saad  Dr. Anoosha |
| **Week** 5  Classes | 402  Male genital system | 1. Testicular infections 2. Testicular tumors 3. BPH and prostatitis 4. Carcinoma prostate 5. Male infertility | Dr. Nowshad Asim Dr. Nowshad Asim Dr. Nowshad Asim Dr. Nowshad Asim  Dr. Nowshad Asim |
| **Relevant**  **Practical work** |  | Seminoma | Dr.Noor ul amin  Dr. Nowshad Asim  Dr. Saad  Dr. Anoosha |
| **Week** 6  Classes | 403  GIT | 1.Salivary gland tumors and diseases  2. Esophageal disorder & tumors  3.Gastritis  4.peptic ulcer disease  5. Tumors of stomach | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan |
| **Relevant**  **Practical work** |  | Pleomorphic adenoma | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 7  Classes | 403  GIT | 1 Malabsorption Syndromes  2. Inflammatory bowel Diseases  3. Inflammatory bowel disease  4. G I lymphoma and carcinoid  tumors  5. G I polyps and colorectal carcinoma | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan |
| **Relevant**  **Practical work** |  | Liver function tests | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 8  Classes | 404  Hepatobilliary | 1.Jaundice  2.Hepatitis  3.Drug and toxin induced liver injury, Cholestatic liver disease, Metabolic liver diseases  4.Nonalcoholic Alcoholic and Alcoholic liver disease  5.Cirrhosis | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan |
| **Relevant**  **Practical work** |  | Serum amylase | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 9  Classes | 404  Pancrease | 1. Tumors of liver  2. Gall stones, Cholecystitis  3.Tumors of gall bladder 4.Acute pancreatitis chronic pancreatitis  5.Tumors of pancreas | Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan  Dr. Aziz Marjan |
| **Relevant**  **Practical work** |  | Detection of sugar in urine  Detection of ketone bodies in urine | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week 10** | **30 Jan to 3 Feb 2017** | **1st stage(SAQ,OSPE,VIVA)** |  |
|  |  | **Second term 9 Weeks period** |  |
| **Week** **11**  Classes | **405**  CVS | 1. Vascular wall response to injury 2. Atherosclerosis-I 3. Atherosclerosis-ii 4. Aneurysm 5. Vasculitides | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta |
| **Relevant**  **Practical work** |  | Hemangioma | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 12  Classes | 405 | 1. Hypertensive vascular diseases i 2. Hypertensive vascular disease ii 3. Tumors of vessels 4. Ischemic heart disease-i 5. Ischemic heart disease-ii | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta |
| **Relevant**  **Practical work** |  | Cardiac enzymes | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 13  Classes | 405 | 1.Rheumatic heart disease I  2. rheumatic heart disease ii  3. Hypertensive heart disease  4. Congenital heart disease  5. Endocarditis | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta |
| **Relevant**  **Practical work** |  | ASO titer,blood culture | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 14  Classes | 405 | 1.myocarditis  2.Cardiomyopathy  3.Heart failure i  4.Heart failure ii  5.Hypertensive heart disease | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta |
| **Relevant**  **Practical work** |  | ASO titer,blood culture | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** **15**  Classes | 406  Endocrinology | 1. Introduction 2. Hyper Pituitrism 3. Hypo pituitrism 4. Hyper/ hypo Thyroidism 5. Thyroid tumors | Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim |
| **Relevant**  **Practical work** |  | Goiter | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week 16**  Classes | 406 | 1. Diseases of parathyroid gland 2. Endocrine pancrease i 3. Endocrine pancrease ii 4. Adrenal disorders 5. Adrenal tumors | Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim |
| **Relevant**  **Practical work** |  | VMA by chromatography | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** **17**  Classes | 407  Female genital system  20 Mar | 1.Pelvic inflammatory disease  2.Cervical tumors  3.Endometriosis/ adenomyosis  4.Endometrial tumors  5.Leiomyoma uteri | Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim |
| **Relevant**  **Practical work** |  | Leiomyoma/ Teratoma | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week 18**  Classes | 407 | 1. Ovarian tumors 2. Placental tumors 3. Fibrocystic disease of breast and inflammation-i 4. Fibrocystic disease of breast and inflammation-ii 5. Breast tumors | Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim  Dr. Nowshad Asim |
| **Relevant**  **Practical work** |  | Carcinoma breast | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 19 |  | **2nd stage(SAQ,OSPE,VIVA)** |  |
|  |  | **Third term 8 Weeks period** |  |
| **Week** 20  Classes | 408  Renal system | 1. Kidney structure and fuction 2. nephrotic syndromes 3. Nephritic syndromes 4. Glomerulonephritis-I 5. Glomerulonephritis-ii | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta |
| **Relevant**  **Practical work** |  | Detection of albumen in urine | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 21  Classes | 408 | 1. Acute Pyelonephritis 2. Chronic Pyelonephritis 3. Acute kidney injury 4. Nephrolithiasis 5. Acute/ chronic renal failure | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta |
| **Relevant**  **Practical work** |  | Microscopic examination of urine | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **WEEK 22** | **408** | 1. Renal tumors  2. Cystic diseases of kidney  3.Urinary tract infection  4. Acute cystitis  5. Chronic cystitis | Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta  Dr. Tahira Atta |
| **Relevant**  **Practical work** |  | Benedict’s test | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 23  Classes | 408  409  Muskuloskeletal system | 1. Bladder tumors  2.Osteoporosis  3. Gout  4. Rickets/ osteomalacia  5.Osteomyelitis | Dr. Tahira Atta  Dr. Noor ul amin  Dr. Noor ul amin  Dr. Noor ul amin  Dr. Noor ul Amin |
| **Relevant Practical work** |  | RA factor | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 24  Classes | 409 | 1.Bone tumors  2.OsteoArthritis  3. Rheumatoid arthritis  4.Introduction to myopathy 5.Myesthenia.gravis | Dr. Noor ul amin  Dr. Noor ul amin  Dr. Noor ul amin  Dr. Noor ul amin  Dr. Noor ul amin |
| **Relevant**  **Practical work** |  | Giant cell tumor of bone | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 25  Classes | 410  Respiratory system | 1. Pleural effusion 2.occupational lung diseases  3. Atelectasis/COPD  4.Chronic bronchitis/ Bronchiactasis  5.Emphysema/ | Dr. Saad  Dr. Saad  Dr. Saad  Dr. Saad  Dr. Saad |
| **Relevant** **Practical work** |  | Plueral fluid examination | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week** 26  Classes | 410 | 1. Pul. HTN, cor pulmonale  2.Asthma  3.Pneumonia  4.Pulmonary tuberculosis  5.Tumors of lung | Dr. Saad  Dr. Saad  Dr. Saad  Dr. Saad  Dr. Saad |
| **Relevant**  **Practical work** |  | Ca lung | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week 27**  Classes | 411  CNS | 1.Meningitis  2.Encephalitis  3.Brain tumors i  4.Brain tumor ii  5. CSF examination | Dr. Anoosha  Dr. Anoosha  Dr. Anoosha  Dr. Anoosha  Dr. Anoosha |
| **Relevant Practical work** |  | CSF examination | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week 28**  Classes | 412  Skin | 1. Acute inflammatory diseases 2. Chronic inflammatory diseases including psoriasis 3. Blistering disease 4. Basal cell carcinom 5. Squamous cell carcinoma | Dr. Anoosha  Dr. Anoosha  Dr. Anoosha  Dr. Anoosha  Dr. Anoosha |
| **Relevant** **Practical work** |  | Basal cell carcinoma | Dr. Nowshad Asim  Dr.Noor ul amin  Dr. Saad  Dr. Anoosha |
| **Week 29** |  | **3rd stage(SAQ,OSPE,VIVA)** |  |

**TIME TABLE FOR 4th YEAR MBBS SESSION 2019-20**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Days** | **08:00 – 08:55** | **08:55 – 09:50** | **09:50 – 10:20** | **10:20 – 01:05** | | **01:05 – 02:00** | |
| **Monday** | **EYE** | **ENT** | **BREAK** | **Hospital Work**  **(3 Hours)** | | **Pediatrics** | |
| **Tuesday** | **Community Medicine Batch B**  **Pathology Practical Batch A**  **8:00 am – 9:50 am** | | **Hospital Work**  **(3 Hours)** | | **Medicine** | |
| **Wednesday** | **Surgery** | **Pathology** | **10:20 - 12:10**  **(Batch-B) Pathology Practical**  **(Batch-A) Community Medicine** | | **12.10 - 01.05**  **Community Medicine** | **01.05 – 02.00**  **Pathology** |
| **Thursday** | **Pathology** | **Surgery** | **Hospital Work**  **(03 Hours)** | | **01.05pm - 02.00pm**  **Pathology** | |
| **Friday** | **Pathology** | **Medicine** | **10.20am - 1.05pm**  **Hospital work (3 Hours)** | | **1:05pm-2pm**  **Friday Prayer Break** | |
| **Saturday** | **Gynae/Obs** | **Community Medicine** | **Behavior Science**  10:20 to 11:15 | **Surgery**  11:15 to 12:10 | **Research**  12:10 to 01:05 | **Psych-10**  **Derma-10**  **Radio- 12**  01:05 to 02:00 |

(Batch A=1 to 50 & Batch B=51 to 100)

**Teaching Methods**

1) Lectures

2) Practicals

3) Assingments

4) SGD

5) PBL

6) Tutorials

**KMU-IMS, Kohat**

**Department of Pathology**

**Curriculum Map 2019-2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Term 1 | Date | Term 2 | Date | Term 3 | Date | University exam |  | Date |
| Curriculum as per course template | 19-12-2019 | Curriculum as per course template | 16-03-2020 | Curriculum as per course template | 15-6-2020 | Preparatory break | Annual Exam  September 2020 | Start of class Nov 2020 |

Table of Specification (TOS)

Special Pathology

|  |  |  |
| --- | --- | --- |
| **Area** | **No. of MCQs**  **(01 Marks each)** | **No. of SEQs**  **(10Mks each)** |
| Heart | 04 | 01 |
| Blood Vessel | 03 | 01 |
| Respiratory System | 05 | 01 |
| GIT | 05 | 01 |
| Biliary Tract (Liver, Gall Bladder & Pancreas) | 05 | 01 |
| Kidney & Lower Urinary Tract | 05 | 01 |
| Male Genital System | 02 |  |
| Female Genital System | 04 | 01 |
| Breast | 01 |
| Endocrinology | 04 | 02 |
| Musculoskeletel | 02 | 01 |
| Nervous System & Skin | 02 |
| **Haematology** |  |  |
| Anemias | 04 | 02 |
| Leukemias | 03 |
| Bleeding Disorders and blood transfusion | 01 |
| **Total** | **50** | **12** |

**Sources of study/ learning:**

1) Text Books

2) Homework assignments

3) Previous tests

4) Notes (prepared by students during lectures)

5) Self directed learning through Internet and library

6) Hospital/ward visits

**Contact hours:**

MBBS 4th year w.e.f 21-10-2019

Pathology 200 hours

Lectures: 1 hour of each= 5/week

Practicals: 2 hours of each= 1/week

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**KMU INSTITUTE OF MEDICAL SCIENCES KOHAT**

W&C/LM Teaching Hospital Kohat Ph# + 92-922-9260325, Fax # +92-922-9260365

**LECTURE SCHEDULE FOR FINAL YEAR MBBS**

**KIMS KOHAT 2019-20**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WEEK** | **TEACHER** | **TUESDAY /DATE** | **TEACHER** | **WEDNESDAY /DATE** |
| IST | DR FOZIA GUL  5/11/19  PHYSIOLOGICAL CHANGES OF PREGNANCY | | DR NOOR NASIR  PRENATAL DIAGNOSIS OF FETAL ABNORMALITIES  6/11/19 | |
| 2ND | DR FOZIA GUL  12/11/19  Maternal & Perinatal Mortality | | DR MUSARRAT JABEEN  CONCEPTION, FERTILIZATION, PLACENTATION  13/11/19 | |
| 3RD | DR MUSARRAT JABEEN  Fetal Circulation& Placental Abnormality  19/11/19 | | DR NOOR NASIR  Prenatal Assessment Of Fetal Wellbeing 20/11//19 | |
| 4TH | DR FOZIA GUL  ANEMIA IN PREGNANCY  26/11/19 | | DR NOOR NASIR  HEART DISEASE  27/11/19 | |
| 5TH | DR FOZIA GUL  3/12/19  HEMOGLOBINOPATHIES | | DR MUSARRAT JABEEN  HDP (PIH,PE,CH- HYPERTENSION  4/12/19 | |
| 6TH | DR MUSARRAT JABEEN  HDP (PIH,PE,CH- HYPERTENSION  10/12/20 | | DR NOOR NASIR  SLE & APLS  11/12/19 | |
| 7TH | DR FOZIA GUL  JAUNDICE ( AFLP, INTRAHEPATIC CHOLESTASIS+ VIRAL HEPATITIS  17/12/19 | | DR NOOR NASIR  CESAREAN SECTION  18/12/19 | |
| 8TH |  | | DR MUSARRAT JABEEN  ECLAMPSIA & HELLP SYNDROME  1/1/20 | |
| 9TH | DR FOZIA GUL  DVT & PULMONARY EMBOLISM  7/1/2020 | | DR NOOR NASIR  **ASSESSMENT**  8/1/20 | |
| 10TH | DR MUSARRAT JABEEN  **ASSESSMENT**  14/1/20 | | DR NOOR NASIR  ASTHAMA IN PREGNANCY  15/1/20 | |
| 11TH | DR FOZIA GUL  **ASSESSMENT**  21/1/20 | | DR MUSARRAT JABEEN  DIABETES AND PREGNANCY  22/1/20 | |
| 12TH | DR FOZIA GUL  CEPHALO -PELVIC DISPROPORTION  28/1/20 | | DR NOOR NASIR  AMNIOTIC FLUID& ITS ABNORMALITY  29/1/20 | |
| 13TH | DR MUSARRAT JABEEN  SYPHILIS, MALARIA & TB  4/2/20 | | KASHMIR DAY  5/2/20 | |
| 14TH | DR FOZIA GUL  INFECTIONS IN PREG( CMV, RUBELLA ,TOXOPLASMOSIS, CHICKEN POX  11/2/20 | | DR MUSARRAT JABEEN  PHYSIOLOGY OF LABOURFIRST STAGE OF LABOUR & PARTOGRAPH  12/2/20 | |
| 15TH | DR FOZIA GUL  **ASSESSMENT**  18/2/20 | | DR NOOR NASIR  ANATOMY OF BIRTH CANAL & FETUS  19/2/20 | |
| 16TH | DR MUSARRAT JABEEN  ABNORMAL FIRST STAGE OF LABOUR  25/2/20 | | DR NOOR NASIR  ANALGESIA AND ANESTHESIA IN LABOUR  26/2/20 | |
| 17TH | DR FOZIA GUL  MULTIPLE PREGNANCY  10/3/20 | | DR MUSARRAT JABEEN  SECOND STAGE OF LABOUR  11/3/20 | |
| 18TH | DR FOZIA GUL  ENDOMETRIAL HYPERPLASIA  17/3/20 | | DR NOOR NASIR  NORMAL PUERPERIUM &  p18/3/20 | |
| 19TH | DR MUSARRAT JABEEN  THIRD STAGE OF LABOUR  24/3/20 | | DR NOOR NASIR  FETAL DISTRESS  25/3/20 | |
| 20TH | DR FOZIA GUL  CARCINOMA ENDOMETRIUM  31/3/20 | |  | |
| 21ST | DR FOZIA GUL  ECTOPIC PREGNANCY  14/4/20 | | DR NOOR NASIR  **ASSESSMENT**  15/4/20 | |
| 22ND | DR MUSARRAT JABEEN  21/4/20  HIRSUITSM&VIRILISATION | | DR NOOR NASIR  22/4/20  INFERTILITY (male) | |
| 23RD | DR FOZIA GUL  PPH  28/4/20 | | DR MUSARRAT JABEEN  URODYNAMICS  29/4/20 | |
| 24TH | DR FOZIA GUL  **ASSESSMENT**  5/5/20 | | DR NOOR NASIR  INFERTILITY (female)  6/5/20 | |
| 25TH | DR MUSARRAT JABEEN  CERVICAL CRACINOMA  12/5/20 | | DR NOOR NASIR  BENIGN OVARIAN TUMORS  13/5/20 | |
| 26TH | DR FOZIA GUL  GTD  19/5/20 | | DR MUSARRAT JABEEN  U-VAGINAL PROLAPSE  20/5/20 | |
| 27TH | DR FOZIA GUL  2/6/20  DUB/ORGANIC CAUSES OF MENORRHAGIA | | DR NOOR NASIR  **ASSESSMENT**  3/6/20 | |
| 28TH | DR MUSARRAT JABEEN  **ASSESSMENT**  **9/6/20** | | DR NOOR NASIR  10/6/20  MALIGNANT OVARIAN TUMORS | |
| 29TH | DR. FOZIA GUL  CONTRACEPTION 01  16/6/2020 | | DR. MUSARRAT JABEEN  **ASSESSMENT**  17/6/2020 | |
| 30TH | DR. FOZIA GUL  CONTRACEPTION 02  23/6/2020 | | DR. NOOR NASIR  PUERPERAL COMPLICATION  24/6/2020 | |
| 31TH | DR. MUSARRAT JABEEN  PERINEAL INJURIES + EPISIOTOMY  1/9/2019 | | DR NOOR NASIR  UTI & HIV IN PREGNANCY  2/09/2020 | |
| 32TH | DR. FOZIA GUL  BRIEFING OF MCQs  8/09/2020 | | DR. MUSARRAT JABEEN  BRIEFING OF SAQs  9/09/2020 | |

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**CLINICAL TOPICS DISTRIBUTION FOR CLINICAL CLASSES OF FINAL YEAR MBSS GROUP C3 AND C4 FROM 30.11.2019 TO 03.1.2020.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DATE | DAYS | MORNING 9:20 AM TO 11:00AM | | | 11:20AM TO 12:45PM | | | EVENING 6:30 PM TO | | |
|  | TOPICS |  |  | TOPICS |  | 7:30PM | TOPICS |  |
| 30-11-2019 | SAT | ANTENATAL CARE  **Dr. MUSARRAT JABEEN** | | | DIAGNOSIS OF PREGNANCY  **Dr. MUSARRAT JABEEN** | | | CASE PRESENTATION HISTORY  **Dr. MUSARRAT JABEEN** | | |
| 01-12-2019 | SUN | **SUNDAY** | | | | | | | | |
| 02-12/2019 | MON | APH  **Dr. MUSARRAT JABEEN** | | | PPH  **Dr. MUSARRAT JABEEN** | | | HISTORY  **Dr. MUSARRAT JABEEN** | | |
| 03-12-2019 | TUE | RETAINED PLACENTA  **Dr. FOZIA GUL** | | | SHOULDER DYSTOCIA  **Dr. FOZIA GUL** | | | VIDEOS ON SHOULDER DYSTOCIA  **Dr. FOZIA GUL** | | |
| 04-12-2019 | WED | VACUUM DELIVERY/ FORCEPS | | | CORD  PROLAPSED,COMPOUND PRESENTATION | | | CASE PRESENTATION | | |

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|  |  | **Dr. MUSARRAT JABEEN** | **Dr. MUSARRAT JABEEN** | **Dr. MUSARRAT JABEEN** |
| 05-12-2019 | THU | MULTIPAL PREGNANCY  **Dr FOZIA GUL** | .DEEP TRANSVERS ARREST,BROW&FACE PRESENTATION  **Dr FOZIA GUL** | POST-OPERATIVE COMPLICATION  **Dr FOZIA GUL** |
| 06-12-2019 | FRI | GYNECOLOGICAL HISTORY TAKING  **Dr FOZIA GUL** | CASE PRESENTATION  **Dr FOZIA GUL** | EPILEPSY IN PREGNANCY  **Dr FOZIA GUL** |
| 07-12-2019 | SAT | SECONDARY AMENOORHEA PCOS  **Dr. MUSARRAT JABEEN** | STI  **Dr. MUSARRAT JABEEN** | INTERSEXUALITY  **Dr. MUSARRAT JABEEN** |

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| 08-12-2019 | SUN | SUNDAY | | |
| 09-12-2019 | MON | HYPEREMESIS GRAVIDARUM  **Dr. MUSARRAT JABEEN** | TRANSVERSE, OBLIQUE&UNSTABLE LIE  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION  **Dr. MUSARRAT JABEEN** |
| 10-12-2019 | TUE | CA CX SCREENING  **Dr FOZIA GUL** | PREOPERATIVE ASSESSMENT & INTRA OPERATIVE COMLICATION  **Dr FOZIA GUL** | INTRAUTERINE FETAL DEATH  **Dr FOZIA GUL** |
| 11-12-2019 | WED | VULVAL CARCINOMA  **Dr. MUSARRAT JABEEN** | CONTRACEPTION  **Dr. MUSARRAT JABEEN** | MINOR GYNECOLOGICAL PROCEDURES  **Dr. MUSARRAT JABEEN** |
| 12-12-2019 | THU | VAGINAL& URETHERAL DISEASES  **Dr FOZIA GUL** | DYSPAREUNIA&BACKACHE  **Dr FOZIA GUL** | PMS  **Dr FOZIA GUL** |
| 13-12-2019 | FRI | PRIMARY & SECONDARY DYSMENORRHEA  **Dr FOZIA GUL** | CASE PRESENTATION  **Dr FOZIA GUL** | PUBERTY NORMAL & ABNORMAL  **Dr FOZIA GUL** |

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| 14-12-2019 | SAT | EPISIOTOMY+PERINEAL INJURIES  **Dr. MUSARRAT JABEEN** | PROLONGED PREGNANCY  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION  **Dr. MUSARRAT JABEEN** |
| 15-12-2019 | SUN | SUNDAY | | |
| 16-12-2019 | MON | SUDDEN POSTPARTUM COLLAPSE  **Dr. MUSARRAT JABEEN** | PRIMARY AMENORRHEA  **Dr. MUSARRAT JABEEN** | MENSTRUATION & OVULATION  **Dr. MUSARRAT JABEEN** |
| 17-12-2019 | TUE | HTN  **Dr FOZIA GUL** | IUGR  **Dr FOZIA GUL** | CASE PRESENTATION  **Dr FOZIA GUL** |
| 18-12-2019 | WED | ENDOMETRIOSIS/ ADEOMYOSIS  **Dr. MUSARRAT JABEEN** | FISTULAE( RVF/VVF & VULVAL DYSTROPHIES  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION  **Dr. MUSARRAT JABEEN** |
| 19-12-2019 | THU | PRETERM LABOUR  **Dr FOZIA GUL** | THYROID DISORDERS  **Dr FOZIA GUL** | FETAL SKULL ANATOMY,MATERNAL BONY PELVIS ANATOMY  **Dr FOZIA GUL** |

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| 20-12-2019 | FRI | ANATOMY&EMBRYOLOGY OF FEMALE GENITAL ORGAN  **Dr FOZIA GUL** | CASE PRESENTATION  **Dr FOZIA GUL** | MENOPAUSE & HRT  **Dr FOZIA GUL** |
| 21-12-2019 | SAT | AUTE UTERINE INVERSION  **Dr. MUSARRAT JABEEN** | ,RUPTURED UTERUS  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION RH-INCOMPATIBILITY  **Dr. MUSARRAT JABEEN** |
|  | SUN | **SUNDAY** | | |
| 22-12-2019 | MON | MENSTRUATION&OVULATION  **Dr. MUSARRAT JABEEN** | MISCARRIAGES  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION  **Dr. MUSARRAT JABEEN** |
| 23-12-2019 | TUE | & BREECH PRESENTATION&MX  **Dr FOZIA GUL** | /AUGMENTAT ION OF LABOUR  **Dr FOZIA GUL** | PRENATAL ASSESSMENT OF FETAL WELLBEING  **Dr FOZIA GUL** |
| 1-1-2020 | MON | HOSPITAL ROUND OT  **DR MUSARRAT JABEEN** | HOSPITAL ROUND OPD  **DR MUSARRAT JABEEN** | CASE PRESENTAION  **DR MUSARRAT JABEEN** |
| 2-1-2020 | TUE | ASSESSMENT | **Dr FOZIA GUL** |  |
| 03-1-2020 | WED | ASSESSMENT | **Dr. MUSARRAT JABEEN** |  |

**MBBS 3rd Year Academic Schedule in Medicine & Allied Department for Clinical rotation**

**KMU- Institute of Medical sciences, Kohat**

Total Duration: 8 weeks

Contact session: 3 hours for 4 days a week, (9 am to 1 pm)

Total contact session: 96 hours, 12 hours per week

Medical A ward -3 weeks :

*Neurology*

*GIT & hepatobiliary system*

*Diabetes*

*Musculoskeletal diseases*

Medical B ward - 3 weeks:

*Pulmonology*

*Endocrinology*

*Hematology*

*Nephrology*

*Acute Medicine*

Cardiology ward -1 week,

Out Patient Department/Casualty department - 1 week

Dermatology – 1 week

Psychiatry – 1 week

***Medical B Ward***

***Week 1,***

|  |  |  |
| --- | --- | --- |
| **Days** | **9:00 am – 10:00 am**  **Self learning & SGF discussion** | **10:00 am – 1 pm**  **History taking & clinical examimation** |
| 1 | Assistant Prof. Dr. Haroon Taj  Supervised History taking by students | Prof. Dr. Fahim Shah  Case History Discussion |
| 2 | Senior Reg. Dr. Atif Touseef  Supervised History taking by students  OPD | Dr. Atif Tauseef  Case History Discussion |
| 3 | Senior Reg. Dr. Atif Touseef  Supervised History taking by students | Prof. Fahim Shah  Case History Discussion |
| 4 | Assistant Prof. Dr. Hamid  Supervised History taking by students | Prof. Dr. Fahim Shah  Case History Discussion |

**Medical B Ward**

**Week 2**

|  |  |  |
| --- | --- | --- |
| **Days** | **9:00 am – 10:00 am**  **Self learning & SGF discussion** | **10:00 am – 1 pm**  **History taking & clinical examimation** |
| 1 | Senior Reg. Dr. Sohail Adnan  Headache | Senior Reg. Dr. Sohail Adnan  History taking in Nervous system disease |
| 2 | Senior Reg. Dr. Sohail Adnan  History taking  OPD | Prof. Dr. Sohail Adnan  GPE |
| 3 | Assistant Prof. Dr. Fahad N**aim**  **History Taking and GPE** | Assistant Prof. Dr. Fahad Naim  Case History Discussion |
| 4 | Assistant Prof. Dr. Hamid  Nail changes in systemic diseases | Assistant Professor Dr.Atif Tauseef  GPE |

**Medical B ward**

**Week 3**

|  |  |  |
| --- | --- | --- |
| **Days** | **9:00 am – 10:00 am**  **Self learning & SGF discussion** | **10:00 am – 1 pm**  **History taking & clinical examimation** |
| 1 | Assistant Prof. Dr. Haroon Taj  Hands—Various findings in systemic diseases | Assist. Prof. Dr. Fahad Naim  History taking and GPE |
| 2 | Senior Reg. Dr. Atif Touseef  OPD | Senior Reg. Dr. Atif Touseef  History discussion |
| 3 | Assistant Prof. Dr. Fahad Naim  History taking | Assistant Prof. Dr. Fahad Naim  Clubbing and its causes |
| 4 | Prof. Dr. Fahim Shah  Approach to patient with Diabetes Mellitus | Prof. Dr. Fahim Shah  History taking in diabetic patient |

**Medical B Ward**

**Week 4**

|  |  |  |
| --- | --- | --- |
| **Days** | **9:00 am – 10:00 am**  **Self learning & SGF discussion** | **10:00 am – 1 pm**  **History taking & clinical examimation** |
| 1 | Assistant Prof. Dr. Haroon Taj  Shortness of breath | Prof. Dr. Fahim Shah  History taking & GPE |
| 2 | Assistant Prof. Dr. Fahad Naim  OPD | Assistant Prof. Dr. Fahad Naim  Case History Discussion |

**Medical A Ward**

**Week 4 (continued)**

**Respiratory System**

|  |  |  |
| --- | --- | --- |
| **Days** | **9:00 am – 10:00 am**  **Self learning & SGF discussion** | **10:00 am – 1 pm**  **History taking & clinical examination** |
| 1 | Assistant Prof. Arif Mumtaz  Supervised History taking | Prof. Asghar Kamal  History taking in respiratory diseases |
| 2 | Senior Reg. Dr. Sirajuddin  OPD | Assist Prof. Dr. Arif Mumtaz  General physical examination in respiratory diseases  OPD |

**Medical A Ward**

**Week 5**

|  |  |  |
| --- | --- | --- |
| **Days** | **9:00 am – 10:00 am**  **Self learning & SGF discussion** | **10:00 am – 1 pm**  **History taking & clinical examimation** |
| 1 | Assistant Prof. Arif Mumtaz  Pulse examination and various types | Prof. Asghar Kamal  History taking and GPE |
| 2 | Senior Reg. Dr. Sirajuddin  History taking | Senior Reg. Dr. Sirajuddin  General physical examination |
| 3 | Assistant Prof. Dr. Arif Mumtaz  JVP Examination | Assist Prof. Dr. Arif Mumtaz  GPE |
| 4 | Senior Reg. Dr. Siraj u din  OPD | Prof. Asghar Kamal  Approach to patient with cough |

**Medical A Ward**

**Week 6**

|  |  |  |
| --- | --- | --- |
| **Days** | **9:00 am – 10:00 am**  **Self learning & SGF discussion** | **10:00 am – 1 pm**  **History taking & clinical examimation** |
| 1 | Assistant Prof. Arif Mumtaz  Edema feet | Prof. Asghar Kamal  History taking |
| 2 | Senior Reg. Dr. Sirajuddin  Easy bruising/bleeding disorder | Assist Prof. Dr. Arif Mumtaz  GPE |
| 3 | Assistant Prof. Dr. Arif Mumtaz  Lumps in neck | Prof. Asghar Kamal  Case History Discussion |
| 4 | Assistant Prof. Dr.Arif Mumtaz  OPD | Assistant Prof. Dr Arif Mumtaz  Case History discussion/GPE |

**Medical A**

**Week 7**

|  |  |  |
| --- | --- | --- |
| **Days** | **9:00 am – 10:00 am**  **Self learning & SGF discussion** | **10:00 am – 1 pm**  **History taking & clinical examimation** |
| 1 | Assistant Prof. Dr Arif Mumtaz  Anemia and causes | Assistant Prof. Dr Arif Mumtaz  GPE & History taking |
| 2 | Assistant Prof. Dr. Arif Mumtaz  History presentation by students | Prof. Dr.Asghar Kamal  LYMPHADENOPATHY |
| 3 | Assistant Prof. Dr Arif Mumtaz  History presentation by students | Assistant Prof. Dr Arif Mumtaz  BP MEASUREMENT AND INTERPRETATION |
| 4 | SR Dr. Siraj U Din  OPD | SR Dr. Siraj U Din  OPD/CASE HISTORY DISCUSSION |

WEEK 8

CARDIOLOGY

|  |  |  |
| --- | --- | --- |
| **Days** | **9:00 am – 10:00 am**  **Self learning & SGF discussion** | **10:00 am – 1 pm**  **History taking & clinical examimation** |
| 1 | AP Dr.Asif Ullah  Hisrory taking | Dr. Noman Khan  Chest pain |
| 2 | AP Dr.Asif Ullah  Introduction to ECG and leads | AP Dr.Asif Ullah  History & GPE |
| 3 | Dr. Noman Khan  History taking | Dr. Noman Khan  GPE |
| 4 | Dr. Noman Khan  History taking | AP Dr.Asif Ullah  ECG machine demonstration |

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| S.NO | Date | Portion |  | Teacher |
| 1 | 22.10.2.19 | Infectious Diseases |  | Dr Hamid |
| 2 | 25.10.2019 | Nephrology |  | Dr Arif |
| 3 | 29.10.2019 | Infectious Diseases |  | Dr Hamid |
| 4 | 01.11.2019 | Nephrology |  | Dr Arif |
| 5. | 05.11.2019 | Infectious Diseases |  | Dr Hamid |
| 6. | 08.11.2019 | Nephrology |  | Dr Arif |
| 7. | 12.11.2019 | Infectious Diseases |  | Dr Hamid |
| 8. | 15.11.2019 | Nephrology |  | Dr Arif |
| 9. | 19.11.2019 | Infectious Diseases |  | Dr Hamid |
| 10. | 22.11.2019 | Nephrology |  | Dr Arif |
| 11. | 26.11.2019 | Infectious Diseases |  | Dr Hamid |
| 12. | 29.11.2019 | Nephrology |  | Dr Arif |
| 13. | 03.12.2019 | Infectious Diseases |  | Dr Hamid |
| 14. | 06.12.2019 | Nephrology |  | Dr Arif |
| 15. | 10.12.2019 | Infectious Diseases |  | Dr Hamid |
| 16. | 13.12.2019 | Nephrology |  | Dr Arif |
| 17. | 17.12.2019 | Infectious Diseases |  | Dr Asif |
| 18. | 20.12.2019 | Nephrology |  | Dr Arif |
|  | **WINTER VACATION 23.12.2019 to 31st December 2019** | | | |
| 19. | 03.1.2020 | Infectious Diseases |  | Dr Haroon taj |
| 20. | 14.1.2020 | Nephrology |  | Dr Arif |
| 21. | 17.1.2020 | Infectious Diseases |  | Dr Asif |
| 22. | 21.1.2020 | Nephrology |  | Dr Hamid |
| 23. | 24.1.2020 | Infectious Diseases |  | Dr Arif |
| 24. | 28.1.2020 | Nephrology |  | Dr Hamid |
| 25. | 31.01.2020 | Infectious Diseases |  | Dr Arif |
| 26. | 04.02.2020 | Nephrology |  | Dr Arif |
| 27. | 07.02.2020 | Hematology |  | Dr Siraj uddin |
| 28. | 11.02.2020 | Hepatitis/HIV |  | Dr Fahad |
| 29. | 14.02.2020 | Hematology |  | Dr Siraj uddin |
| 30. | 18.02.2020 | Hepatitis/HIV |  | Dr Fahad |
| 31. | 21.02.2020 | Hematology |  | Dr Siraj uddin |
| 32. | 25.02.2020 | Hepatitis/HIV |  | Dr Fahad |
| 33. | 28.02.2020 | Hematology |  | Dr Siraj uddin |
| 34. | SPORTS WEEK 1st to 8th March | | | |
| 35. |
| 36. |
| 37. |
| 38 | 10.03.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 39. | 13.03.2020 | Hematology |  | Dr Fahad |
| 40. | 17.03.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 41. | 20.03.2020 | Hematology |  | Dr Fahad |
| 42. | 24.03.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 43. | 27.03.2020 | Hepatitis/HIV |  | Dr Fahad |
| 44. | 31.03.2020 | Hematology |  | Dr Siraj uddin |
| 45. | SPRING VACATION 1st to 10th April | | | |
| 46. |
| 47. |
| 48. | 14.04.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 49. | 17.04.2020 | Hematology |  | Dr Fahad |
| 50. | 21.04.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 51. | 24.04.2020 | Hematology |  | Dr Fahad |
| 52. | 28.04.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 53. | 02.05.2020 | Hepatitis/HIV |  | Dr Fahad |
| 54. | 05.05.2020 | Hematology |  | Dr Siraj uddin |
| 55. | 9.05.2020 | Hepatitis/HIV |  | Dr Fahad |
| 56. | 12.05.2020 | Hematology |  | Dr Siraj uddin |
| 57. | 16.05.2020 | Hepatitis/HIV |  | Dr Fahad |
| 58. | 19.05.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 59. | Eid Break | | | |
| 60. |
| 61. | 30.5.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 62. | 02.06.2020 | Hematology |  | Dr Fahad |
| 63. | 05.06.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 64. | 09.06.2020 | Hematology |  | Dr Fahad |
| 65. | 12.06.2020 | Hepatitis/HIV |  | Dr Siraj uddin |
| 66. | 16.06.2020 | Hepatitis/HIV |  | Dr Fahad |
| 67. | 19.06.2020 | Hematology |  | Dr Siraj uddin |
| 68. | 23.06.2020 | Hepatitis/HIV |  | Dr Fahad |

===========================END SESSION 30/06/2020====================================

**Session 4th November 2019 to 13th September 2020**

***10 Nov Eid Milad un Nabi,***

***23-31 Dec Winter Vacation, 5th Feb Kashmir Day,***

***1st March - 8th March Sports Week plus Extracurricular activities,***

***23rd March Pakistan day,***

***1st April – 10th April Spring Vacations 1st May Labour Day,***

***23 - 28 May Eid ul Fitr Break***

***1st July to 31st August Summer Vacation***

# Academic Calendar Final Year MBBS Session 2019-20

**Week 1: 4th Nov - 10th Nov**

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery & Allied* | *Clinical clerkship* | *Dr. Atif Touseef*  *Cardinal symptoms & signs of Heart disease* | *case preparation* | ***Case presentation*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery & Allied* | *case preparation* | ***Case presentation*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Haroon Taj*  *Introduction to respiratory disease* | *case preparation* | ***Case presentation*** |
| **Thursday** | *Dr. Asifullah*  *Investigating a patient with heart disease* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case presentation*** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Approach to pleural disease & Pleural effusion*  ***(9 am-10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case presentation*** |
| **Saturday** | *Surgery & Allied* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case presentation*** |

Week 2: 11th Nov – 17th Nov

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Atif Touseef*  *Who can have heart disease & how* | *case preparation* | ***Case presentation*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case presentation*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Haroon Taj*  *Approach to respiratory failure* | *case preparation* | ***Case presentation*** |
| **Thursday** | *Dr. Asifullah*  *Fever with Joint pain & Dyspnea* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case presentation*** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Asthma*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer**  **(1pm-2pm****)** | *case preparation* | ***Case presentation*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case presentation*** |

Week 3: 18th Nov – 24th Nov

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Atif Touseef*  *Fever & Heart Murmur* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Haroon Taj*  *Chronic obstructive lung disease* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. Asifullah*  *Cyanosis with recurrent chest infection* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Broncheictasis & Cystic fibrosis*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 4: 25th Nov – 1st Dec

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Atif Touseef*  *Approach to chest pain & Angina* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Haroon Taj*  *Venous Thromboembolism* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. Asifullah*  *Murmur since childhood & Fatigue* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Pneumonia*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 5: 2nd Dec – 8th Dec

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Atif Touseef*  *SOB with Exertion & Heart Failure* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Haroon Taj*  *Tuberculosis* | *case preparation* | ***Case discussion*** |
| **Thursday** | ***Dr. Asifullah***  ***Flu with SOB & Cardiomyopathies*** | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Bronchogenic carcinoma*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm*)*** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 6: 9th Dec -15th Dec

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Atif Touseef*  *Approach to Hypertension* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Haroon Taj*  *Pneumothorax* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Asghar kamal*  *Interstitial lung disease* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***CVS & Respiratory***  ***Internal Assesment (9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 7: 16th Dec – 22nd Dec

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sirajuddin*  *Approach to Dysphagia,GERD & Achalasia* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Hamid*  *Peptic ulcer disease* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Fahim Shah*  *Approach to Ascites* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *Prof. Fahim Shah*  *Approach to Jaundice* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 8: 23rd Dec – 29th Dec

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | ***Winter Vacations*** | | | | |
| **Tuesday** |
| **Wednesday** |
| **Thursday** |
| **Friday** |
| **Saturday** |

Week 9: 30th Dec – 5th Jan

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | ***Winter vacations*** | | | | |
| **Tuesday** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Hamid*  *Malabsorption Syndrome & Celiac disease* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Fahim Shah*  *Acute Hepatitis and Liver failure* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *Prof. Fahim Shah*  *Chronic Hepatitis* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 10: 6th Jan – 12th Jan

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sirajuddin*  *IBD & Crohns Disease* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Hamid*  *Ulcerative colitis* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Fahim Shah*  *CLD & Cirrhosis* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *Prof. Fahim Shah*  *Autoimmune liver disease* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 11: 13th Jan – 19th Jan

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sirajuddin*  *Acute & Chronic Pancreatitis* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Hamid*  *Upper & Lower GI Bleeding* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. fahim Shah*  *Wilson Disease & Hemochromatosis* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *GIT & Hepatology*  *Internal Assesment* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm Fri pray(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 12: 20th Jan – 26th Jan

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sohail Adnan*  *Recap Neurophysiology, neuroanatomy & Localization of lesion* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Noor Faraz*  *Overview of unipolar depression* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Medicine*  *Prof. Shujaat Ali*  *Bipolar affective disorder* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *Prof. Akhtar Sherin*  *Approach to seizure disorder & Epilepsy* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 13: 27th Jan – 2nd Feb

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sohail Adnan*  *CVA, Ischemic & Hemorrhagic* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Noor Faraz*  *Gen. Anxiety Disorder* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Shujat Ali*  *Obsessive Compulsive disorder* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *Prof. Akhtar Sherin*  *Dementia & Alzheimer Disease* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 14: 3rd Feb – 9th Feb

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sohail Adnan*  *Parkinson disease & Hypokinetic disorder* | *case preparation* | ***Case discussion*** |
| **Tuesday** | ***Gynae/Obs*** | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | ***Kashmir Day*** | | | | |
| **Thursday** | *Prof. shujat Ali*  *Schizophrenia* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *Prof. Akhtar Sherin*  *Chorea & Hyperkinetic movement disorder* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 15: 10th Feb – 16th Feb

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sohail Adnan*  *Motor Neuron Disease* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Noor Faraz*  *Phobic Anxiety Disorder* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Shujaat Ali*  *Drug addiction* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *Prof. Akhtar Sherin*  *Multiple Sclerosis* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 16: 17th Feb – 23rd Feb

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sohail Adnan*  *Meningitis & Encephalitis* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Noor Faraz*  *Alcoholism* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Shujaat Ali*  *Review of Antidepressant Drugs* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *Prof. Akhtar Sherin*  *Cranial Nerve disorder* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm***)* | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 17: 24th Feb – 1st March

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sohail Adnan*  *Spinal cord disorder & Compression* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Noor Faraz*  *Psychosexual disorder in male & female* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Shujaat Ali*  *Review of antipsychotic drugs* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***Prof Akhtar Sherin***  ***Peripheral nerve disorders & GBS***  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 18: 2nd March – 8th March

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | ***Extracurricular Activities & Sports*** | | | | |
| **Tuesday** |
| **Wednesday** |
| **Thursday** |
| **Friday** |
| **Saturday** |

Week 19: 9th March – 15th March

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sohail Adnan*  *Myasthenia Gravis & NMJ Disorder* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Sohail Adnan*  *Myopathies* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Akhtar Sherin*  *Gait abnormalities* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Neuropsychiatry*  *Internal Assesment*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm***)* | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 20: 16th – 22nd March

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Arif Mumtaz*  *Endocrine system overview & Hypopitutarism* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Fahad Naim*  *Acromegaly, Prolactinoma & Diabetes Insipidus* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Akhtar Sherin*  *Diabetes Mellitus pathophysiology, Clinical presentation & Diagnosis* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Fahim Shah*  *Overview of Management of Diabetes*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 21: 23rd March – 29th March

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Arif Mumtaz*  *Hyperthyroidism & Graves Disease* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr, fahad ANim*  *Hypothyroidism* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. Arif Mumtaz*  *Cushing syndrome & Hyperaldosteronism* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Akhtar Sherin*  *Overview of diabetes Complication & DKA*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 22: 30th March – 5th April

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Arif Mumtaz*  *Adrenocortical insufficiency and Pheochromocytoma* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Fahad Naim*  *Parathyroid disease* | *case preparation* | ***Case discussion*** |
| **Thursday** | ***Spring Vacations*** | | | | |
| **Friday** |
| **Saturday** |

Week 23: 6th April – 12th April

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 6: 45 pm**  **Senior Reg.** | **6:45pm-7:30 pm**  **Self-Directed**  **learning** |
| **Monday** | ***Spring Vacations*** | | | | |
| **Tuesday** |
| **Wednesday** |
| **Thursday** |
| **Friday** |
| **Saturday** |

Week 24:13th April – 19th April

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Arif Mumtaz*  *Reproductive Endocrinology Overview* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Uzair*  *Psoriasis* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Endocrine & Diabetes Internal Assesment* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | ***(9 am – 10 am)***  *Dr. Fahad Naim*  *Approach to patient with Rheumatological disorder* | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 25: 20th April – 26th April

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Arif Mumtaz*  *Joint Pain Evaluation & Rheumatoid Arthritis* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Assistant Prof.*  *Eczema Exogenous* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. Uzair*  *Eczema*  *Endogenous* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Joint Pain with skin Rash & SLE* ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 26: 27th April – 3rd May

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. uzair*  *Scabies* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Cutaneous Bacterial Infection* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Approach to Back pain & spondyloarthritis* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | ***Labour day*** | | | | |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 27: 4th May – 10th May

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Uzair*  *Viral skin infections* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Arif Mumtaz*  *Approach to raynauds Phenomenon,MCTD & Systemic Sclerosis* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. Uzair*  *Fungal skin infections* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Inflammatory Muscle disease*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 28: 11th May- 17th May

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. uzair*  *Lichen Planus* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Uzair*  *Cutaneous Leishmaniasis* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. Fahad Naim*  *Approach to Vasculitis & ANCA Associated SVV* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Sarcoidosis & Sjogren syndrome* ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 29: 18th May – 24th May

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Uzair*  *Cutaneous Tuberculosis* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Fahad Naim*  *Large & Medium vessel Vasculitis & GCA* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. uzair*  *STD’s Overview* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Crystal Arthropathies & GOUT*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *Case Preparation* | ***Case discussion*** |
| **Saturday** | ***Eid Ul Fitr Break*** | | | | |  | **Friday** |
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Week 30: 25th May – 31st May

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | ***Eid Ul Fitr Break*** | | | | | |
| **Tuesday** |
| **Wednesday** |
| **Thursday** |
| **Friday** | *Surgery & Allied* | *Prof. Asghar Kamal*  *Approach to Joint Infections & Septic arthritis*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | ***Paeds*** | | *Case preparation* | ***Case discussion*** |

Week 31: 1st June – 7th June

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *D. Uzair*  *Autoimmune skin diseases* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Arif Mumtaz*  *Metabolic bone disease & Pagets disease* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dermatology,*  *Rheumatology*  *Internal Assesment* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Dr. Asifullah*  *Approach to patient with Shock*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 32: 8th June – 14th June

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sirajuddin*  *Approach to patient with acute poisoning* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Hamid*  *Organophosphate & Paracetamol overdose* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Akhtar Sherin*  *Hypercalcemia & Hypocalcemia* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Dr. Fahad Naim*  *Acid base imbalance overview*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 33: 15th June – 21st June

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Atif Tauseef*  *Opioid overdose & Benzodiapine overdose* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Hamid*  *Snake Bite* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Prof. Akhtar Sherin*  *Hypothermia & Heat Stroke* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Acute Medicine*  *Internal Assesment*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri prayer(1pm-2pm)** | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 34: 22nd – 28th June

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sirajuddin*  *Review Lecture* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Hamid*  *Review Lecture* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. sohail Adnan*  *Review Lecture* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Prof. Fahim Shah*  *Review Lecture*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri pray**  **(1pm-2pm** *)* | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 35: 31st Aug – 6th Sep

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Sirajuddin*  *Anemia Overview* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Hamid*  *Emerging Infectious diseases* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. Fahad Naim*  *Insulin Therapy* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Dr. Sohail Adnan*  *Neurological Emergencies*  ***(9 am – 10 am)*** | *Clinical clerkship*  ***(10pm-1 Pm)***  **Fri pray**  **(1pm-2pm** *)* | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

Week 36: 7th Sep – 13th September

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| **Days** | **8 am-9 am**  **Lecture** | **9 am – 1pm**  **Hospital work** | **1 pm – 2 pm**  **Lecture** | **6 pm – 7 pm**  **Work place teaching** | **7 pm-8 pm**  **Work place teaching** |
| **Monday** | *Surgery* | *Clinical clerkship* | *Dr. Asifullah*  *BLS* | *case preparation* | ***Case discussion*** |
| **Tuesday** | *Gynae/Obs* | *Clinical clerkship* | *Surgery* | *case preparation* | ***Case discussion*** |
| **Wednesday** | *Gynae/Obs* | *Clinical clerkship* | *Dr. Asifullah*  *BLS* | *case preparation* | ***Case discussion*** |
| **Thursday** | *Dr. Arif Mumtaz*  *Approach to Acute Kidney Injury* | *Clinical clerkship* | *Paeds* | *case preparation* | ***Case discussion*** |
| **Friday** | *Surgery & Allied* | *Dr. Asifullah*  *BLS &*  *ACLS Workshop*  ***(9 am – 10 am)*** | *BLS &*  *ACLS Workshop*  ***(10pm-1 Pm)***  **Fri pray**  **(1pm-2pm** *)* | *case preparation* | ***Case discussion*** |
| **Saturday** | *Surgery* | *Clinical clerkship* | *Paeds* | *Case preparation* | ***Case discussion*** |

# 

# Course Title: Professionalism & Behavioral Sciences

## 

# Abstract

The PRIME (professionalism, patient safety & communication skills, research, identity, management & leadership, ethics) is an innovative curricular theme developed by the Institute of Health Professions Education & Research of the Khyber Medical University to develop future doctors who can serve the society with utmost care and empathy.

## Exit outcome

By the end of program, graduates will be able to display and support attributes of professionalism and appropriate behaviors based on foundations of clinical knowledge (competence), communication skills and ethical values.

## General outcomes

At the end of academic session:

1. Students will be able to define professionalism in various perspectives and list the key attributes of professionalism.
2. Students will be able to demonstrate caring attitude for the patients.
3. Students will be able to display honour and integrity in their characters.
4. Students will be able to practice reflective writing such as portfolio.
5. Students will be able to communicate skilfully in breaking bad news.
6. Students will be able to address conflicts, anger and stress situations.
7. Students will be able to effectively counsel patients for life styles modifications.
8. Students will be able to practice a character of high values, self-respect and self-regulation.
9. Students will be able to act as positive role models in their practice.

## 

## Specific learning objectives

### Students will be able to define professionalism in various perspectives and list key attributes of professionalism

1. Students will be able to recognize and discuss the dynamics of trust in health professional-patient relationship.
2. Students will be able to differentiate between altruism and fiduciary.
3. Students will be able to discriminate between empathy and sympathy.
4. Students will be able to identify their roles in terms of professional identity.

**Students will be able to demonstrate caring attitude for the patients**

1. Students will be able to serve the patient as an individual, taking into account lifestyle, beliefs and support system.
2. Displays professional behavior while dealing with patients suffering from debilitating diseases, and their families.
3. Students will be able to demonstrate empathy in patient-health professional interaction.
4. Students will be able to identify the health care needs of community.

### Students will be able to display honour, self-respect and integrity in their characters

1. Acts honestly in dealing with patients.
2. Adheres to principles of trust in day to day professional interactions.
3. Avoids misuse of power for personal gains.
4. Accept errors and mistakes in responsible manner.
5. Practice discretely and appropriately while dealing with confidential information.

### Students will be able to practice reflective writing such as portfolio

1. Identifies his own strengths and weaknesses.
2. Display appropriate emotional and social intelligence.
3. Prepare personal development plan and reflective portfolios.
4. Analyse critically his personal development plan.

### Students will be able to communicate skilfully in breaking bad news

1. Develops counselling skills in professional life.

## Table of Specifications

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Serial**  **#** | **topic** | **Outcomes** | **Content** | **Teaching method** | **Year** | **Module** | **Hrs** | **Assessment** |
| 1. | Introduction to prof | Define Professionalism, and its attributes | Definition of a professionalism, behaviours, attitudes, emotions, and their attributes | Lecture /Group Discussion | 1 | Foundation 1 | 2 | MCQ, SAQ |
| 2. | Dynamics of prof | Dynamics of trust in health professional- patient relationship | Trust definition, its attributes, and components, and its’ application | Lecture Role play Workplace | 1  3  5 | Foundation 1  Foundation 2  Foundation 3 | 2 | Formative |
| 3. | Attributes of prof | Discriminate between empathy and sympathy | Differences between empathy and sympathy | Lecture  /group discussion/ Role play | 1  3 | MSK 1  MSK 2 | 2 | MCQ, SAQ  and Formative |
| 4. | Prof identity formation | Students’ roles in terms of professional identity | White coat ceremony Types, multiple identities, Components,  Professional identity formation | White coat ceremony Group Discussion/ Role Play Observation (continuous) | 1  3  5 | Foundation 1  Foundation 2  Foundation 3 | 2 | Formative |
| 5. | Dealing with | Serve the patient as an | Culture, Life style, | Lecture | 2 | Neurosciences | 2 | Formative |
| patients | individual, taking into | and Belief System | Group |  | 1 |
| account lifestyle, beliefs | in the society | Discussion/ Role | 4 | Endocrine and |
| and support system | Play |  | reproduction |
| Observation |  | 2 |
| (continuous) | 5 | Gynea |

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| 6. | Dealing with patients | Displays professional behavior while dealing with patients suffering from debilitating diseases, and their families | Professional Behaviours in given contexts | Group Discussion/ Role Play Observation (continuous) | 5 | Medicine | 2 | Formative |
| 7. | Attributes of prof | Demonstrate empathy in patient-health professional interaction | Empathy levels & its application | Group Discussion and Role Play Observation (continuous) | 3  5 | MSK 2  Medicine | 2 | MCQ, SAQ,  and Formative |
| 8. | Community Need analysis (approaches to professionalism) | Identify the health care needs of community | Needs analysis & SWOT analysis | Lecture/ Group Discussion | 4 | Renal endocrine and reproduction | 1 | MCQ, SAQ |
| 9 | Dealing with patients | Acts honestly in dealing with patients | Honesty and its dynamics in workplace  Fake certification | Group Discussion/ Role Play | 5 | Surgery | 2 | Formative |
| 10 | attributes | Adheres to principles of trust in day to day professional interactions | Principles of trust in daily work activities | Group Discussion/ Role Play | 3 | Foundation 2 | 2 | Formative |
| 11 | Power | Avoids misuse of power | Power dynamics, | Lecture | 2 | Neurosciences | 1 | Formative |
| Dynamics | for personal gains | bullying, | Group |  | 1 |
| harassment, its | Discussion/ Role |  |  |
| influences on | Play | 4 | Neurosciences |
| interrelationships | 2 |
| 12 | Attributes | Accept errors and mistakes in responsible manner | Accept errors and mistakes in responsible manner | Lecture Group  Discussion/ Role Play | 1  5 | CVS 1  Surgery | 2 | Formative |
| 13 | Attributes | Dealing with confidential information | dealing with confidential information | Group Discussion/ Role Play | 5 | Medicine | 1 | Formative, OSCE |

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| 14 | PIF | Identifies his own strengths and weaknesses | Identifies his own strengths and weaknesses | Group Discussion/ Role Play | 1 | Foundation 1 | 1 | Formative, Portfolio |
| 15 | Emotional intelligence | Describe & Display appropriate emotional and social intelligence | Emotional and social intelligence in given contexts | Lecture Group  Discussion/ Role Play | 1  4 | Blood 1  Neurosciences 2 | 2 | Formative |
| 16 | PDP | Prepare personal development plan & reflective portfolios | Personal development plan  & reflective portfolios | Lecture/ Group Discussion | 1 | Foundation 1 | 2 | Assignment |
| 17 | PDP | Analyse critically his personal development plan (PDP) | Peer feedback session on PDP | Group Discussion among peers | 1 | MSK 1 | 2 | Formative |
| 18 | Communication skills | Develops counselling skills in professional life | Counselling skills | Lecture Group  Discussion/ Role Play | 3  5 | CVS 2  Medicine | 2 | Formative |
| 19 | Social accountability | Describe social accountability | Definition, types, components, theoretical background | Lecture Lecture | 1 | Respiration 1 | 2 |  |
| 19 |  | Differentiate between different social accountability issues | Simulated situations | Role, Group discussions | 4 | GIT  Hepatobiliarry and metabolism 2 | 2 |  |

# Course Title: Communication Skills

## Exit outcome

Upon graduation, the graduate would be able to communicate effectively with patients and other stakeholders.

## General Outcomes

The student would be able to;

* 1. Apply general principles of good communication
  2. Communicate with patients / relatives with empathy
  3. Communicate with colleagues
  4. Communicate as a teacher
  5. Communicate as a patient advocate
  6. Communicate with media and press

## Specific learning objectives

By the end of this course, students would be able to;

### Apply general principles of good communication

* + - 1. Listen to the patients about their health problems by communicating very clearly and with respect.
         1. Receive patients with respect
         2. Listen to the patient’s problems
         3. Discuss with the patients regarding health problems available management options
      2. Demonstrate the ability to solve problems keeping in view the individual and cultural differences.

1. Shows the ability to solve problems
2. display sensitivity towards individual and cultural differences keeping in view the principles of equality and equity
   * + 1. Integrate new ideas, models and can actively participate in different academic discussions.
3. Display team work in group activities for creativity and problem solving
4. Share with administration on matters one feels sensitive about
   * + 1. Accept responsibility for professional and ethical behavior.
5. display privacy and confidentiality of the patients keeping in view
   1. the cultural traits
   2. Medico-legal aspects of law.
6. Adhere to professional behavior while dealing with patients
   * + 1. Exhibit professional behavior while breaking the bad news
7. Inform the patients in empathetic and responsible manners about their health
8. display sensitivity in breaking bad news
   * + 1. Deal appropriately with violent and vulnerable patients in clinical environments.
9. Demonstrate ability to deal difficult patients such as psychiatrics and aggressive
10. Knowing the art of dealing with vulnerable groups such as children, elders, handicapped and women, etc.

### Communicate with patients / relatives with empathy

* + - 1. Listen to and educate the patients about their health problems by communicating very clearly and with respect, even in breaking the bad news.

1. Receive patients with respect
2. Listen to the patient’s problem

* Listen to others with respect.
* Listen for and remember the name of newly introduced people.
* Educate the patient regarding the health problem, available choices, management plan, self-care, and use of prescribed drugs and equipment,
* Clear, effective and sensitive communication for breaking bad News
* Dealing with an angry or violent patients, difficult circumstances, and vulnerable patients;
* Advise patients on lifestyle modification

### Communicate with colleagues

* + - 1. **Demonstrate sensible attitude in problem solving keeping in view the individual and cultural differences.**
* Demonstrates belief in the democratic process.
* Is sensitive towards individual and cultural differences (value diversity).
* Shows the ability to solve problems.
* Cooperates in group activities (displays teamwork)
* Informs management on matters that one feels strongly about.

### Communicate as a peer-teacher

* + - 1. **Competent enough, to present new ideas, models and can actively participate in different class discussions**
* Participates in class discussions.
* Gives a presentation.
* Questions new ideals, concepts, models, etc. in order to fully understand them.

### Communicate as a patient advocate

**Show commitment to accept responsibility for his behavior in professional and ethical way.**

* Recognizes the need for balance between freedom and responsible behavior.
* Accepts responsibility for one’s behavior.
* Explains the role of systematic planning in solving problems.
* Accepts professional ethical standards.
* Proposes a plan to social improvement and follows through with commitment

### Communicate with media and press

**Sensitive and clear enough to know the intricacies of breaking the bad news, and is able to deal with violent, vulnerable and in difficult situations.**

Know the safety rules and practices them.

Recognizes the need for balance between freedom and responsible behavior.

## Table of specifications

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No** | **topic** | **Specific outcomes** | **Contents** | **MIT** | **Year** | **Module** | **Hours** | **Assessment** |
| 1. | Dealing with patient | Receive patients with respect | Patient reception, and respect | Role play, Group Discussion | 3 | Foundation 2 | 1 | Continuous Formative |
| 2. | Listening skills | Listen to the patient’s problems | Listening skills | Role play, Group Discussion | 3 | MSK 2 | 1 | Continuous Formative |
| 3. | counseling | Discuss with the patients regarding health problems and available management options | Case discussions on health problems and their management | Role play, Group Discussion | 5 | Medicine | 1 | Continuous Formative |
| 4. | Conflict resolution | Show the ability to solve problems regarding difficult patients/attendant. | Problem solving skills | Role play, Group Discussion | 4 | Neuroscien ces 2 | 2 | Continuous Formative |
| 5. | Cultural sensitivity | Display sensitivity towards individual and cultural differences keeping in view the principles of equality and equity | Concepts of Equality and Equity, Cultural sensitivities. | Lecture equity, equality  Role play, Hospital teaching | 1  5 | Blood 1 Gynae | 2 | Continuous Formative |
| 6. | Teamwork | Display team work in group activities for creativity and problem solving | Dynamics of Teamwork | Role play, Hospital teaching | 1 | SGTs in first year | 2 | Continuous Formative |
| 7. | Communicati | Share with administration on | Communicating with | DME | 1 | Foundation | 3 | Continuous |
| ng with | matters one feels sensitive about | administration | Orientation |  | 1 | Formative |
| administratio | session |  |  |
| n | Role play, |  |  |
| Hospital | 3 | Foundation |
| teaching | 2 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. | Principles of ethics | Display privacy and confidentiality of the patients keeping in view   1. the cultural traits 2. medico-legal aspects of law | Privacy and confidentiality of the patients, Medico- legal and cultural aspects | Role play, Hospital teaching | 3 | Blood 2 | 2 | Continuous Formative |
| 9. | dealing with patients | Adhere to professional behavior while dealing with patients | Professional behavior while dealing with patients | Group Discussion, Hospital teaching | 3 | Respiratory 2 | 2 | Continuous Formative |
| 10. | Counseling | Inform the patients in empathetic and responsible manners about their health | Empathetic communication with patients | Group Discussion, Hospital teaching | 5 | Surgery | 2 | Continuous Formative |
| 11. | Breaking the bad news | Display sensitivity in breaking bad news | Breaking the bad news | Group Discussion | 5 | Medicine | 1 | Continuous Formative |
| 12. | dealing with patients | Demonstrate ability to deal difficult patients such as psychiatrics and aggressive | Dealing with difficult patients | Role play, Group Discussion | 4 | Medicine | 1 | Continuous Formative |
| 13. | Dealing with vulnerable groups | Knowing the art of dealing with vulnerable groups such as children, elders, handicapped and women. | Dealing with vulnerable groups | Role play, Group Discussion | 4 | Peads and gynae | 2 | Continuous Formative |
| 14. | Dealing with patients | Answering questions and giving explanations and/or instructions | Answering to patient queries | Role play, Group Discussion | 3 | Foundation 2 | 1 | Continuous Formative |
| 15. | Informed consent | Obtaining informed consent | Informed consent Special Situations | Lecture Bedside teaching | 3  5 | CVS 2  surgery | 2 | Continuous Formative |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. | Confidentialit y | Ensuring confidentiality | Confidentiality of colleagues and patients Appropriate use of social media | Lecture Role play, Group Discussion | 1  3 | Blood 1  Blood 2 | 2 | Continuous Formative |
| 17. | Counseling | Educating patients and facilitating self-management of illness | Patient education | Role play, Hospital teaching | 4 | Endocrine and Reproducti ve health | 1 | Continuous Formative |
|  |  | **Communicate with colleagues** |  |  |  |  |  |  |
| 18. |  | Passing on and sharing information orally, in writing and electronically | Oral and written communication (daily progress report) with colleagues.  Subjective, objective, assessment, plan (SOAP) (bedside teaching) | Role play, Hospital teaching | 5 | Peads  /surgery | 2 | Continuous Formative |
| 19. |  | Writing a good management summary and patient referral | Writing patient referral to colleagues.  Setting, background, assessment, recommendation (SBAR protocol) | Role play, Hospital teaching | 5 | Medicine | 1 | Continuous Formative |
| 20. |  | Providing all necessary clinical information on request forms to laboratory-based colleagues | Filling lab investigation forms | Role play, Hospital teaching | 5 | Surgery | 1 | Continuous Formative |
|  |  | **Communicate as a peer-teacher** |  |  |  |  |  |  |
| 21. |  | Recognizing the limits of one’s knowledge and skills; and to ensure the accuracy of teaching content delivered to others | Knowing limitations | Lecture Group Discussion, | 1  3 | MSK 1  MSK 2 | 2 | Continuous Formative |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Hospital teaching |  |  |  |  |
| 22. |  | Conveying complex information to others, individually or in groups, in a variety of settings and using a range of teaching tools and presentation aids | Communicating complex information in different settings | Group Discussion, Hospital teaching | 5 | Medicine | 1 | Continuous Formative |
| 23. |  | Understanding of methods to evaluate the effectiveness and quality of teaching | Evaluating the quality of teaching | Lecture/Group Discussion | 1 | Foundation 1 | 1 | Continuous Formative |
|  |  | **Communicate as a patient advocate** |  |  |  |  |  |  |
| 24. |  | Recognizing when patient advocacy is appropriate and how it may be accomplished effectively | Patient Advocacy | Group Discussion, Role Play | 5 | Peads/gyne a | 2 | Continuous Formative |
|  |  | **Communicate with media and press** |  |  |  |  |  |  |
| 25. |  | Understanding of who should give information to the media and press and what form it should take, including the need to maintain confidentiality where individual patients are concerned | Use of Social media/blogs for communication Communicating with Media and Press | Lecture Group Discussion, Role Play | 1  5 | MSK 1  Surgery | 2 | Continuous Formative |

# 

# Course Title: Research Methods, Statistics, and Proposal Development

## Exit outcome

By the end of this program, the graduate would be able to practice inquisitive and evidence based approaches in health care.

## General outcomes

The student would be able to;

1. Identify a researchable problem and critically review literature
2. Phrase succinct research questions and formulate hypotheses
3. Identify the appropriate research design(s) in Epidemiology and analytical tests in Biostatistics to answer the research question
4. Collect, analyze and evaluate data, and present results where possible
5. Demonstrate ethics in conducting research and in ownership of intellectual property

## Contents

**Research Methods**

1. Background, concepts, uses.
2. Basic measurements in epidemiology (morbidity, mortality, disability and fatality).
3. Types of Research & Epidemiological methods (descriptive, analytic and experimental).
4. Epidemiological transition.
5. Association and causation.
6. Investigation of an outbreak or an epidemic.
7. Screening for disease.
8. Community diagnosis
9. Research and survey methodology
10. Introduction to qualitative research methodology

**Biostatistics**

1. Concepts and uses
2. Data and its types
3. Rates, ratios and proportions
4. Crude, specific and standardized rates.
5. Collection and registration of vital events in Pakistan
6. Sources of health related statistics
7. Measures of central tendency, (Mean, Median, Mode),
8. Measures of dispersion (Range, Standard deviation, Standard error)
9. Normal curve.
10. Methods of data presentation (tables, graphs & diagrams)
11. Interpretation of data (t-test and Chi-square test)
12. Sampling and its various techniques.
13. Health Management Information System

**Proposal Development**

1. Literature Review (Background, keywords)
2. Title, Rationale, Purpose
3. Developing a Research Question
4. Developing Objectives
5. Operational Definitions
6. Hypothesis
7. Materials and Methods
   1. Study Design
   2. Study Setting
   3. Study Duration
   4. Sample Size
   5. Sampling Technique

* 1. Sample Selection
     1. Inclusion Criteria
     2. Exclusion Criteria

1. Data Collection Procedures
2. Data Analysis Procedures
3. Bibliography and Referencing
4. Types and examples of Variables

**Teaching Methods**

* + Lectures
  + Group Discussion

**Assessment**

* + Multiple Choice Questions (MCQ)
  + Short Answer Questions (SAQ)
  + Assignments:
    - Proposal Development
    - Literature Review
    - Data Collection Instrument Development

**Recommended Books**

* A synopsis of epidemiology and basic statistics (Ali Muhammad Mir)
* Statistics at square one (TDVS winscow)
* Essentials of research design and methodology. (Geoferry Marczyk)
* The essentials of clinical epidemiology (Robert H)

## Table of specifications (Research)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Topic** | **Outcomes** | **Content** | **Teaching Method** | **Yr** | **Module** | **Hrs** | **Assessment** |
| 1. | Introduction | Describe the background and purpose of research. | Background, concepts, uses. Definition of medical research Need of medical research | Lecture/ Group Discussion | 1 | Foundation 1 | 1 | MCQs/SAQs |
| 2. | Types of Research | Explain different types of research. | Types of Research & Epidemiological methods (descriptive, analytic and experimental). | Lecture/ Group Discussion | 1 | Foundation 1 | 1 | MCQs/SAQs |
| 3 | Study Designs | Classify study design  Describe Case Report, Case Series, Cross Sectional Study, Case Control Study, Cohort | * Classification of study designs * Case Report and Case Series * Cross Sectional study * Case Control Study * Cohort Study | Lecture/ Group Discussion | 1 | MSK 1  Blood 1 | 5 | MCQs/SAQs |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Study and Randomized Controlled Trials | * Randomized Controlled Trials |  |  |  |  |  |
| 4. | Formulation of Research Question | formulate research question | Importance of Research Question in starting research Scope of research question Study design implications for research question  Describe how to develop a research question. | Lecture/ Group Discussion | 1 | CVS 1 | 1 | Assignment |
| 5 | Literature Search | Describe techniques of literature search and review.  conduct literature search to finalize the research question using Boolean logic | Literature Review (Background, keywords) | Lecture/ Group Discussion | 1 | Respiratory 1 | 4 | Assignments |
| 6 | Title, Rationale, Purpose | Explain the process of title selection for a research study.  Describe the purpose and justification of any selected title. | Title, Rationale, Purpose | Lecture/ Group Discussion | 2 | Neuroscien ces (I) 1 | 2 | Assignment |
| 7 | Operational Definitions | Describe Operational Definitions. | Operational Definitions | Lecture/ Group Discussion | 2 | Neuroscien ces (II) 1 | 1 | Assignment |
| 8. | Qualitative research methodology | Describe qualitative research methodology. | Introduction to qualitative research methodology | Lecture/ Group Discussion | 2 | Neuroscien ces (II) 1 | 3 | MCQs/SAQs/ Assignment |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | Research objectives Hypothesis | Write research objectives for a research study.  Develop hypothesis for a study.  Select a study design for a study. | Developing Objectives and hypothesis | Lecture/ Group Discussion | 2 | GIT 1 | 2 | Assignment |
| 10 | Sample size | Calculate sample size for different research projects.  Calculate sample size for a specific research project. | Sample Size Calculation | Lecture and Hands on Exercise in Computer lab | 2 | GIT 1 | 2 | MCQs/SEQs/ Assignment |
| 11 | Sampling techniques and sample selection | Describe various sampling techniques. Justify sampling techniques chosen for a specific research project. Select sample for a specific research project | Probability and non- probability  Sampling techniques Sample Selection   1. Inclusion Criteria 2. Exclusion Criteria | Lecture/ Group Discussion | 2 | Renal 1 | 2 | MCQs/SEQs/ Assignment |
|  | Designing of a Questionnair e | design a questionnaire  Identify validated questionnaire | Steps for making a questionnaires | Lecture/ Group Discussion | 2 | Renal 1 | 2 | Assignment |
| 12 | Data Collection Procedures | Discuss procedure of data collection for your study. | Data Collection Procedures | Lecture/ Group Discussion | 2 | Endocrine 1 | 2 | Assignment |
| 13 | Ethical Review | Describe ethical principles for the purpose of medical research | Ethical principles for medical research  application for ethical approval | Lecture | 2 | Endocrine 1 | 1 | Assignment |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Submit an ethical review application |  |  |  |  |  |  |
| 14 | GANTT Chart | Make a GANTT Chart for a research project | How to make a GANTT Chart | Hands-on exercise in computer lab | 2 | Endocrine 1 | 1 | Assignment |
|  | Proposal writing | Write a proposal for a research project | Guidelines for proposal writing | Directed self- learning | 2 | Reproducti ve system 1 | 2 | Assignment |
|  | Bibliography and Referencing | Describe how you will write references in your study.  Write references in recommended style. | Bibliography and Referencing | Lecture/ Group Discussion/ Hands on Exercise in Computer lab | 1 | Reproducti ve system 1 | 2 | Assignment |
| 15 | Data entry | Enter data in SPSS. | Data entry | Hands on Exercise in Computer lab | 3 | Foundation 2 | 4 | Assignment |
| 16 | Data Analysis and interpretatio n | Describe different types of data.  Explain different types of variable with examples Explain the measures of central tendency Describe Measures of dispersion  Describe normal curve Apply correlational tests on given data  Analyze data using SPSS Analyze the given data for its significance Interpret data | Measures of central tendency, (Mean, Median, Mode) Measures of dispersion (Range, Standard deviation, Standard error)  Normal curve. Data and its types  Types and examples of variables Interpretation of data | Lecture/ Group Discussion/ Hands on Exercise in Computer lab | 3 | MSK 2  Blood 2 | 8 | Assignment |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | Methods of data presentation (tables, graphs & diagrams | Apply different methods of presentation on given data. | Methods of data presentation (tables, graphs & diagrams) | Lecture/ Group Discussion/ Hands on Exercise in Computer lab | 3 | CVS 2 | 2 | Assignment |
| 19 | Reference Manager | Cite the references with the help of reference manager.  Make and maintain library on reference manager. | references with the help of reference manager | Hands on Exercise in Computer lab | 3 | Respiratory 2 | 6 | Assignment |
| 20 | Academic writing / dissertation report writing | write a dissertation | How to write dissertation ( guidelines) | Lecture/ Directed self- learning | 4 | Neuroscien ces I, II GIT  Renal (spiral II) | 6 | Assignment |
| 21 | Article publication | Write an article from research project/dissertation. Publish article in PMDC registered journal. | How to write an article (guidelines) | Lecture/ Directed self- learning | 5 | Spiral 3 | --- | Assignment ( exit requirement  ) |

# Course Title: Leadership and Management

## Exit outcome

By the end of this program, the graduate would be able to act as a leader and manager in health care system

## General outcomes

The student would be able to;

1. Practice **principles of leadership** in an organizational setup
2. Motivate groups to achieve common targets and shared vision
3. Demonstrate character and values necessary to lead groups with **ethical practices**
4. Use **critical thinking** and reasoning in problem solving
5. Construct effective teams and organizational structures
6. Persuade people to **positively work** in right direction
7. Develop **strategic approach** for various situations
8. Display **visionary approach** for better health care
9. Create vision for better health care

## Specific learning objectives

By the end of this year students would be able to

1. Define and differentiate between leadership and management
2. Describe different attributes and styles of leader in their context
3. Compare different models of leadership and management.
4. Demonstrate self-management skills
5. Apply different motivational skills for team members
6. Apply critical thinking skills to different problems
7. Analyze situations and apply ethical principals
8. Demonstrate positive attitude in different environments
9. Exhibit positive attitude and outlook in workplace environment,
10. Practice emotionally intelligent behavior to deal with different situations
11. Willing to work with other people and team members for maintenance and improvement of performance
12. Willingness to assist and bring change of the system in right direction
13. Be able to respect the leadership and management role of other team members and non-medical colleagues.
14. Describe and design organizational hierarchical structures
15. Perform SWOT analysis for a particular task
16. Describe different strategy developing approaches
17. Develop strategies for given scenarios
18. Delegate powers to juniors and team mates
19. Display visionary approach for health care situations
20. Raising and acting on concerns
21. Participate confidently in a problem and choose to act in the most proper leadership style.

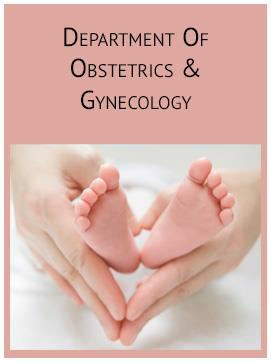
## Table of Specifications

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Serial  # | Topics | Outcomes | Content | Teaching Method | Year | Module | Hrs | Assessment |
| 1. | Introduction | Differentiate between leadership and management | Definition of a leader & manager Differences between leadership and management | Lecture | 1 | Orientation session of foundation 1 | 1 | MCQ, SAQ |
| 2. | Attributes and style of leadership | Display different attributes and styles of leader in their own cultural context | Attributes of a leader.  Leadership styles | Role play | 2 | GIT | 1 | Formative |
| 3. | Models | Compare different models of leadership and management | Models of leadership & management | Lecture /group discussion | 2 | Endocrine and reproduction | 1 | MCQ, SAQ |
| 4. | Self management skills | Demonstrate self- management skills | What is self- management? Its importance. Self- management Mechanisms | Task | 1 | Foundation 1 | 2 | Formative |
| 5. | Motivation | Explain motivational skills for team members for clinical tasks | Motivation. Team working | Small group/team based | 3 | Foundation 2 | 2 | Formative |
| 6. | Critical thinking | Display critical thinking skills to different problems | Definitions of critical thinking. Critical thinking skills | Problem-based session Orientation | 1 | Foundation 1 | 2 | Formative |
| 7. | Ethical principles. | Display ethical principles in different situations | Ethical principles. (Autonomy, Beneficence, | Lecture/Group Discussion and Role Play | 1 | Foundation 1 | 1 | MCQ, SAQ,  and Formative |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Non- maleficence, Justice) |  |  |  |  |  |
| 8. | Positive attitude | Demonstrate positive attitude in different environments | Positive attitude. Self- control | Role Play | 1 | CVS 1 | 2 | Formative |
| 9 | Positive attitude | Exhibit positive attitude and outlook in workplace environment | Positive attitude processes | Bedside/community Visit | 3 | CVS 2 | 2 | Formative |
| 10 | Emotional intelligence | Practice in an emotionally intelligent manner in different situations | Emotional intelligence | Practical/ bedside | 4 | ENT | 2 | Formative |
| 11 | Team work | Willing to work with other people and team members for maintenance and improvement of performance | Strategies to Improve performance | Role Play | 5 | Surgery | 2 | Formative |
| 12 | Change management | Willingness to assist and bring change of the system in right direction | Change management | Lecture and Role play | 5 | Gynea | 1 | MCQ, SAQ,  and Formative |
| 13 | Dealing with colleagues | Be able to respect the leadership and management role of other team members. | Respect for colleagues | Role Play | 5 | Surgery | 1 | Formative |
| 14 | Organization structure of health care system | Describe organizational hierarchical structures | Organizational types, hierarchies, and cultures | Lecture | 5 | Gynae | 1 | SAQ,  Formative |
| 15 | SWOT  Analysis | Perform SWOT analysis for a particular task | SWOT Analysis | Group Discussion | 3 | CVS 2 | 1 | MCQ, SAQ,  Formative |
| 16 | Power dynamics | Delegate powers to juniors and team mates | Power dynamics Power and empower | Lecture, and Role Play | 3 | Respiratory 2 | 1 | SAQ, and Formative |
| 17 | Creativity and innovation in leadership | Display visionary approach for health care situations | Dynamics of Healthcare situations | Group Discussion and Role play | 4 | Eye | 1 | SAQ, and Formative |
| 18 | Conflict management | Raising and acting on concerns | Conflict management | Group Discussion and Role Play | 4 | ENT | 1 | SAQ, and Formative |
| 19 | confidentiality | Participate confidently in a problem and choose to act in the most proper leadership style | Maintaining confidentiality | Group Discussion and Role Play | 4 | Blood 2 | 1 | SAQ, and Formative |

# STUDY GUIDE DEPT OF OBS GYNAE LIAQAT MEMORIAL HOSPITAL/KIMS

**KOHAT**





***Prepared by : Professor dr. Musarrat jabeen, HOD, obstetrics & gynecology)***

#### OVERVIEW

* LIAQAT MEMORIAL HOSPITAL (LMH); built in 1952 and inaugurated in 1954; is situated in the heart of kohat city of the district kohat in Khyber pakhtunkhwa, Pakistan. Main Kohat city is a medium-sized city with a population of round about 270,000 people while 993874 is the population of the whole kohat district. Patients from all parts of kohat as well as from as far away as the tribal districts and hangu,jand , karak etc. benefit from its resources and visit the hospital regularly for treatment.
* The HOSPITAL was converted into **Women And Children Hospital** after the establishment of **Divisional Headquarter Hospital** KDA in 2000
* Since 2006, the hospital is affiliated with KIMS(**KMU Institute of Medical Sciences)**,which is a public sector medical college, established in April 2006 in Kohat. It’s the constituent college of KHYBER MEDICAL UNIVERSITY, enrolls students in a five-year program leading to the Bachelor of Medicine and Bachelor of Surgery (MBBS) degree, and also in the four-year program leading to Bachelor of Dental Surgery (BDS)degree.
* The Gynae/obs dept. of the hospital is the busiest and most sought after department in south pakhtunkhwa. Since its beginning it had very quickly achieved the status of a referral center. The department is divided into A and B units, both offering emergency as well as elective health care facilities and services. moreover it caters for all the major and advanced conventional surgeries of the catchment area and also has a full range of emergency coverage
* **CONTENTS**
  + Introduction to study guide
  + Module: reproductive
  + Learning methodologies
  + Assessment
  + Gynae/obs topics
  + Gynae/obs learning objectives and teaching strategy
  + Objectives for task oriented learning
  + Abbreviation
  + Definitions
  + Clinic notes
  + Learning resources

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**INTRODUCTION**

**WHAT IS A STUDY GUIDE?**

It is an aid to:

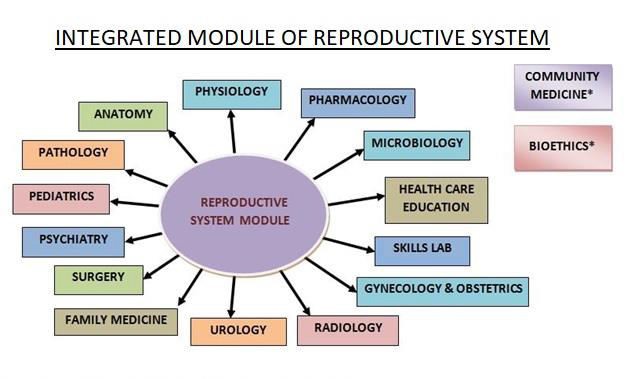
* Inform students how student learning program of the semester-wise module has been organized
* Help students organize and manage their studies throughout the module
* Guide students on assessment methods, rules and regulations

**THE STUDY GUIDE:**

* Communicates information on organization and management of the module. This will help the student to contact the right person in case of any difficulty.
* Defines the objectives which are expected to be achieved at the end of the module.
* Identifies the learning strategies such as lectures, small group teachings, clinical skills, demonstration, tutorial and case based learning that will be implemented to achieve the module objectives.
* Provides a list of learning resources such as books, computer assisted learning programs, web- links, journals, for students to consult in order to maximize their learning.
* Highlights information on the contribution of continuous and semester examinations on the student’s overall performance.
* Includes information on the assessment methods that will be held to determine every student’s

achievement of objectives.

• Focuse s on inf ormati on pe rtainin g to exa mina tion poli cy, rules and r egula tions.



* + **LEARNING METHODOLOGIES**

The following teaching / learning methods are used to promote better understanding:

* Interactive Lectures
* Small Group Discussion
* Case- Based Discussion (CBD)
* Clinical Experiences
* Clinical Rotations
* Skills session
* Task-Oriented Learning
* Task Presentation

**INTERACTIVE LECTURES:** In large group, the lecturer introduces a topic or common clinical conditions

and explains the underlying phenomena through questions, pictures, videos of patients’ interviews,

exercises, etc. Students are actively involved in the learning process.

**SMALL GROUP SESSION:** This format helps students to clarify concepts, acquire skills or desired attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials and self-study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify

**CLINICAL LEARNING EXPERIENCES:** In small groups, students observe patients with signs and symptoms in hospital wards, clinics and outreach centers. This helps students to relate knowledge of basic and clinical sciences of the module and prepare for future practice.

**CLINICAL ROTATIONS:** In small groups, students rotate in different wards like Medicine, Pediatrics, Surgery, Obs &Gynae, ENT, Eye, Family Medicine clinics, outreach centers & Community Medicine experiences. Here students observe patients, take histories and perform supervised clinical examinations in outpatient and inpatient settings. They also get an opportunity to observe medical personnel working as a team. These rotations help students relate basic medical and clinical knowledge in diverse clinical areas.

**SKILLS SESSION:** Skills relevant to respective module are observed and practiced where applicable in skills laboratory.

**SELF-DIRECTED STUDY:** Students’ assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Center, teachers and resource persons within and outside the college. Students can utilize the time within the college scheduled hours of self-study.

**TASK ORIENTED LEARNING:**

**What is Task Oriented Learning (TOL)?**

In this module, objectives will be achieved by using multiple instructional strategies other than lectures only. **Task oriented learning** is being introduced to enhance students’ learning and to get insight of the content necessary to move forward in to practical application of course materials. Students will be

engaged in self-directed lear ning a s well as peers’ co llab oration and facu lty led in str ucti ons

**Process of TOL**

Learning in this strategy will comprises of two stages Stage 1: Pre-class learning in groups

Stage 2: In-class group focused active learning

Stage 1 (Pre-Class

Individual/group study and Group presentation preparation

**TOL process stage 1:**

Stage 2 (In-Class)

Group presentation and assessment by facilitator followed by Q/A session

Students will be divided in 6 sub-groups (8-9 members in each sub group). Students’ group will be given

task based on few objectives.

Students will have defined time slots for achieving the objectives. They will be required to study the recommended authentic website (patient education websites are strictly NOT ADVISED!!!) and work in groups to develop presentations during allotted study hours.

**TOL process stage 2:**

The groups will then be required to present their PPT/Prezi in class to show their understanding of subject matter.

**Time for group presentation**: Each presentation should not exceed 10 minutes followed by five

minutes discussion

* + **Assessment**

The group presentations and collaborative work will be graded on defined criteria (See Appendix A). Each student is to demonstrate active participation and effective contribution during the group activities. It is mandatory for the students to participate in this activity as their scores will contribute to

**internal evaluation**.

**GYNAE/OBS TOPICS**

**A-OBSTETRICS**

**Pregnancy and Prenatal Care**

* **Diagnosis. home UPT: highly sensitive at the time of missed cycle (positive**

**at 8-9 d); bHCG rises to 100,000 by 10 weeks and levels off**

**at10,000 at term; can get gestational sac as early as 5 weeks. At that point your bHCG should be 1500 to 2000**

* **Discriminatory**

**Zone**

This means that when BHCG is 1200-1500, evidence of a pregnancy

should be seen on transvaginal ultrasound. When the BHCG is 6000, you can see evidence on a trans abdominal ultrasound.

* FHT : seen at ~6 weeks on US; Doppler FHT at 12 w

: days and weeks from LMP

* **Gestational Age**
* Dating Age (not used except on tests!): weeks and days from fertilization; GA 2

weeks greater than DA

* **Naegle’s Rule:**

For EDC: LMP – 3 months + 7 days + 1 year

* Ultrasound: can be 1 week off in the first trimester, 2 weeks off in the second

trimester, 3 weeks in the third trimester so… *if your US differs from*

*the EDC by LMP more than this, accept the US dating over the LMP dating*. In the first half of the first trimester, use the Crown Rump Length (CRL) which is within 3 – 5 days of accuracy.

* **Doppler:**

can get FHT (fetal heart tones) at 12 weeks

* **Quickening:** at 16 – 20 weeks (mom feels the baby move)
* **Signs and Sx of**

**Pregnancy:**

1. Chadwick’s Sign-blue hue of cervix
2. Goodell’s Sign – softening and cyanosis of cx at 4 weeks
3. Laddin’s Sign – softening of uterus after 6 weeks
4. Breast swelling and tenderness
5. Linea nigra
6. Palmar erythema
7. Telangiectasias
8. Nausea
9. Amenorrhea, obviously
10. Quickening

**Normal Changes in Pregnancy**:

* **CV : a. CO inc by 30-50% @ max 20 – 40 weeks**
  1. **SVR dec secondary to inc. progesterone and**

**therefore smooth muscle relaxation**

* 1. **BP dec: systolic down 5 – 10/ diastolic down 10 – 15 until 24 weeks then slowly returns.**
* **Pulmonary:**

d.

e.

f.

g.

TV inc 30 – 40%

Minute Vent inc 30 – 40%

TLC dec 5% secondary to elevation of diaphragm

PA O2 and pa O2 inc; dec pA CO2 and pa CO2

* GI: h. Nausea and vomiting in 70% - inc. estrogen, progesterone and HCG; resolves by 14 – 16 w

1. Reflux – dec. GE sphincter tone
2. Dec lower intestinal motility, inc water reabsorption and therefore constipation

* **Renal**
  1. Kidneys increase in size
  2. Ureters dilate – increased risk of pyelonephritis
  3. GFR inc 50% - BUN, Crt dec 25%
* Heme n. Plasma volume inc by 50%, RBC vol inc 20 –

30% - drop in Hct

1. WBC still nl at 10 – 20 in labor
2. Hypercoagulability
3. Inc. fibrinogen, inc factors 7 – 10, dec 11 – 13
4. Slight dec in plt, slight dec in PT/PTT

* **Endocrine**

s.

t.

u.

Inc estrogen from placenta; dec from ovaries –

low estrogen levels assn with fetal death and anencephaly

Progesterone is produced by corpus luteum then the placenta

HCG – doubles roughly every 48 hours; peaks at 10 – 12 weeks; the alpha subunit looks like LH, FSH and TSH but the beta subunit differs

v. Inc in thyroid binding globulins

* **Musculoskeletal/Derm** Spider angiomata, melasma, linea nigra, palmar erythema

w. Change in the center of gravity – low back pain.

**Nutrition – 2000 – 2500**

**cal/day**



i.

ii.

need to increase *protein, calcium*

*and iron*- an **iron supplement** is needed in the second trimester. 30 mg of elemental iron is recommended

folate is necessary early on to prevent neural tube defect (Spina bifida) – 400 mcg per day is recommended in women without seizure meds or previous infant with neural tube defect (4g are recommended then)

20 – 30 lb weight gain is OK, obese women do not have to gain weight.

### Prenatal Care

* **First Trimester: CBC, Blood Type and Screen, RPR, Rubella, Hep B s Ag,**

**HIV, UA/Cx, GC, Chl, PPD, Pap Smear (without cytobrush)**

* **Appt q mo.**
* **Doppler FHT @ 10 – 12 w**
* **OK Drugs: Tylenol, Benadryl, Phenergan**
* **Routine labs q visit: FHT, Fundus height, Urine dip (prt, bld, glucose, etc), weight, BP**
* **Second Trimester**

: MSAFP/Triple Screen @ 15 – 18 wks, O’Sullivan @ 24 – 28

weeks

* Quickening at 17 – 19 week
* Glucose Tolerance Test Values: *OSullivan:* 50 g glucose normal: under 140; if over then perform 100 g *glucose tolerance test*











Fasting

1. hour
2. hours
3. hours

105

190

165

145

Rhogam @ 28 weeks

* **Third Trimester:** RPR, CBC, Group B Strep 35-37 weeks (if not scheduled for

repeat cesarean), cervical exam every week after 37 weeks or

the onset of contractions

* *Labor precautions:* “Go to L&D if you have contractions every 5 minutes, if you feel a sudden gush of fluid, if you don’t feel the baby move for 12 hours, or if you have bleeding like a period. It’s normal

to have mucus or a pink discharge in the weeks

preceding your labor.”

* **Routine Problems of**

**Pregnancy:**

Back Pain

Hemorrhoids Hicks

Pica (cravings)

GERD

Varicose Veins

Constipation

Braxton

Dehydration

Round

ligament pain (inguinal pain, worse on

Edema Frequency walkingTX: Tylenol, heating pad,

Maternity belt)

* MSAFP : produced by placenta: goes through amniotic fluid mom
* Inc MSAFP: neural tube

defects,omphalocele,gastroschisis, mult gest, fetal death, incorrect dates

* Dec MSAFP: Down’s, certain trisomies
* TRIPLE SCREEN: MSAFP, Estriol, BHCG- risk for defects is calculated. If it comes back abnormal, *make sure dating is accurate*, then counsel patient and consider amniocentesis.

|  |  |  |
| --- | --- | --- |
| * **Triple Screen** * **MSAFP** | **Tri 21 Dec** | **Tri 18 Dec** |
| * **Estriol** * **BHCG** | **INC INC** | **Dec Dec** |

* Amniocentesis can be done to get baby’s karyotype if abn US, aberrant MSAFP, Adv Maternal Age or Family history of abnormalities
* Can do a Chorionic Villi Sampling @ 9 – 11 weeks if you need a karyotype sooner, have inc. risk of PPROM, previable delivery, fetal injury however.
* **PUBS:**

percutaneous umbilical blood sampling: gets fetal blood to test

for degree of fetal anemia/hydops in Rh disease, etc.

* **Fetal Lung Maturity:** Lecithin/Sphingomyelin Ratio: over 2.0 indicates fetal

lung maturity

* “FLM”: Flouresence Polarization: >55mg/g is mature; good for use in diabetics
* Phosphatidyl glycerol: comes back pos or neg: best for diabetics because is last test to turn positive; hyperglycemia delays lung maturity

### Ectopic Pregnancy

* **Most common place** **– ampulla of the fallopian tubes; also located in**

**ovary, abd wall, cervix, bowel**

* **Risk factors**
* : Infx of tube, PID, IUD use, previous tubal surgery,

assited reproduction

**Incidence**

* Occur in 1/100 pregnancies
* **SS**
* **:** episodic lower abd pain
* Abnormal bleeding: due to inadequate progesterone support
* HCG decreased: normally, HCG doubles

every other day; in ectopics it doesn’t

* Unilateral tenderness

o +/- mass

* Cullen’s sign (periumbical Hematoma)
* U/S finding- complex adenexal mass, can see sac or fetus, even
* TX: Methotrexate 50 mg/m2 *if <4 cm, unruptured*: follow serial HCGs 4 and 7 days later. You want the value to drop 15% between days 4 and 7. If it doesn’t, you give another dose of methotrexate. *If the mass is > 4 cm* then salpingectomy or

salpingectomy (if patient is stable, can do this laparoscopically; if not needs emergent laparotomy)

* **Arias-Stella Rxn** : assn with ectopic pregnancy; endometrial change

that looks like clear cell carcinoma (but is not

cancerous)

**Spontaneous Abortions ( <20 week**

* **Occur in** **15 – 25% of pregnancies. 60% assoc with abn chromosomes (#1 cause: Trisomy 16, #2: Monosomy X)**
* **RF if recurrent:**
* infx, maternal anatomic defects, Antiphospholipid Sd;

endocrine problems (of mom), previous miscarriage

* LABS to do : bHCG, CBC, type and screen, US; give Rhogam if Rh -

**Definitions:**

* **Threatened AB** o intrauterine pregnancy with bleeding; **closed cervix** needs initial obstetric visit
* **Missed AB**

o Fetal death without passage of products of conception; no FHT by 8 weeks

* **Inevitable AB –** dilated cervix, proceeds to complete or incomplete
* **Incomplete AB**

o products not all out do a D&C

* Complete AB o Products all out; need to follow BHCG until 0 to make sure it was not a hydatidiform mole or choriocarcinoma
* **SS**

: bleeding, crampy abdominal pain (always ask if clot or

whitish tissue was passed)

* **Abortion @ 6 – 8 week**: 1. Trisomies 2. Turner’s Sd (45X)
* **Habitual Ab:**

3 Ab’s in a row

o

o

Causes: balanced translocation of parents,

autoimmune dz, abn uterus, etc. WU: karyotype for balanced trans,

antiphospholipid ab, hysterosalpinography for abn uterus (septate uterus most common)

* **Incompetent Cervix Sd:** Ab’s between 13 – 22 weeks because cervix can’t hold POC

in: see painless dilation and effacement in 2nd trimester; infx is

common b/c of trauma/vaginal flora

* TX: McDonald’s Cerclage: a purse string nonabsorpable suture around cervix: remove at term; also could manage expectantly; BEDREST – give steroids and Abx to dec infx

and inc fetal lung maturity and tocolyze contractions; Both McDonald and Shirodkar are near the internal os – Shirodkar stitch just tunnels under the cervical epithelium

* **Causes of 2nd Trimester Abs:**

infx, mat anat defects, cervical defects, systemic dz, fetotoxic agents, trauma (chromosomes occur in second trimester, but not as frequently as first trimester)

.

Chromosome Stuff

* **Trisomies:** 13 Edwards, 18 Patou, 21 Down’s
* **Autosomal Dominant Dz:** Neurofibromatosis, von Willebrand’s, Achondroplasia,

Osteogenesis imperfecta

* **X Linked Dz:** Muscular Dystrophy, G6PD Def, hemophilia
* **Recessive Dz:** 12 OH Adrenal hyperplasia
* **McCune Albright:**

polyostotic fibrous dysplasia: degeneration of long bones,

sexual precocity, café au lait spots (tx precocious puberty with medroxyprogesterone acetate)

#### Statistical Stuff

* **Maternal Mortality =** mat death/100,000 live births
* **Fertility rate =** # live births/1000 females 15 – 44
* **Birth rate =** # live births / 1000 people

### Antepartum Fetal Surveillance

* **NST = Non Stress Test: to be “reactive” need 2 accelerations, of 15 beats per minute for 15 seconds in 20 minute strip; if nonreactive, baby can be sleeping – give mom juice – do a BPP (think about sedatives, narcotics, CNS/CV abnormalities)**
* **BPP =** biophysical profile; on U/S 8 pts good/ 4 pts bad

|  |  |  |
| --- | --- | --- |
|  | **Give 2 points** | **Give 0 points** |
| * **NST** Reactive < 2 accels | | |
| * **AFI (amniotic Fluid Index)** | one 2 by 2 cm pocket | no pocket seen |
| * **Fetal Breathing Movements** | Last over 30 seconds | < 30 seconds |
| * **Fetal Extremity Movements** | 3 or more episodes Extension to flexion; flex at rest | Under 3 episodes |
| * **Fetal Tone** | Extended at rest |

* **Modified BPP = NST and AFI**
* **Contraction stress test (CST):** nipple stimulation or oxytocin – shows 3 uterine

contractions in 10 minutes to be good; negative = no late decelerations

* **HOW TO READ THE STRIP:**  Reassuring things – normal behavior, beat to beat

variation, reactive strip (above)

* + Early decels – they begin and end with the contraction – a sign of head compression – OK
  + Variable decels – are more jagged and look like a V – a sign of cord compression – we may start amnioinfusion
  + Late decels – begin at peak of contraction and end after contraction is finished – a sign of uteroplacental insufficiency – are bad. (nonreassuring)
* **FSE =**

fetal scalp electrode- placed usually with IUPC when a

more accurate recording of heart tones is needed; do not use in moms with HIV

* **IUPC =** Intra Uterine Pressure Catheter – placed in uterus to monitor contractions; a good baseline is 10-15 mm Hg; Ctx in labor inc. 20 – 30 mmHg or even to 40 – 60; can amnioinfuse through the IUPC with normal saline- *You cannot tell how strong a contraction is with the tocometer. You need an IUPC to count MonteVideoUnits.*Over 200 MVUs is considered adequate.
* **Fetal Scalp pH;**

take blood from scalp for non re assuring factors, fetal

hypoxia (not really done anymore)

PH over 7.25 is reassuring 7.2 – 7.25

indeterminate <7.2 bad

**Labor**

**DATING**

* **Menstrual History:**

40 weeks from LMP (Naegle’s rule: LMP + 7 days – 3

months)

* **Uterine Size:** o 10 Weeks grapefruit size
* 20 weeks is at umbilicus
* 20 – 33 weeks matched dates +- 2 cm of Fundal Height
* may not match at term due to descent
* **Ultrasound:** is most accurate at 8 – 12 weeks
* **Dating Criteria for delivery:** determines whether lungs are considered mature for

delivery

1. FHT documented 30 weeks by Doppler.
2. 36 weeks since UPT positive.
3. US of CRL at 6-11 weeks makes gestational age >39 weeks.
4. US of under 20 weeks supports gestational age >39 weeks.

**STAGES OF LABOR**

* **First:**

beginning of contractions to complete cervical dilation

* Latent – to approx. 4 cm (or acceleration in dilation)
* Active – to 10 cm complete; prolonged if slower than **1.2 cm/hr null/1.5 cm/h multiple**; if prolonged, do amniotomy, start pitocin, place IUPC to evaluate contraction strength
* **Failure to progress** – no change despite 2 hours of adequate labor (MVU >200)
* Second: complete dilation to the delivery of baby

o Prolonged if **2 hours multi/ 3 hours nullip (**with epidural) or 2 hours nullip/1 hour multip (no epid)

* Third: delivery of baby to delivery of placenta

o Can take up to 30 mins

Signs include increase in cord length, gush of blood, uterine fundal rebound

* **Fourth:** one hour post delivery

**3 P’S OF LABOR**

* Power : nl contractions felt best at fundus; last 45-50 seconds; 3 in 10 minutes
* Passenger: a. Presentation – what is at the cervix (head (vertex), breech)

b. Position – OA, OP, LOT, ROT

c. Attitude – relationship of baby to itself

* **Pelvimetry: PASSAGE**

1. Lie – long axis of baby to long axis of mom
2. Engagement – biparietal diameter has entered the pelvic inlet

Station – presenting part’s relationship to ischial spine (-3, - 2, -1, 0, 1, 2, 3)

* 1. Inlet: Diagonal Conjugate – symphysis to sacral promontory = 11.5 cm

Obstetrical Conjugate – shortest diameter = 10 cm

* 1. Midplane: spines felt as prominent or dull
  2. Outelt: Bituberous Diameter = 8.5 cm Subpubic Angle less than 40 degrees

#### Forceps

* **Outlet forceps: requirements**

**–**

* **visible scalp**
* **Skull on pelvic floor**
* **Occiput Anterior or Posterior**
* **Fetal head on perineum : can see without separating labia**
* **Adequate anesthesia; bladder drained**
* **Maximum 45 degrees of rotation**
* **Low forceps:**
* station 2 but skull not on pelvic

floor

**Midforceps:** station higher than 2 with engaged head (not done)

**VACCUUM EXTRACTION:**

can cause cephalophematoma and lacerations

* Same requirements for outlet forceps
  + **INDUCTION:** **Indications**: PreEclampsia at term, PROM, Chorioamnionitis, fetal jeopardy/demise, >42w, IUGR
    - **Bishop Scoring System**: if induction is favorable:

>8 vaginal delivery without induction will happen same as if with induction: < 4 usually fail induction:

< 5 – 50% fail induction

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Score** | **Cm** | **Effacement** | **Station** | **Consistency** | **Position of cx** |
| **0** | 0 | 0-30% | -3 | Firm | Post |
| **1** | 1-2 | 30-50% | -2 | Med | Mid |
| **2** | 3-4 | 60-70% | -1,0 | Soft | Ant |
| **3** | 4-5 | >80% | +1, +2 |  |  |
| * **Prostaglandins:** dilate cervix and inc contractions: Prepidil, Cervidil, Cytotec: | | | | | |

|  |  |
| --- | --- |
| contraindicated in prior CS, nonreassuring fetal monitoring | |
| * **Laminaria:** | * an osmotic dilator, is actually seaweed! |
| * **Amniotomy:** speeds labor; beware of prolapsed cord! | |
| * **Oxytocin:** | * 10 U in 1000 ml IV piggyback on pump @ 2 m U/min; if over 40 mU/min are used watch for SIADH |

* + **Augmentation of labor needed in inadequate ctx, prolonged phases**

**DELIVERY**

* **Crowning - Ritgen’s maneuver (hand pressure on perineum to flex head) Head out:, check for nuchal cord (cord around neck) – delivery anterior shoulder gently by pulling straight down- suction nares and mouth with bulb – deliver posterior shoulder –**

**clamp cord with 2 Kellys, cut with scissors, hand off baby – get cord blood– gentle traction on cord with suprapubic pressure, massage mom’s uterus – retract placenta out and inspect it – inspect mom for tears, visualize complete cervix**

* **Episiotomy**

**repair**

(1 – 2 degree midline) 2 – 0 Chromic or Vicryl locking suture

superiorly to repair vaginal mucousa – interrupted chromics to repair deep fascia if needed – simple running to repair mid fascia – sub Q stitch inferiorly and superficially

* **A third degree tear**

involves the rectal sphincter; a fourth degree tear involves rectal mucousa

* **Midline)**

episiotomy: can extend, but has less dyspareunia;

* + Mediolateral episiotomy is done at 5 or 7 o’clock, but has more pain and infx but

less chance of extension (consider if shoulder dystocia

* **Shoudler Dystocia**

RF: macrosomia, DM, obese, post dates, prolonged second stage. Compl: fracture, brachial plexus injury, hypoxia, death

Treatment:

* Suprapubic Pressure (not fundal pressure!)
* McRobert’s – mom flexes hips – knees to chin level
* GENTLE traction
* Wood’s Corkscrew – pressure behind post shoulder to dislodge the ant shoulder
* Rubin maneuver – pressure on accessible shoulder to push it to ant chest of fetus to decrease biacromial diameter
* Fracture clavicle away from baby
* try to deliver posterior arm
* CARDINAL MOVEMENTS

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* Engagement – fetal head enters pelvis
* Flexion – smallest diameter to pelvis
* Descent – vertex to pelvis
* Internal Rotate – sag suture is parallel to AP
* Extend at pubic symphysis
* Externally rotate after head delivery
* **INDICATIONS**

**FOR C-SECTION**

* Failure to progress (P’s of labor)
* Breech presentation with labor
* Shoulder presentation
* Placenta Previa
* Placental Abruption
* Fetal distress: 5 minutes of decal <90 bpm; repetitive late decals unresponsive to resusitation
* Cord Prolapse
* Prolonged second stage of labor
* Failed forceps
* Active herpes
* Prior classical C/S (has to do with incision on uterus not skin!)
* 2 prior low transverse c/s (VBACs are controversial)

#### Ultrasound

* Doppler Velocimetry

**: systolic/diastolic ratio in the umbilical cord**

* + **Inc S/D ratio: pre-eclampsia, IUGR, nicotine, maternal tobacco**
  + **If end diastolic flow absent or reversed, delivery is indicated**
  + **Velocimetry is done in cases of suspected IUGR**
* **The first**

**ultrasound is the only one that can change dates. Accept U/S date if over LMP date by.**

* 4d – 1 w: first trimester
* 2w: second trimester
* 3 w: third trimester
* **Dating is done circumference**

by a biparietal diameter, head circumference, femur length and abdominal

**Anesthesia**

* Epidural anesthesia:

**lengthens second stage – may need oxytocin**

* + **Injected into L3/L4 interspace: use the technique of least resistance (the epidural space has a negative atmospheric pressure so the syringe you place over the needle will suddenly lose its resistance as you advance it into the epidural space, inject test dose)**
  + **Can cause hypotension after dosage because the autonomic nervous system is blocked and all blood pools in extremities; can see late decals, but usually resolve with hydration and blood pressure increase.**
* **Paracervical**

**block:**

not really done because can inject into fetus easily and cause fetal bradycardia

* Spinal: one time dose, shorter duration of action, used in repeat c/s
* **Pudendal**

**Block:**

* Can be done with vaginal delivery, inject analgesic into post-

ischial spine and sacrospinous ligament (takes 5 – 10 mins to set up: good for forceps delivery without epidural)

**Fetal Complications of Pregnancy**

* SMALL FOR GESTATIONAL AGE
* **< 10% percentile for growth**
* **can be symmetric or asymmetric**
* **has higher rates of mort/morbidity**
* **RF: Decreased growth potential**
  + **Congenital abn: Tri 13, 18, 21, Turners**
  + **CMV, Rubella**
  + **Teratogens, smoking, EtOH**
* **IUGR:**
  + Causes: Htn, DM, renal dz, malnutrition, plac previa, abruption, CMV, Toxo, Rubella and mult gest
  + Symmetric: insult was early in gestation ie. Viral
  + Asymmetric: late onset (ie. Tobacco); femur length is usually spared

Doppler velocimetry with end diastolic flow reversed or absent or nonreassuring fetal heart tracing necessitates delivery

* **MACROSOMIA:** > 90% percentile: > 4500g
  + Higher risk of shoulder dystocia and birth trauma (brachial

plexus injuries), low APGAR, hypoglycemia, polycythemia, hypocalcemia, jaundice

* + ETIO: DM, obesity, post term, multiparity, inc. age
  + FU: u/s q 2 weeks to assess size; however US is not that accurate in diagnosis
  + TX: tight control of diabetes; wt loss before conception; induce, prepare for dystocia; consider c/s if over 5000g
* **OLIGOHYDRAMNI OS:**

**Amniotic fluid abnormality**

* + **Amniotic Fluid index: divide mom’s belly into 4 quadrants – measure the largest pocket of fluid in each <5: Oligohydramnios >20: Polyhydramnios**
  + **Absence of Range of Motion – 40X increase in Perinatal mortality**
  + **Assn with abnormalities of GU (renal agenesis = Potter’s Sd,**

**polycystic kidney dz, obstruction), and IUGR**

* + **Fetal Kidney/lung amniotic fluid resorbed by placeta, swallowed by fetus, or leaked out into vagina.**
  + **Most common cause: ROM (rupture of membranes)**
  + **Dx: US**
  + **TX: If preterm, hydrate if fetus stable; If term, deliver**
* **POLYHYDRAMNIO**

**S:**

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AFI > 20 or 25; 2-3% of pregnancies; assn with NT defects; obst

mouth, hydrops, mult gest

Monitor with serial ultrasounds. Can do therapeutic amniocentesis.

#### Antenatal Hemorrhage

* **Placenta previa: Abnormal implantation of placenta over the internal os**
  + **Three types**
    1. **Complete (completely over os)**
    2. **Partial (little over os)**
    3. **Marginal (barely over os)**
  + **SS: painless vaginal bleeding – dx by ultrasound – DON’T EXAMINE WITH YOUR HANDS ! Avoid speculum exam! If patient presents complaining of vaginal bleeding, make sure an ultrasound for placental location is performed first.**
  + **RF: previous placental previa, prior uterine scars, multiparous, adv mat age, large placenta**
  + **TX: CS if lungs mature/fetal distress/hemorrhage**
  + **Placenta accreta: superficial invasion of placenta into wall of uterus**
  + **Placenta increta: invasion into the myometrium**
  + **Placenta percreta: invasion into the serosa Tx for above 3: 2/3 get hysterectomy after c/s**
* **Placental abruption:**
* **UTERINE RUPTURE :**

premature separation of a normally implanted placenta

* + SS: usually painful vaginal bleeding (uterus is contracting) / hemm between wall and placenta
  + RF: htn, prior abruption, trauma, smoking, drugs – cocaine, vascular disease
  + DX: inspection of placenta at delivery for clots; can see retroplacental clot on ultrasound or a drop in serial hematocrits
  + TX: deliver if fetal status nonreassuring Complications: hypovolemia, DIC, couvalaire uterus (brown boggie), PTL

major cause of maternal death

* + 40% assn with a prior uterine scar (CS, uterine surgery)
  + 60% not assn with scarring but abd trauma (MVA), improper oxytocin, forceps, inc. fundal pressure, placenta percreta, mult gest, grand multip, choriocarcinoma/molar pregnancy
  + SS: severe abd pain, vag bleeding, int bleeding, fetal distress
  + TX: immediate laparotomy, hysterectomy with cesarean
* **Fetal vessel**

**rupture:**

occurs usually with a velamentous cord insertion between amnion

and chorion; may pass over os=vasa previa (Perinatal mortality 50%)

* **SS**: vag bleeding, sinusoidal variation of HR
* **RF**: mult gestation (1% singleton, 10% twins, 50% triplets)
* **Non obstetric causes of**

Cervictis, polyps, neoplasms, vag laceration, vag varicies, vag neoplasms, abd pelvic trauma, congenital bleeding d/o

antepartum

**hemorrhage**

**Preterm Labor**

* **Rf:** **low SES, nonwhite, <18 yr, mult gest, h/o preterm birth, smoking, cocaine, no PNC uterine malformation, h/o CKC, Group B strep, Chlamydia, Gonorrhea, BV**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * **Survival:** | 23 w 0-8% | 24w 15-20% | 25w 50-60% | 26- |
|  | 28w 85% | 29w 90% |  |  |

**ALGORITHM:**

**Good Dates**

**<24w 24-34w >34w**

**Sab Tocoysis, Steroids Expectant management**

* **Contraindications**

**to tocolysis:**

* acute fetal distress, chorioamnionitis, eclampsia/pre e, fetal

demise, fetal maturity, hypersensitivity to tocolytics, heart disease, IUGR

* Work up: H&P, check cervix visually by speculum, wet prep, UA, cervical

length, fetal fibronectin

* **Tocolytics: MgSO4**: works as membrane stabilizer, competitive inhibition of Ca;

therapeutic at 4-7 mEq/L

SE: flushing, nausea, lethargy, pulm edema

Toxicity: cardiac arrest (tx: calcium gluconate), slurred speech, loss of patellar reflex (@ 7 -10), resp problems (@15-17), flushed/warm (@9-12), muscle paralysis (@15-17), hypotn (@10-12)

Nifedipine: calcium channel blocker: 10 mg q 6 h; se: nausea and flushing

B2 agonist: ritodrine/ terbutaline: dec. uterine stimulation; may cause DKA in hyperglycemia, pulm edema, n/v, palpitations (avoid with h/o cardiac disease or if vaginal bleeding) 0.25 mg sq q 20-30 min x 3 then 5 mg q 4 po

**Indomethacin/prostaglandin synthesis inhibitor**: 50 mg po/100 mg pr SE: premature closure of PDA in an hour, oligohydramnios

* Add. o Betamethasone or Dexamethasone (to increase fetal lung maturity)
  + Bedrest with bathroom priviledges
  + Pen G (Group B Strep prophylaxis)
* **Preterm baby**

o Low birth weight

**risks**

* Intraventricular hemorrhage
* Sepsis
* Necrotizing enterocolitis

### PROM

* **Preterm PROM <37w (usually 32-36 w) = PPROM**
* **Prolonged PROM :**

rupture > 24 hours

* CAUSES: infx, hydramnios, incompetent cervix, abruptio placenta, amniocentesis
* Labor usually follows shortly
* **DX:**
* Sterile speculum exam – ferning (on slide), pooling

(in fornices), nitrazine paper (turns blue) - gc, chl,

strep B culture U/S – looks for AFI

(oligohydramnios)

* MGMT:
* > 36w delivery

Preterm pen G for B strep, expectant management vs. delivery for any signs of infection or fetal compromise, BPPs vs. NSTs

* **Chorioamnionitis**

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**Def**: infection of amniotic fluid

Requires delivery; increased risk with inc. length of rupture of membranes

**SS**: fever > 38 c, inc WBC, tachycardia, uterus tender, foul discharge

**TX**: Ampicillin and Gentamycin, add Clindamycin if c/s, DELIVERY

Most common cause of neonatal sepsis

* **Endometritis** **RF**: prolonged labor, PROM, more c/s than vag delivery
* ORGS: polymicrobial anerobes/aerobes like E Coli/Group B Strep/Bacteroides
* SS: uterine tenderness, foul lochia
* TX: gentamycin and clindamycin (continue until 24-48 h afebrile)

### Cephalopelvic Disproportion+ Malpresentation

* Cephalopelvic
* **Common indication for c/s**
* **Types of pelvis:**

 **Gynecoid: 12 cm widest,**

**sidewalls straight**

* + **Android: 12 cm diam, sidewalls convergent**
  + **Anthropoid: <12 cm, sidewalls narrow**
  + **Platypelloid: 12 cm, sidewalls wide**
* **Obstetric conjugate diameter: sacral promontory to midpoint symphysis pubis: shortest AP diameter 9.5 – 11.5**
* **Breech**

: 3-4%

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RF: previous breech, uterine anomalies,

polyhydramnios, oligohydramnios, multigestation, hydro/anencephaly

Frank: flexed hips, extended knees (feet near head)

Complete: flexed hips, one or both knees flexed Incomplete/Footling: one or both foot down

DX: Leopold’s maneuver, vaginal exam (feel

sacrum and anus)

TX: C Section is the preferred management, external version (manipulation into vertex position), trial of delivery if 2000-3500g and multip (has a proven pelvis)

* Face :chin is anterior for delivery, many anencephalics have a face presentation; dx on exam
* **Brow:**

must convert to occiput for delivery

* OP: usually rotate to OA (manually)
* **Shoulder**

transverse lie do c section

* Compound: fetal extremity with vertex or breech cord prolapse; part will reduce as labor occurs

**PP Hemorrhage**

* **Definition > 500 ml blood loss following vag delivery, > 1000 ml blood loss following c/s**
* **Causes** Uterine atony coagulopathy

Forceps uterine rupture Macrosomia

uterine inversion

* Tx Vigorous fundal massage

Oxytocin 20 U in 1000 ml NS

Repair laceration

Methergine 0.2 mg IM (contra: htn) Take out placental remnants

PgF2 – alpha (Hemabate) (contra: asthma) Cytotec 800 mg rectal

Hysterectomy if medical therapy fails

#### Rh Incompatibility

* **Mom is Rh neg (Rh is an antigen on the RBC: CDE family) + *Dad is Rh***

***pos* = *baby is be Rh pos*: during first pregnancy (usually**

**at delivery but can occur with Sab,amniocentesis, trauma, ectopic, etc), mom develops antibodies against Rh positivity (because she lacks the antigen) which can cross the palacenta and cause a hemolysis in the newborn which may cause death**

* **Kleihauer Betke Test:**

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assess amt of fetal blood passed into maternal

circulation

On first visit: blood type, also screen for other antibodies:

* Lewis – “lives”
* Kell – “kills”
* Duffy – “dies”
* RHOGAM: given as passive immunization to prevent sensitization: given @ 28 w; check baby at delivery,

if Rh+ give Rhogam again to mom within 72 hours

* + If multip not sensitized tx as above
* **Sensitized:**
* mom has developed antibodies against baby 

check a titer: if over 1:8, do fetal survey on US and amniocentesis at 16 – 20 w to measure the OD 450 with the spectrophotometer (you know, that machine you used in general biology) reading for the LILEY CURVE

Zone 3 HDN

Zone 2

Zone 1Okay

**Weeks gestation**

**Note: the delta OD 450 is prognostic, not the titeritself**

**Zone 2/3 TX: intrauterine blood transfusion through umbilical A of RH neg blood**

* **Erthroblastosis**

**fetalis**

: heart failure, diffuse edema, ascites, pericardial effusion,

bilirubin breakdown jaundice, neurotoxic effects.

**Intrauterine Fetal Demise**

* + - **assn with abruption, congenital anomalies, post dates, infection, but usually is unexplained.**

**IUFD**

**Retained IUFD**

* over 3 – 4 w leads to hypofibrinogenemia

secondary to the release of thromboplastic substance of decomposing fetus sometimes **DIC** can result.

* **DX:**

no FHT on ultrasound

* **TX** : delivery
  + : do NST: if nonreassuring do induction

**Postdates :@ 41 w**

* + - 42w: do BPP and NST 2 q wk: if nonreassuring do induction
    - inc risk of macrosomia: oligohydramnios,

Meconium aspiration, IUFD

* + - DX: by LMP, u/s consistent with LMP in first trimester
    - Induce after 42 w

### Multiple gestation

* **Multiple Gestation:** **1/80 twins & 1/7000 – 8000 triplets**
  + **Complications: PTL, placenta previa, cord**

**prolapse, pp hemorrhage, pre E**

* + **Fetal complications: preterm, congenital abnormalities, SGA, malpresentation**
  + **Delivery: usually occurs at 36 – 37 w if twins; Triplets – 33 – 34 w**

1.

* **Monoygotic Twins:**

**“identical”**

2.

3.

Dichorionic diamniotic: 2 chorions/ 2

amnions: separation before trophoblast on embryonic disk (splits before 72 hours) Monochorionic diamniotic: has one placenta; when twins occur d. 5-10 before amnion forms

Monochorionic monoamniotic: one chorion and amnion; can be conjoined twins

**Dizygotic Twins: “fraternal”**

1. Dichorionic diamniotic
2. Inc in Africa (Nigeria)
3. 2 sperm/ 2 eggs

* DX : u/s, inc HCG, inc MSAFP
* TX : managed as high risk
* **Delivery of Twins:** 40% vertex vaginally (only if reassuring FHT,

2500 – 3500 g)

* + 20% vtx / br or br / vtx 20% controversial, usually c/s
  + 20% br / br cs
  + Triplets cs

**Pre-Eclampsia / Eclampsia / Chronic Htn**

BP

Dip Prt 24h Urine

H/a, vision changes RUQ pain

**Normal**

<140/90

TR

<150 mg No

No

HELLP, LFT increased No

**Mild Pre E**

140-159/90-109

+1,+2

300 mg no

no no

**Severe Pre E**

>160/110

+3,+4

3.5 – 5.0 g

yes yes yes

* **ETIOLOGY:** **vasospasm; inc. thromboxane; trophoblast invasion of spiral arteries**
  + **recurrence of pre E in subsequent pregnancy is 25 – 33%**
* **Fetal Complications:** prematurity, dec blood flow to placenta; abruption/fetal

distress, IUGR, oligohydramnios

* SS: htn, proteinuria in third trimester
* **When severe,** can get severe h/a, vision changes, seizures (eclampsia)
* RF: nulliparous, >40 yr., African American, chronic htn, chronic renal dz, antiphospholipid sd, twin gestation, angiotensin gene T235, SLE
* **TX:**
* **delivery is the “cure”**

**MgSO4** (always check reflexes and respirations when on Mg, need good UOP)

4.8 – 8.4 mg/ml: therapeutic

8 CNS depression

10 Loss of dtr’s

15 Respiratory depression/paralysis

17 Coma

20 Cardiac Arrest

Hydralazine to control BP over 160/110

* **ECLAMPSIA:** pre eclampsia plus seizures
* Can have cerebral herniation, hypoxic encelphalopathy, aspiration, thromboembolic events

o Seizures are tonic clonic: 25% prelabor/

50% labor / 25% after labor (even 7-10 days)

* Tx of seizures: MgSo4 (membrane stabilization), Valium IV

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* **HELLP:**

hemolysis, elevated liver enzymes, low platelets

* Usually in the severe pre E classification
* Tx: delivery, MgSo4, hydralazine
* **Chronic Htn: <20w EGA,**

**>6w post partum; 1/3 can get superimposed pre E; inc risk of abruption, DIC acute tubular necrosis, inc. prematurity / IUGR**

* <20w EGA, >6w post partum; 1/3 can get superimposed pre E; inc risk of abruption, DIC acute tubular necrosis, inc. prematurity / IUGR

o TX: procardia (CCB), methyldopa, B blockers, NSTs at 34 weeks

#### Diabetes in Pregnancy

* **Priscilla White Classification:**

**not used as much anymore**

**A1 diet controlled GDM (gestational diabetes mellitus)**

**A2 GDM controlled with insulin; polyhydramnios, macrosomia, prior stillbirth**

**B DM onset > 20 yo; duration < 10y C onset 10-19 yr; duration < 20 y**

**D juvenile onset dur > 20 y F nephropathy**

**R retinopathy**

**M cardiomyopathy T renal transplant**

* Etiology :. impairment in carbohydrate metabolism that manifests during pregnancy ; 50% in subsequent preg ; many get DM later in life
* Risk Factors: >25 yo, obesity, family history, prev infant >4000 g, prev. stillborn, prev. polyhydramnios, recurrent

Ab

* **Assn with:**
* 4x more pre e, 2x more S Abs, inc. infx, inc.

hydramnios, c/s, pp hemorrhage, fetal death

* Fetal anomalies: Transpostion of the great vessels, sacral agenesis, macrosomia, still birth
* **DX:**

O’Sullivan (50 g glucose) @28 w over 140: fasting <105, 1

hr <190, 2 hr <165, 3 hr <145

* **Management:**

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ADA 1800 – 2200 kcal/d diet; glucose checks, insulin if necessary, deliver @ 38-40 w oral glucose tolerance test after delivery in six weeks

* **Antenatal testing:** @ 30-32 w US q 4w (look for IUGR,

polyhydramnios), kick counts, NST, BPP

* **Watch for neonatal hypoglycemia**
* **Asymptomatic Bacturia: >.**

**UTI & Pyelonephritis**

**100,000 colonies 5% of pregnancies; increased susceptibility to cystitis and pyelonephritis (15% complicated by bacteremia, sepsis, ARDS); treat as bacturia because of risks of preterm labor assn with pyelonephritis**

* **Causes:**
* Staph saprophyticus, Chlamydia, E Coli, Klebsiella,

Pseudomonas, Enterococcus, Proteus, Coag – staph, group B strep

* **SS UTI:** dysuria, frequency, urgency
* **Dx UTI:**

U/A + nitrite, WBC esterase, bacteria (contaminated if inc. epithelial

cells)

* **Tx UTI** : (pregnancy): Macrodantin
* **SS Pyelonephritis:**
* **TX Pyelonephritis:**
* CVA tenderness, fever, dirty UA (need 2/3 of criteria to diagnose)
* IV Ancef until afebrile x 48 hours then 7-14 d po Keflex
* Pyelo is more likely to occur on the R because the uterus is dextrorotated. Progesterone’s effects cause urinary stasis, which can predispose to pyelonephritis.

### Infections and Pregnancy

* Bacterial Vaginosis:

**Gardnerella vaginalis**

* + **ss: gray/yellow malodourous discharge – clue cells on wet prep**
  + **tx: Metronidazole (flagyl) in second or third trimester**
* **Group B Strep:**

Assn with UTI, Chorioamnionitis, endometritis, neonatal sepsis

* 2-3/1000 live births assn with GBBS sepsis
* IV pen G or ampicillin in delivery
* **Herpes Simplex Virus:**

a DNA virus (HSV 1 and 2)

* + If mom has lesions can give baby viral sepsis on the way out herpes encephalitis
  + Tx: IV Acyclovir, C SECTION if active lesions
* **Varicella Zoster**

**Virus**

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Vertical transmission possible

If mom gets chicken pox during pregnancy the baby could die

**TX**: varicella zoster immune globulin given to mom within 72 hours of exposure; can also give to infant.

* **CMV** **SS baby**: hepatosplenomegaly, thrombocytopenia,

jaundice, cerebral calcifications, chorioretinitis,

interstitial pneumomitis, MR, sensorineural hearing loss, neuromuscular d/o

* **Rubella**

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**SS adults**: maculopapular rash, arthralgia,

lymphadenopathy for 2-4 d

**SS infant**: deafness, CV anomalies, cataracts, MR

**Dx**: IgM titers in infant

Do not give MMR vaccine to pregnant woman No tx for rubella

* **Toxoplasmosis** **First trimester infection**: chorioretinitis, microcephaly,

jaundice, hepatosplenomegaly

* + Adult SS: fever, malaise, lymphadenopathy, rash
  + Dx: percutaneous umbilical cord sampling, IgM ab
  + Tx: pyrimethamine (<14 w), spiramycin (less teratogenic)

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**Hepatitis B**

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**Transm**: sex, blood products / transplacental; can

cause mild to fulminant hepatitis **Dx**: ab markers: Hbs Ag Vaccinated at birth now

* **Chlamydia** 40% babies get conjunctivitis
  + 10% babies get pneumonitis
  + Tx: Zithromax, erythromycin
* **Syphilis**

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Vertical transmission possible in primary and

secondary syphilis

**SS baby**: hepatosplenomegaly, hemolysis, LAD, jaundice, saber shins

**Dx**: IgM antitreponemal ab

* HIV Vertical transmission possible; AZT decreases chances GREATLY
  + Inc transmission with inc viral burden/adv disease
* **Neisseria**

**gonorrhea**

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Transmitted during birth to eye, oropharnyx, ext ear,

anorectal mucousa

Disseminates arthritis, meningitis Screening in early pregnancy

**Tx**: ceftriaxone, Suprax po

**Hyperemesis Gravidarum**

* Hyperemesis Gravidarum
* **Morning sickness is found in 80% of women, but usually resolves by 16w**
* **Hyperemesis: more pernicious vomiting assn with weight loss, electrolyte imbalances, dehydration, and if prolonged, hepatic and renal damage.**
* **Tx: maintain nutrition, NS with 5% dextrose, compazine, phenergan, reglan IV/IM; if needed TPN**

**(total parenteral nutrition)**

**Coagulation Disorders**

* **A hypercoaguable state can be due to inc. coag factors (all except 11, 12, dec turnover time for fibrinogen), endothelial damage, and venous stasis (uterus compresses IVC and pelvic veins) increased deep venous thromboses, septic pelvic thromboses and pulmonary emboli.**
* **Septic pelvic**

**thrombosis:**

* postpartum, prolonged fever on antibiotics; usually due

to ovarian veins; not likely to lead to emboli; **tx** is heparin, abx

* **Deep Venous Thromboses:**
* SS: edema, erythema, palpate venous cord, tender, different calf sizes; Dx: Doppler of extremity, venography; Tx: heparin IV (PTT x 2) then sub Q heparin or lovenox in pregnancy (NO COUMADIN IN PREGNANCY: skeletal anomalies, nasal hypoplasia); coumadin OK if post partum.
* **Pulmonary**

**Embolus:**

* DVT right atrium RV pulmonary arteries 

pulm htn, hypoxia, RHF death.

SS: sob, pleuritic chest pain, hemoptysis, with signs of DVT DX: Doppler ext, CXR, ECG, VQ Scan, Spiral CT Pulmonary Angiography

TX: IV heparin then SQ heparin or lovenox (coumadin OK postpartum

#### Substance Abuse

* **EtOH:** **Fetal AlcoholSd: growth retardation, CNS effects, abnormal facies, cardiac defects**
* **Tx**
* alcoholism: aggressive counseling; adequate nutrition
* **Caffiene:** 80% exposed in first trimester
* **Tobacco:**
* Inc. Sab, preterm birth, abruption, dec. birth weight,

SIDs, resp disease

* **Cocaine:**

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* inc. abruption (from vasoconstriction), IUGR, inc PTL; as a child, developmental delay
* Opiates:. (heroin/methadone); the danger is heroin withdrawal, not use miscarriage, PTL, IUFD; tx: enroll in methadone program; do not restart methadone if

patient has not used for 48 hours

#### Postpartum Care

* **Vaginal delivery:** **pain care/perineal care (ice packs, check for**

**hemorrhage, stool softener Pelvic rest x 6 w (no**

**douching, tampons, sex); NSAIDS**

* **C Section:**
* local wound care, narcotics for pain, stool softeners,

NSAIDS

* Breast Care: Milk letdown occurs at 24 – 72 hr; if not breast feeding use

ice packs, tight bra, analgesia (breast feeding gives relief)

* **Mastitis:**
* oral or skin flora enter a crack in breast skin; can be treated

with dicloxacillin; *continue to breast feed.*

* **Contraception:** no diaphragms, caps until 6 w; if breast feeding depo,

micronor; not breastfeeding OCP, norplant, depo,

Orthoevra

* **Post Partum Hemorrhage:**

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* **Post Partum depression:**
  + Blood loss vag delivery = 500 cc; c/s = 1000cc (normal – remember, mom’s plasma volume expands just for this reason!)
  + **Causes:**
    - Uterine atony (RF: multip, h/o atony, fibroids) tx: pitocin, methergine, etc.
    - Retained products of conception: find on manual exploration of uterus
    - Placenta accreta: placenta is stuck in uterine wall
    - Cerv/Vag lacs: repair with adequate anesthesia
    - Uterine rupture (1/2000) ss: abd pain,

“pop” tx: laparotomy and repair if possible.

Uterine Inversion (1/2800) RF: fundal placenta, atony, accreta, excess cord traction tx:manually revert, NTG, Laparotomy

* + Post partum blues: 50%; changes in mood, appetite, sleep, will resolve
  + Post Partum depression: 5%; decreased energy, apathy, insomnia, anorexia, sadness; can get better or proceed to psychosis; tx: antidepressants (SSRIs)
* **Endometritis:**
* a polymicrobial infection invading the uterine wall after

delivery;

* + SS: fever, inc WBC, uterine tenderness (@ 5-10 d pp), foul discharge
  + Look for retained products do a d & c
  + Tx: triple antibiotics until afebrile x 48 hours and pain gone.

# B-GYNECOLOGY

#### Benign Disorders of Lower Genital Tract

* **Congenital anomalies:**
  + **Labial fusion: assn with excess androgens develop abnormal genitalia tx: estrogen cream**
  + **Imperforate hymen: the junction between the sinovaginal bulbs and the UG sinus is not perforated obstructs outflow**
    - **SS: primary amenorrhea at puberty, hematocolpos (blood behind hymen)**
    - **TX: surgery**
  + **Vaginal septums: when vagina forms, the sinovaginal bulbs and mullerian tubercle must be canalized. If not you get a transverse vaginl septum between lower 2/3 and upper 1/3 primary amenorrhea**
    - **TX: surgery**
  + **Vaginal agenesis: Rokitansky-Kuster-HauserSd: mullerian agenesis/dysgenesis; may have rudimentary pouch from sinovaginal bulb; Testosterone Insensitivity: 46 xy with no sensitivity to testosterone (may have undescended testes)**

**TX: surgical creation of vagina**

* **Vulvar dystrophy:**
* Hypertrophic: from chronic vulvar irritation = raised white lesions
  + TX: cortisone cream bid
  + Atrophic: dec estrogen to local tissues (postmenopausal)
  + SS: dysuria/parunia, pruritus, Vulvodynia, lichen sclerosis et atrophicus
  + Tx : 2% testosterone cream, hydrocortisone cream
* Benign Cysts: o Epidermal Cyst: occlusion of pilosebaceous duct/hair follicle
  + Tx: incision and drainage
* Sebaceous cyst: duct blocked – sebum accumulates
  + TX: I & D if infected
* Apocrine Sweat Gland Cyst: on mons or labia occludes glands superinfection hidradentitis suppurative I & D,

Doxycycline

* Bartholin’s gland Cyst: 4 or 8 o’clock on labia majora
  + TX: sitz baths, infx – I & D / word catheter
* **Cervical**

**Lesions**

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Congenital anomalies: DES exposure in utero = 25%

congenital anomalies, clear cell adenocarcinoma 1% Cervical Cysts: dilated retention cysts: nabothian cysts = blockage of endocervical gland @ 1 cm – asx, no TX Mesonephric Cysts: (remnants of wolfian/mesonephric ducts) deeper in stroma

Polyps: broad based = can have intermittent/post coital bleeding; usually removed cervical fibroids = intermenst bleeding, dysparunia, bladder/rectal pressure/ r/o cerv can Cervical Stenosis: congenital or after scarring (surgery/radiation) or secondary to neoplasm or polyp; if asymptomatic, leave alone; if causes menstrual problems, remove; gently dilate scarring.

* Fibroids = Estrogen dependant local proliferation of smooth muscle cells,

usually occur in women of child bearing age and regress at

menopause; African American are at higher risk; has a

pseudocapsule of compressed muscle cells; are found in 20-30% American women at age 30

* + SS: menorrhagia (submucous), metrorrhagia (subserous, intramural), pressure sx (from pressing against bladder), infertility; 50% are asymptomatic.
  + Parasitic fibroids: get their blood supply from the omentum.
  + **Histologic Changes:**
    - Hyaline Change o Cystic Change o Calcific change o Fatty Change
    - Red/white infarcts
    - Sarcomatous change (most rare)
  + In pregnancy are at increased risk for Sab, IUGR, PTL, Dystocia; may grow during pregnancy
  + Med TX: Depo provera, Lupron (GnRH agonist), Danazol
  + **SurgTx**: momectomy(only for fertility purposes), **hysterectomy indicated when anemic from bleeding, severe pain, size > 12 w, urinary frequency, growth after menopause**, new role for embolization by interventional radiology
* **Endometrial hyperplasia:**
* abnormal proliferation of gland/stromal elements; overabundance of

histologically normal epithelium

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Simple without atypia: 1% cancer- Provera

Complex without atypia: 3% cancer- Provera Simple with atypia: 9% cancer- Provera vs. TAH Complex with atypia: 27% cancer- TAH

RF: unopposed estrogen, PCO, granulosa/theca tumors DX: endometrial biopsy

* + **Adenomyosis**: Endometrium in myometrium
    - Ususally a 30 yo multiparous woman with *heavy painful periods*, enlg tender uterus described either as boggy/soft or woody/firm and pelvic heaviness

**Endometriosis**

**Endometriosis**

* ENDOMETRIOS
  + - Rx: hysterectomy / analgesics
    - The tissue does not undergo proliferation phase of cell cycle.
  + **Pelvic Endometriosis**: presence of endometrial glands outside of endometrium
    - Theories
      * Sampson’s reflux menstruation: most likely
      * Coelomic metaplasia: irritant to peritoneum
      * Family history / genetic
      * Immunologic
      * Lymphatic and vascular mets
      * Iatrogenic dissemination (ie:you see it on the other side of a c section scar)
    - Induces fibrosis which causes pelvic pain
    - SS: pain, infertility, bleeding/ovarian dysfunction, hematochezia/ hematuria, dyspareunia (pain with sex)
    - Can be on peritoneum, ovary (chocolate cysts), round ligament, tube, sigmoid colon
    - DX: laparoscopy
    - **TX**:

 NSAID

* + - * OCP/Provera
      * Lupron (GNRH agonist) – pseudo menopause
      * Laser surgery/coagulation of implants, TAH/BSO

**Ovarian**

|  |  |  |
| --- | --- | --- |
|  | * **CYSTS** | * Usually follicular from failure of follicle rupture; disappear in 60 d   3 – 8 cm |
| * Types:   + Corpus luteum cysts (firm/solid)   + Cystic/hemorrhagic (hemoperitoneum)   + Theca lutein (bilateral, filled with straw fluid; high bHCG) * **DX**: ultrasound, CA125 in cases suspect for epithelial ovarian cancer * **DiffDX**: ectopic, tuboovarian abscess, torsion, endometriosis, neoplasm * **TX**: if premenopausal, can observe if under 8cm; If postmenopausal (any size) or premenopausal need laparoscopy vs. laparotomy for cystectomy or oopherectomy | | |

* **Chlamydia trachomatis:**

**Treatment of STDs**

o **DX – Direct fluorescent Ab**

**Tx: doxycycline 100 mg bid x 7 d or Azithromycin 1 g po (one dose)**

* **HPV:**
* Types 6/11 = genital warts
* Types: 16,18,31 = cervical cancer
* TX: podofilox, cyrotherapy, podophyllin rein, TCA, Aldara cream
* **Molluscumcont agiosum:**

pox virus from close contact; 1-5 mm umbilicated lesion anywhere but the palms or soles; are asymptomatic and resolve on their own

* **Lymphogranul**

**ona venerum:**

primary = papules/shallow ulcer; secondary = painful inflammation of inguinal

nodes with fever, h/a, malaise, anorexia; Tertiary = rectal stricture/rectovaginal fistula/ elephantiasis **TX**: doxycycline 100 mg po bid x 21 d

* Chancroid: casued by Haemophilus ducreyi; is a painful soft ulcer with inguinal lymphadenopathy; tx with Ceftriaxone 250 IM x once or Azithromycin 1 g once

po or Erythromycin; treat partner

* **N. Gonorrhea:** o DX: gram stain, culture
  + RF: low SES, urban, nonwhite, early sex, prev gon infx
  + Treat both partners
  + TX: Rocephin 250 mg IM or Cipro 500 mg po or Floxin 400 mg po

Usually transfers male to female more than female to male

* **Syphilis:** Treponema pallidum
  + DX: dark field microscopy

TX: (<1 yr duration) Pen G 2.4 million U IM (>1yr duration) 2.4 mill U IM x 3 doses (see ob section for full description

* Herpes

**Simplex Virus:**

first episode – Acyclovir/Famciclovir/Valcyclovir; 66% HSV-2 33% HSV-1 of genital herpes; vesicles rupture in 10-22 d leaving a painful ulcer; can use antivirals also as suppressing agents as the virus hangs out in the dorsal root ganglion.

* Phthris Lice and scabies, respectively; TX: lindane/Kwell

pubis/sarcopte

**s scabei:**

**Vaginitis**

* **Candida:**
  + **RF: Abx, DM, Pregnancy, immunocompromised**
  + **SS: burning, itching, vulvitis, cottage cheese discharge, dysparunia**
  + **DX: wet prep KOH = branching hyphae**
  + **Exam: white plaques with or without satellite lesions**

**TX: over the counter creams work well (monistat); if resistant, Diflucan 150 mg po x once**

* **Trichomonas:** unicellular flagellated protozoan
  + SS: itching, inc. discharge (yellow/gray/green), frothy
  + Exam: strawberry cervix, foamy discharge
  + DX: see the buggers zipping all over your wet prep
  + TX: Flagyl 500 mg po bid x 7 d/ partner condom x 2 w

Note: avoid flagyl in frist trimester

* Bacterial vaginosis:
* Gardnerella vaginalis
  + SS: odorous discharge
  + DX: whiff test by adding KOH; see clue cells on wet prep (spotty squamous cells)
  + TX: flagyl 500mg bid x 7 d
  + Not an STD
* **Atrophy**

o SS: burning d/c on sex o RF: post menopausal o TX: estrogen

**Infections**

* **PID Organisms: Neisseria, Chylamadia, Mycoplasmia, Ureaplasma, Bacterioides, among others**

**SX: diffuse lower abdominal pain, vaginal discharge, bleeding, dysuria, dyspareunia, CMT, adnexal tenderness, GI discomfort DX: Cervical Motion Tenderness, Adenexal tenderness, discharge, fever, elevated WBC, ESR**

**Lab: cultures, pelvic U/S if mass palpated, rise in WBC count TX: *Ceftiaxone 2 g IV q 12, Doxycycline 100 mg IV or Clindamycin – Gentamycin***

***Usually tx for 48 hrs IV then if afebrile change to Doxycyclin 100 mg po bid x 14 d***

**TOA: Tubo Ovarian Abcess: persistent PID progresses to TOA in 3-16% of the time**

**Adnexal mass/fullness (not walled off like true absess)**

**DX: U/S, Pelvic CT if obese, increase WBC with a shift to the left, increase ESR**

**TX: *Hospitalize for IV antibiotics (Triples: ampicillin,***

***gentamycin, clindamycin) if TOA ruptures or doesn’t resolve***

***with antibiotics then surgery.***

* **ENDOMETRITIS:**

usually after some type of instrument disruption of the uterus: C-

section, vaginal delivery, D & E/C, IUD)

DX: endometrial or endocervical culture will result in skin, GI, repro flora

TX: *Doxycycline vs. IV abx*

* **TOXIC SHOCK SYNDROME:**

vaginal infection that is not associated with menstruation

Can be assoc with delivery, c-sections, post partum Endometritis, sab or laser tx of coac

**Staph aureus produces epidermal TSS T-1 that produces fever, erythema rash desquamation of palmer surfaces and hypotension**. Also see GI disturbances, myalase; mucus membrane hyperemia, change in mental status

Labs: increased BUN/CR, decreases plt; but **neg blood cultures** TX: *always hospitalize… may need ICU and give IV fluids and / or pressors. ABX do not shorten the length of the acute illness but*

*does decrease the risk or recurrence.*

### Urogynaecology

* **Bladder anatomy - Detrusser and urethra = smooth muscle**
  + **Internal spincter is at urethrovesical jxn**
  + **Incontinence = intraurethral < intravesical pressure**
  + **PSNS (S2,3,4) allows micturition : CHOLINERGIC RECEPTORS**
  + **SNS – hypogastric n. T 10 – L2 prevents urination by contracting bladder neck and internal spincter : NE RECEPTORS**
  + **Somatic controls external spincter (pudendal nerve)**
* **Pelvic**

**relaxation:**

damage to the anterior vaginal wall leading to cystocele, endopelvic

fascia leading to rectocele or enterocele or stretching of cardinal ligaments which can lead to uterine prolapse

**DX**: mostly PE : called a POP Q, which is a graph on which certain points corresponding to lengths of the vagina and where it moves on valsalva are graphed. This tells you where the defect is, so you know the appropriate therapy from it.

**SX**: pain, pressure, dyspareunia, incontinence, bowel or bladder dysfunction

**Causes**: anything that will cause chronically increased abdominal pressure: cough, straining, ascites, pelvic tumors, heavy lifting **RF**: aging, menopause, traumatic delivery, associated with multiparity

**PE**: pelvic exam shows the amount of descent of the structure into the vagina and thus determines the degree of relaxation: (POP Q)

Stage 1 – upper 2/3 of vagina Stage 2 – to the level of the introitus Stage 3 – outside of the vagina

**TX**: kegels (contraction of levator ani muscle, instructed by physician), estrogen replacement, vaginal pessaries, surgery

* **Incontinence: URGE INCONTINENCE**: aka detrussor instability

SX: urgency, often can not make it to the bathroom

Causes: foreign body, UTI, stones, CA, diverticulitis

Dx: based on history, can be shown on urodynamics (which is a

catheter in the bladder, rectum and a machine to measure the difference. The bladder is filled with normal saline and response to that is measured.)

Urodynamics shows: involuntary/uninhibited bladder contractions TX: Kegle exercises, anticholerginics (ditropan, amytriptaline), muscle relaxants, beta agonists, estrogen replacement- surgery is not used here, more medical therapy is appropriate

**STRESS INCONTINENCE**:

SX: involuntary loss of urine when there is an increased abdominal pressure mostly from sneezing, coughing, laughing which transmits pressure to the urethra

Mech: Intrinsic spincter defect, hypemobile bladder neck, pelvic relaxation

Causes: trauma, neurologic dysfunction, associated with multiparity TX: Keglelexercises, alpha agonists, estrogen cream, retropubic urethropexy (which is a surgery where the periurethral tissue is joined with the Cooper’s ligament – called a Burch) or Trans Vaginal Tape procedure (the periurethral tissues are raised towards the abdominal wall using a mesh sling- placed under local anesthesia)

* **Overflow**

**incontinence:**

**SX**: dribbling, urgency, stress

**Mech**: underactive detrussor leading to poor or absent bladder contractions

**Cause**: DM, drugs, fecal impaction, MS, neurologic

**TX** : treat underlying cause, Hytrin, bethanechol, intermittient cath, dantroleen

**DX**: urodynamics, post void residual (after you pee, you place a catheter to see how much urine is left in the bladder- over 100 cc is abnormal)

* Urinary fistula: produces continuous urine leakage commonly seen following pelvic surgery/radation

RF: PID, radiation, endometriosis, prior surgery

DX: Methylene blue dye injection into the bladder—place a tampon in the vagina- if it’s a vesicovaginal fistula the tampon will be blue, indigo carmine dye given IV with a tampon in vagina—if it’s a ureterovaginal fistula the tampon will be blue

TX: surgery but must wait 3 – 6 months to repair postsurgical fistulas

* **PUBERTY:**

**Endocrinology**

**secondary sex characteristics, growth spurt, achievement of fertility**

1. **Adrenarche (6-8 yo): regenerates zona reticularis that produces DHEA-S, DHEA, androsteinone**
2. **Gonadarche (yo): pulsatile GnRH secretion goes to ant pituitary to secrete LH, FSH**
3. **Thelarche (breast, 11 yo): Tanners stages**
4. **Pubarche (12 yo): pubic hair, Axillary hair**
5. **Growth spurt: (9-13 yo): increase GH and somatomedian – C result in peak height velocity, increase estrogen levels, fusion of growth plate**

**6. Menarche: (12 – 13 yo): anovulatory period up to 1 year, may**

**take 2 years to have regular cycle, delayed in athletes**

**Two pneumonics: (pick your favorite) “breast hair grow bleed” or “boobs pubes pits and pads”**

|  |  |  |
| --- | --- | --- |
| * **Tanner stages** | Breast  1. Prepubertal | Hair  1. prepubertal |
|  | 2. Breast bud | 2. presexual hair |
|  | 3. Breast elevation | 3. Sexual hair |
|  | 4. Areolar Mound | 4. Mid-escutcheon |
|  | 5. Adult Contour | 5. Female escutcheon |
| **Menopause** |  |  |
| * **Menopause:** | **cessation of menstruation Onset – usually 50- 51 years** |  |

* + **if <40 yrs premature menopause**
  + **if <35 premature ovarian failure (idiopathic, send genetic studies)**

**SX: irregular menses, hot flashes secondary to decreased estrogen, mood changes, depression, lower urinary tract atrophy, genital changes, osteoporosis**

**LABS: FSH > 40, elevated LH, decreased estrogen resulting in decreased negative feedback**

**DX: H & P (PE shows decreased breast size with vaginal, urethral, and cervical atrophy 2 to decreased estrogen) TX: Hormone replacement (HRT) primarily estrogen and progesterone if pt has uterus; calcium, Vit D, exercise to**

**counter the decreased osteoclast activity: Estrogen cream to counter act vaginal atrophy.**

**Contraindications: Vaginal bleeding, thromboembolic dz, breast ca, uterine ca**

***Unopposed estrogen (estrogen without progesterone in women without a uterus) results in endometrial hyperplasia and CA***

* **Consequenses**

**of decreased estrogen:**

* unfavorable lipid profile that could result in stroke and MI
* Increased bone resorption b/c estrogen decreases osteoclast activity predisposing to hip fract.
* Atrophy of skin and muscle tone.
* ***WHI Study: What are all these questions about estrogen and progesterone on the news?***

In women with active heart disease, estrogen and progesterone (prempro) increases the remote risk of stroke and DVT. There were problems with this study, however.

There are no problems taking estrogen alone when you don’t have

a uterus

**Primary amenorrhea:pms Secondary amenorrhea: dysmenorrhea**

* **Primary Estrogen gives breasts; Y chromosome makes Mullerian**

**Inhibitory Factor- no uterus if MIF present.**

**amenorrhea: a.**

1. **No Breasts, + uterus: no estrogen**
   1. **FSH high: ovarian failure (hypergonadotropic hypogonadism)**
      1. **Turner’s : ovaries undergo rapid**

**atresia**

* + 1. **Mosaic**
    2. **17 hydroxylase def : MIF produced so no female internal organs**
    3. **Pure Gonadal dysgenesis**
  1. **FSH low: insufficient GnRH, hypo pituitarism, Swyer’s Sd: Gonadal agenesis, 46xy, testes do not develop b/c MIF not released, infertility, external female genitalia, no breast.**

**2. +Breast, – uterus: estrogen + MIF**

1. **Rokitansky Kuster Hauser: uterovaginal agenesis with other anomalies 46xx**
2. **Androgen insensitivity: 46xy, testicular feminization, no receptors for testosterone, MIF secreted therefore no mullerian structures.**
3. **–Breast, – uterus: xy (no steroids) but phenotypically female, no internal female organs.**
   1. **17 hydroxylase def (steroid synthesis) in XY**

**4. +Breast, – uterus:**

1. **Imperforate hymen – solid membrane across introitus, pelvic/abd pain from accumulation of menstrual fluid – hemato colpos.**
2. **Trans vaginal septum – failure to fuse mullerian determined upper vagina and UG sinus found at mid vagina tx: surgery**

**Vaginal agenesis RKH, mullerian agenesis/dysgenesis uterial of partial vaginagenesis, no patent vagina, 46xx, and ovaries and uterus on U/S. Tx: surgery.**

* **Secondary**

**amenorrhea:**

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Must do a good H&P to check for stresses, wt loss/gain,

drugs, exercise, upt, Estradiol level, progesterone challenge

Enough estrogen (bleeds with progesterone challenge) check FSH, LH, PRL

* LH high think PCO
* LH wni think hypothalamic amenorrhea so stress, exercise, post pill
* PRL increased think prolactinoma, hypothyroidism, prenothrazines, pregnancy

No estrogen (no bleed with progesterone challenge) check FSH, LH, PRL

* FSH high think ovarian failure, resistant ovarian syndrome
* FSH low – wnl check MRI/CT for pituitary tumors,

Sheehan’s Simmans syndrome

* Could also be post surgery problems:
  + Asherman’s following D&C
  + Cervical stenosis following CKC

**Swyer’s Syndrome**: 46xy, gonadoagenesis, w/o testes no MIF

yielding female genitalia but no estrogen so no breasts.

**Kallman’s Syndrome**: absence of GnRH and anosomia. Pts

have breast and uterus

Testicular Feminization: 46xy insensitive to testosterone. MIF so no internal female genital structures + estrogen so has breasts.

* **Pms** 2nd ½ of cycle

Probable Causes: abnormal estrogen/progesterone balance,

increase PG production, decrease endogenous endorphins; disturbance in renin-angiotensin-aldosterone system

DX: 5 of 12 symptoms (including 1 of the first four) SX:

* 1. Decreased mood
  2. Anxiety
  3. Affective Liability
  4. Decrease interest
  5. Irritability
  6. Concentration difficulty
  7. Decreased energy
  8. Change in appetite
  9. Overwhelmed
  10. Edema
  11. Edema
  12. Weight gain
  13. Breast Tenderness

*TX*: *avoid caffeine, etoh, tobacco, low sodium diet, weight reduction, stress management.*

*Drugs: NSAIDS, OCPs, lasix, calcium, vit E, SSRI*

* **Dysmenorrhea:**

pain and cramping during menstruation that interferes with the

acts of daily living.

Primary – presents <20 years b/c of increased PG occurs with Ovulatory cycles

Secondary – Endometriosis, Adenomyosis, fibroids, cervical stenosis (congenital, trauma, surgery, infection), adhesions (h/o infection PID, TOA, ex lap LOA)

**Abnormal Uterine Bleeding/DUB**

* **Menorrhagia** **Heavy prolonged menstrual bleeding; over 80 cc/**

**cycle**

* **Avg 35 ml of blood loss**
* **> 24 pads per day**
* **Estrogen increases endometrial thickness**
* **Progesterone matures Endometrium and withdrawal of leads to secretion**
* **Menstruation at regular intervals usually indicates ovulation**
* **Abnormal Uterine**

**Bleeding/DUB**

* aka irregular periods indicate anovulation
* Causes: fibroids, Adenomyosis, endometrial hyperplasia, endometrial polyps, cancer, pregnancy complication

- Puberty – give Fergon, NSAIDS premarin until

bleeding stops, check Von Willebrand Factor

* 16 – 40 yo think endometriosis, Adenomyosis, fibroids *Tx: EMB, OCPs*
* >40 yo think endometrial cancer *TX: EMB, depo provera, D&C, TAH*
* Metrorrhagia: intermenstral bleeding think endometrial polyps, endometrial/cervical cancer, pregnancy complication
* **Polymenorrhea:** cycles <21 d between periods = anovulation
* **Oligomenorrhea:** >35 d apart = disruption of pit/Gonadal axis, pregnancy
* **Dub:**

abnormal uterine bleeding in absence of organic causes

* **Ovulatory dub:** Early spotting – estrogen no increasing fast enough
* Mid spotting – estrogen drop off at ovulation
* Late spotting – Progesterone def
* TX: *NSAIDS dec blood loss by 20-50%*
* **Post menopausal**

**bleeding**

>12 months after menopause

- lower/upper genital tract Mech: exogenous hormones

Non gyn causes: rectal bleeding, prolapse, fissures, tumors vaginal atrophy, CA (endometrial and cervical), endometrial Hyperplasia, Polyps

DX: inspection on PE, pap, rectal, EMB, HSG, H/H, U/S

*TX: ref all gi problems, surgery, estrogen replacement, bx all lesions*

#### Hirsuitism / virilism

* **Diagnosis/ Work up: assess body hair systematically**

**Free testosterone- ovary produces the most**

**testosterone**

**DHEAS- adrenal produces the most DHEAS- screens for adrenal tumors**

**17 hydroxy progesterone- congenital adrenal hyperplasia**

* **Hair type:**
* Villus hairs – cover entire body
* Terminal hairs – thick = Axillary, pubic, 5 reductase converts testosterone to dihydrotestosterone to stimulate terminal hair development
* Hirsuitism – increase of terminal hairs esp on face, chest back, diamond shaped escutcheon (male) increase 5

reductase

* – male features, deepening of voice, balding, increase
* **Virilism**

muscle mass, clitormegaly, breast atrophy, male body habitus

* Causes: Adrenal tumor, ovarian tumor, PCO
* Cushing’s syndrome: increase ACTH, cortisol
* Congenital Adrenal Hyperplasia – 21 and 11

hydroxylase def

* **Polycystic Ovarian Syndrome:**
* This is a syndrome which can include numerous ovarian

cysts, but really is more than that. It includes …

* Insulin Resistance: diagnosed by Fasting Glucose/ Insulin ratio <4.5 Tx: *Metformin*
* Hirsuitism: from hyperandrogenemia
* Anovulation: irregular, heavy periods; if desires fertility treat with *metformin and clomid*
* FSH : LH ratio is over 2.5:1

### Infertility

* **Infertility:** **inability to achieve pregnancy after 12 months of unprotected intercourse, 20% of population**
  + **Idiopathic- 10%**
  + **Male and Female- 10%**
* **Female causes –**

40%

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**Ovulatory** – Anovulation, endocrine, PCO,

premature ovarian failure TX*: ovulation induction*

* 70% success
* *Clomid*: antiestrogen that results in increased FSH, more mature follicies and ovulation se: hot flashes, emotional liability, depression and mult gestations
* *Pergona*l: purified FSH/LH HMG IM injection in follicular phase
* 85 – 90% effective
* IVF, GIFT, ZIFT: ovulation induction, harvest oocytes add sperm fertilize place in uterus.
* **Tubal:** adhesions, endometriosis, PID,

salpingitis

* TX: tubal reconstruction
* **Peritoneal**: endometriosis, adhesions, PID
* **Uterine**: asherman’s, fibroids
* TX: myomectomy
* **Luteal Phase Defect** TX: *progesterone during and after conception*
* **Male causes:** 40%
* TX: for all intrauterine insemination
* MEDS that affect sperm analysis: cimetidine, colchicines, sulfasalazine, allopurinol, erythromycin, steroids, tetracycline
* Cyptorcidism
* Varicocele
* Epidydimitis

Prostatitis

* **Work up:**

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Sperm count- must be done first

TSH, Prolactin

HSG-hysterosalpingogram- assesses patency of tubes and diagnoses intrauterine defects

Post Coital test- looks at quality of mucus and sperm, done D#12-14

BBT- temperature curve- spike predictive of ovulation

Progesterone level on day 21- assess ovulation Diagnostic Scope- looks for endometriosis

**Changes in vulva**

* **Lichen sclerosis**  **thin skin, hyalinized collagen tx: *clobetasol (a high***

***potency steroid)***

* **Extramammary**

**paget’s –**

* **Vin i ii iii : vulvar intraepithelial neoplasia:**
* intraepithelial neoplasia of the skin
  + >60 yrs w/vulvar purities
  + pale atypical cells with mitotic figure
  + 20% have adeno ca underneath
  + SX: pruitus unrelieved by antifungals
  + DX: biopsy
  + *TX: wide local excision, Colpo*
  + Assoc with other cancers: gi, breast, cvx c/w chronic inflammatory changes
  + Scar yields red velvet and white plaques on labia

o Infranodal spread likely to be fatal

* dysplasia of the vulva
* -atypia, thickened skin
* -degree proportioned to # of mitotic fig
* -can see squamouspearls
* -postmenopausal late 50-60s
* -correlated with HPV 80 – 90%
* -diffused focal raised, flat, white, red, brown, black
* SX: Vulvodynia, pruitus
* TX:*excision with scalpel or laser*, f/u Colpo q 3 mo until disease free then q 6 mo
* **Vulvar ca –**  5% gyn malignancy
* -associated with DM, HTN, obesity vulvardystrophies
* SX: Vulvodynia, purities, mass erythemia
* DX: bx : see epidermoid 90% of cases, melanoma 5- 10%, basal 2-3%, cauliflower hard indurated
* STAGING: I <2cm in size, no nodes, no mets
  + Ia <1mm
  + Ib >1mm
* II >2cm, no nodes, no mets but can progress to perineum, urethra and anus
* III unilateral nodes with any size
* IV bilateral nodes
* TX: *based on stage, from wide local excision to vulvectomy to radical vulvectomy/lymph node*

*dissection*

* **Vaginal ca**  -women in their 50’s
  + -DES exposure in utero resulting in clear cell adenocarcinoma
  + -asymptomatic for the most part but may have d/c, bleeding, purities
  + -TX: pap – Colpo – pathologic dx

#### Abnormal pap smear

* Abnormal pap smear

**false negative pap 40-50%**

* **“benign cellular changes” : think infection so wet**

**prep, cultures**

* **koilocytosis: pathologic description associated with HPV**
* **“ASCUS”: Atypical Squamous Cell Hyperplasia of**

**Undetermined Significance:**

* + **5% hide underlying severe lesions**
  + ***repeat pap in 3 months, Colposcopy if 2 ASCUSs***
  + **consider HPV typing**
* **“LGSIL”: Low Grade Squamous Intraepithelial**

**Lesion: Tx: *Colposcopy***

* **“HGSIL” : High Grade Squamous Intraepithelial**

**Lesion: Tx: *Colposcopy***

* **Colposcopy:**

magnifies region of cervix after stained with acetic acid. Areas

of dysplasia stain WHITE (aceto white focal lesion) and are biopsied. An endocervical curettage is also done.

* **Treatment** of dysplasia is based on the **biopsy and ECC result**. As a

general rule…

* Mild dysplasia: observation, cryotherapy
* Moderate dyplasia: cryotheraphy or LEEP (loop electrosurgical excision procedure)
* Severe dysplasia: LEEP or Cold Knife Conization
* If ECC has dysplasia: CKC or LEEP
* **4 indications for**

**CKC:**

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**Microinvasion on biopsy**

**ECC with dysplasia**

**Pap colpo discrepancy:** If the pap smear does not correlate with the biopsy results: ie. HGSIL with normal biopsy results, you may have missed something and need to do a CKC

**Inadequate colpo:** means that there is a lesion extending into the os or that you could not visualize the whole lesion on colpo- there

may be something more extensive there

#### Cervical cancer

* **Cervical cancer**  **Most cancer occurs in transformation zone**
* **Koilocyte: has viral particle**
* **HPV oncogenic 33, 35, 52,16, 18 ordinary wart 6,11**
* Sx:  vaginal bleeding, d/c, pelvic pain, growth on cervix may palpate/see mass on exam
* Classic presentation: post coital bleeding, pelvic pain/pressure, abnormal vaginal bleeding rectal/bladder sx
* Types:  Squamous large cell, keratinizing, non-keratinizing, small cell (worse prog)
* Adenocarcinoma
* Mixed carcinoma
* Glassy cell – occurs in pregnant women usually fatal
* **Rf:**
* tobacco # of sex partners, age of onset of sex, #

STDs, HIV (cervical CA an AIDS defining illness)

* **Staging** – based on microinvasion **so must do a cone** : staged CLINICALLY
* carcinoma in situ
* I contained to cervix
* II carcinoma beyond cervix, no sidewall
* II pelvic sidewall, hydronephrosis
* IV extends beyond pelvis
* **Tx:**  *Ia= cone biopsy; hysterectomy 100% cure*
* *Ib/IIa = radiation, radical hysterectomy* ( takes uterus, cervix, parametrium, LN)
* *IIb/III/IV = extensive radiation,chemo*

#### Ovarian tumors

* RF:
* **family hx, uninterrupted ovulation, nulitips, low fertility, delayed childbearing, late onset menopause (OCs have protective effect)**
  + Sx: asymptomatic until advanced stages, urinary frequency, dysuria, pelvic pressure, ascites
  + **Types:**  **Nonneoplastic**: only operate if postmenopausal or if

they’re over 8 cm

* + - Follicle cyst
    - Corpus luteum Hematoma
    - PCO
    - Theca lutein cysts: assn with HCG and LH
    - Endometrioma
    - Para ovarian cysts (mullerian)
    - **Epithelial** (80%)
    - Serous cystadenoma: papillary cystic malignant bilateral, psammonma bodies
    - Endometroid: solid
    - Mucinous: cystic
    - Clear cell: associated with Hobnail Cells on path, assn with DES
    - Brunner: look like transitional epithelium: Walthard Nests 99% benign
    - SUET: solid undiff
    - **Germ Cell**
    - Dysgerminoma: younger people, solid radiosensitive, lymphocytic infiltrate
    - Teratoma: ectoderm endoderm mesoderm,

Rotikansky’s protuberance, complications:

* + - *medical:* struma ovarii, autoimmune hemolytic anemia, carcinoid
    - *surgery*: torsion, acute abdomen
    - Primary choriocarcinoma of the ovary false, + UPT, increased HCG
    - Yolk Sac Tumor/Endodermal Sinus: +AFP/LDH,

+Schuller Duval Bodies

* + - Mixed germ cell: HCG, AFP, LDH, CA 125
    - **Stromal**
    - -older women (50-80)
    - -Sex cords hormone production
    - Fibroma: Meig’s syndrome: ovarian tumor, r

hydrothorax, ascites

* + - Granulosa Theca – feminizing, late recurrence, Call Exner Bodies, produce large amounts of estrogen.
    - Sertoli Leidig – masculinizing, secrete testosterone, Crystaloids of Reinke secrete androgens
    - Gynandroblastoma- components of male and female
    - **Other**
    - Hilar Cell: hillus, androgenic, small
    - Krukenberg: GI metastasis
      * bilateral enlarged solid ovaries
      * signet ring cell associated with mucus
      * assn with gastric cancer
* **Ovarian cancer**

**staging:**

* I - growth to one/both ovaries

o II – with extension to pelvic structures

* III – peritoneum
* IV - distant mets
  + **Adjuvant chemo:**  cisplatin and taxol
    - XRT in II/III
    - Follow CA125 because increased in 80%
  + Ca of fallopian tubes
* -adeno CA from mucosa
* -disease progresses like ovarian CA
* -peritoneal spread
* -ascites
* -bilateral in 10-20% results from mets often
* -primary in very rare
* -asymptomatic but may have vague lower abdominal pain and discharge
* TX: TAH/BSO cisplatin, cyclophosphomide XRT

#### Trophoblastic disease

**\**

* + Moles
* **Complete:**
* **-<20 yrs or >40 yrs, 80% of molar pregnancies**
* **-Complete 46xx (both x from sperm)**
* **-worse b/c can transform into malignant- 20 % malignant**
* **-no baby parts**
* **Incomplete: Triploid (usually XXY)**

o **-May have baby parts**

* **Sx:**
* early abnormal bleeding
* -Large for dates
* -+/- grape tissue
* -bilateral enlarged ovaries o -increased in Asians 8/1000 o -early toxemia
* -threatened AB
* -hyperemesis, hyperthyroid, HTN
  + Rf: maternal age, h/o hydatidiform mole, recurrent SAB, low social economic status, poor nutrition
* **Tx:**
* *dilationand curettage, consider hysterectomy*
  + F/u:  monitor HCG for one year, contraception for one year (b/c don’t want to confuse rising HCG titers of a new pregnancy with those from molar pregnancy), pelvic exams q 2 wks until uterus clear

o Chemo: if increased HCG at 6 months, lung or other mets, recurrence

* + **Choriocarcinoma:**  malignanancies in assn with pregnancy
    - -majority follow trophoblastic moles, but can follow normal pregnancy also
* -1/20,000 pregnancies
  + Rf: as above (A) women mating with (O) men
* **Sx:**  abnormal bleeding after any pregnancy
  + **STx:**  *Chemotherapy*
* *MTX*
* *Etoposide/actinomycin D/MTX* o *Cyclophosphamide/Vincristine* o *D & C*

#### Contraception

* + **Rhythm**  **Fertility awareness/abstinences**
    - **55-80% effective**
    - **ovulation assment = BBT**
    - **menstrual cycle tracking**
    - **cervical mucus exam**
* **Coitus interuptus**
* Withdrawal before ejaculation
* 15-25% failure
  + **Lactational amenorrhea**
* Nursing delays ovulation by hypothalamic suppression
* Max of 6 months
* 50% ovulate by 6-12 months
* 15-55% get pregnant while nursing
  + Barrier Male and female condom, diaphragm, cervical cap sponge, spermacide
    - Spermicidal inflammatory response/ inhibition of
  + **IUD**

implantation

* Used when OCPs contraindicated
* Patient is a low STD risk
* Contraindicated in pregnancy, abnormal vaginal bleeding, infection
* Relative contraindication: nullip, prior ectopic, h/o STD, mod/sev dysmenorrhea
* Failure rate <2%
  + Norplant:  not sold anymore for monetary reasons only
    - Sustained release- 5 years
    - 0.2% failure
    - not many side effects b/c no estrogen only progesterone
    - six flexible rods (36mg progesterone) SQ upper arm
    - side effects: Irregular vaginal bleeding, HA, wt

change, mood changes

* + **Deproprovera**  Medoxyprogesterone acetate
    - IM slow release of over 3 months
    - .3% failure rate
    - side effects: irregular menstrual bleeding, depression, weight gain
    - >70% get irregular menses, eventually have amenorrhea
  + **Vasectomy**  Ligation of the vas deferens
    - <1% failure rate
    - must use condom for 4-6 wks until azospermia confirmed on semen analysis
    - 70% reanastomose resulting in pregnancy 18-60%
    - 50% make anti-sperm antibodies
  + **Tubal sterilization**  Most used method of birth control
    - 4% failure rate
    - No side effects
    - Permanent although 1% seek reversal which is successful in 41-84%
    - 1/1,500 risk of ectopic
    - 4/100,000 mortality rate
  + Oral contraceptive pills:
* MECH: Pulsatile release of FSH and LH suppresses ovulation
* Change in cervical in cervical mucus
* Change in Endometrium
  + **TYPES**:
  + Monophasic – fixed dose of estrogen and progesterone
  + Multphasic varies progesterone dose each week and lower overall estrogen/prog
  + Progesterone progestin only not as effective as combination OCPs
  + **COMPLICATIONS**:
  + Thromboembolism ( do not give in women with family history of DVT or PE), PE, CVA, MI, HTN



**MEDS that Decrease Efficacy of OCPS**:

* + PCN, tetracycline, rifampin, ibuprofen, dilantin, barbiturates, sulfonamide
  + **OCP decrease the efficacy of** folates,anticoagulants, insulin, methyldopa, phenothiazine
  + **Benefits of OCP**:
* Decrease ovarian/endometrial ca **(BY 50%!!!)**, ectopic, anemia, pid, cysts, benign breast dz, osteoporosis.

**Therapeutic ab**

* + **Therapeutic ab** **25% of pregnancies end in therapeutic ab**
* **Risk of death < 1/100,000 (anesthesia)**
* **Vaginal evacuation – suction curettage, D & C/E**

**Induction of labor**

* **Medical TX :**
* Antiprogestin agent (RU-486 –

mifepristone : blocks effects of progesterone) 1st ½ of 1st trimester.

* Post coital pill – high doses of estrogen that either suppresses ovulation or accelerates ovum thru tube so no fertilization se: N/V
  + **s2nd Term** Congenital anomalies
* Vaginal prostaglandin
* D & E
* Induction of labor w/ hypertonic solution (saline, urea, PGF, PGE vaginal suppositories)

#### GYNAE/OBS LEARNING OBJECTIVES WITH TEACHING

**STRATEGY**

**GYNAECOLOGY**

INTRODUCTION

*Objectives*

***Teaching***

***Department***

***Strategy***

* Describe the structure of male and female genital tract
* **Identify the gross anatomical features of female external genitalia**

Interactive Lecture

anatomy

Small Group

* **Describe the gross anatomy of the female pelvic organs i-** Discussion

**e ovaries, uterine tubes, the uterus with its supporting ligaments and the vagina**

* **Discuss clinical importance of female pelvis**

Interactive Lecture

* **Explain the role of clinical pelvimetry**

Small Group

Discussion

* **Describe the function of male reproductive structures, hormones and their regulation**

Interactive Lecture

physiology

* **Explain the role of Pampiniform Plexus**

Small Group

Discussion

* **Discuss the role of pituitary in controlling menstruation and ovulatory cycle**
* **Describe the process and regulation of the ovarian and uterine cycles**

Interactive Lecture

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**Discuss androgens in detail**

**Classify antiandrogens. Discuss their clinical uses / effects and adverse effects**

**Classify and discuss pharmacological properties of estrogens**

**Discuss ant estrogens in details along with pharmacological profile**

Case-

Discussion

pharma

**Sexually Transmitted Infections**

* **Describe the etiology and pathophysiology of Sexually Transmitted Infections (STIs)**

Interactive Lecture microbiology

Practical

* **Identify, under microscope, the**

**organisms involved in Sexually Transmitted Infections**

* Classify infections of the lower and upper genital tract in relation to their morphology & clinical effects

Practical pathology

Interactive Lecture

urology

* **Describe etiology, pathophysiology,**

**symptoms, signs, investigations and treatment plan for STIs in males and females (Epididymitis ,orchitis, prostatitis (chlamydia, gonorrhoea, non- specific urethritis, genital herpes, genital warts, syphilis and HIV)**

* List the causes of vaginal discharge
* **Differentiate between a normal vaginal discharge (Leucorrhea) and pathological vaginal discharge on the basis of clinical history**
* **Describe symptoms, signs, investigations and treatment options for vaginal discharge due to Candidiasis, Bacterial vaginosis, Trichomoniasis, Gonorrhea and Chlamydia trachomatis infection.**
* **Discuss steps for prevention and recurrence of vaginal discharge**
* Task Oriented Learning followed by task Presentation

Gyn obs

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**Explain the importance of pre and post**

**HIV test Counseling**

**Identify issues of confidentiality in dealing with a patient with STI**

* Small group

session

Family medicine

**Pelvic Inflammatory Disease**

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**Define Pelvic Inflammatory disease (PID)**

**Explain the etiology of PID i.e. Sexually Transmitted Infections (STIs), Post-delivery PID, Post abortion PID and Post-surgical PID**

**Diagnose PID based on symptoms, signs and investigation findings**

**Discuss the differential diagnosis of PID and its possible complications**

**Discuss the management options for acute and chronic PID**

Interective

lecture

obgyn

**Amenorrhea/Dysmenorrhea**

* + **Define primary & secondary amenorrhea and Oligomenorrhea**
  + **Explain the etiology, symptoms and signs, investigations and treatment options for primary, secondary amenorrhea and Oligomenorrhea**
  + **Based on data provided, differentiate among the three types of amenorrhea**
  + **Interpret the hormone profile report for PCOS**
  + **Discuss etiology, pathophysiology, diagnosis, and management**
  + **options for PCOS**
  + **Define Primary & Secondary dysmenorrhea**

**Interactive Lecture**

* + **Describe etiology, pathophysiology, symptoms, signs, investigations and**
  + **treatment plan**
  + **for primary & secondary dysmenorrheal**
  + **Justify treatment plan for primary and secondary dysmenorrhea based on**

**obgyn**

* + **etiology**

**OB GY N**

**Task Oriented Learning followed by**

**task Presentationobgy**

**Fibroids**

* + - **Differentiate among the various types of fibroids based on their etiology, symptoms, signs and pathophysiology**
    - **Justify selection of investigations for fibroid uterus**
    - **Justify management plans for Fibroids**

obgynObGyn

#### Endometriosis and Adenomyosis OB GY

* Define Endometriosis and Adenomyosis N
* Differentiate between Endometriosis andAdenomyosis

**based on etiology, risk factors, clinical presentations and pathophysiology**

* **Justify selection of investigations for Endometriosis and Adenomyosis**

INTERECTIVE LECTURE

* **Diagnose Endometriosis and Adenomyosis based on history, examination findings and investigation reports**
* **Discuss the medical and surgical treatment options for endometriosis**

**Ectopic pregnancy**

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**Define ectopic pregnancy**

**Discuss differential diagnosis of acute abdomen in women**

**Based on data provided (history, examination findings, investigation reports) diagnose ectopic pregnancy**

**Discuss the treatment options for ectopic pregnancy including the criteria for medical**

INTERECTIVE

OBGYN

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LECTURE



**treatment**

* **Define abortion according to WHO criteria**
* **Differentiate among the various types of abortions based on data provided(history, examination findings, investigation reports)**

Task Oriented OBGYN

Learning followed by task Presentation

**Describe the treatment options for each type of abortion**

**Abortion**

**Infertility**

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**Define Sub-fertility**

**Based on data provided (history, examination findings, investigation reports) diagnose sub fertility in a male and female**

**Discuss the causes of anovulation in women Interpret the reports of Semen analysis in male and hormone profile in female**

INTERECTIVE

LECTURE

OBGYN

* **Discuss the treatment options for Sub fertility**
* **Describe the psychosocial issues associated with infertility**
* **Describe ethical issues confronted by patients with infertility**

**Benign and malignant lesions of vulva and vagina**

Interactive Lecture

* **Describe benign and malignant lesions of vulva and vagina**

OBG

YN

Interactive Lecture =

* + **List the risk factors, pathogenesis and morphological types of cervical carcinoma**
* **Enumerate premalignant Uterine lesions**
* **Discuss pathogenesis, molecular markers and morphological subtypes of Endometrial carcinoma**

Interactive Lecture

=

* **Discuss the uterine stromal and myometrial tumors**

Interactive Lecture =

Small group

=

* **Classify Ovarian tumors**
* **List Subtypes of surface epithelial tumors and describe their pathogenesis**
* **Classify Ovarian tumors**
* **List Subtypes of surface epithelial tumors and describe their pathogenesis**
* List Germ cell tumors of ovary with their tumor makers Interactive Le
* Identify gross pathology and microscopic slides of malignant tumors of female genital tract

cture =

* **OBSTETRICS**

**Normal pregnancy**

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**Based on data provided, diagnose a case of pregnancy**

**Discuss the physiological changes during pregnancy in the pregnant woman**

* Interactive

Lecture

OBG

YN

* **Discuss the incidence, types and causes of multiple pregnancy**
* Task =

Oriented

Learning

* **Describe the signs and symptoms, diagnosis, investigations and management of multiple pregnancy**
* **Discuss the difference between monochorionic and dichorionic pregnancies**

followed by task Presentatio n

* Skills

=

* **Take a detailed history from an Obstetric and Gynecologic**

**real or simulated patient**

* **Discuss psychopharmacology during pregnancy**
* Interactive Lecture
* **Describe the importance and process of antenatal care**
* Interactive

Lecture

* **Differentiate between the terms screening and diagnosis and between screening and diagnostic tests**
* **Discuss the purpose and advantages of prenatal diagnosis and explain the differences**
* **List indications for prenatal screening and diagnosis especially for Down’s syndrome and neural tube defects**
* **Explain the basic procedures, advantages and disadvantages of diagnostic procedures including chorionic villous sampling, amniocentesis and chordocentesis**
* Interactive Lecture

OBG YN

**High risk pregnancy**

* **Define high risk pregnancy**
* **List the high risk factors which endanger the life of the mother or baby and can complicate pregnancy**
* **Justify referral of a high risk pregnancy patient to a tertiary care facility**
* **Discuss methods for improving maternal and perinatal mortality and morbidity**
* Interactive Lecture

OBGYN

=

OBGYN

* **List early and late complications of Pregnancy**
* **Describe the pathogenesis of Eclampsia**

**Rh Incompatibility**

* + Define Rh Incompatibility and ErythroblastosisFetalis
* Describe the pathophysiology of Rh Incompatibility
* **Justify the steps of management and prevention of Rh Incompatibility**

PEDIATRICS

* Case-based discussion

OBGYN

* Interactive Lecture
* **Discuss differential diagnosis of jaundice in neonates including physiological jaundice**
* **Discuss pathophysiology and investigations for jaundice**
* **Explain the management of hyperbilirubinemia in the neonatal period**
* **Outline the clinical manifestations of acute bilirubin encephalopathy**

**labor**

* **Define labor**
* **Explain the stages of normal labor**
* **Describe the basic mechanisms of labor evaluation**
* **Describe the 7 cardinal movements of labor**
* **Explain the technique of proper delivery, traction, and handling of infant after delivery**
* Small Group Discussion

OBGYN

* **Perform per-abdominal examination of a pregnant female / mannequin according to prescribed steps**
* Skills RSDC
  + Interactive lecture OBGYN
* Define Induction and Augmentation of labor
* **Explain indications, contraindication, advantages, disadvantages of Induction and Augmentation of labor**
* **Discuss the monitoring and management of induced and augmented labor**
* Skills

RSDC

* **Demonstrate the mechanism of labor on the**

**model of mannequins and pelvis**

**Fetal Surveillance**

* Small group discussion

OBGYN

* **Define Partograph and CTG**
* **List the uses of partograph and CTG in the management of normal labor**
* **Interpret normal and abnormal Partograph and CTG**
* **Discuss the management of abnormal Partograph and CTG**

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Interactive lecture

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**Describe the purpose and advantages of**

**fetal surveillance**

**Discuss the different indications for fetal surveillance**

**Explain the methods of fetal surveillance (fetal kick count, ultrasound for fetal growth, biophysical profile and CTG) Interpret CTG**

**Abnormal Labour**

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**Define malpresentations and Malpositions and list**

**the different types for each**

**Describe causes of Breech, Transverse lie and other malpresentations and malpositions Describe the management options for each malpresentation and malposition**

* Small Group

Discussion

ObGyn

* + Identify different types of Breech presentations, Transvers lie, Face and Brow presentations and malpositions on the mannequins and pelvic Models
* skills obg

IUGR And Small For Gestational Age (SGA)

* **Define the terms IUGR, SGA, Low birth weight in neonates**
* **Describe the evaluation, types of IUGR , investigation and management of a neonate with IUGR**
* **List the complications and long term outcome of a neonate with IUGR**
* Interactive Lecture

Pediatrics

**Care of Newborn**

* Skills

Pediatrics

* **Discuss routine care of newborn**
* **Discuss the initial steps in resuscitation of newborn babies**
* **Discuss ventilatory assistance in newborns**
* **Discuss when & how to support heart in newborn babies**
* **Distinguish between primary & secondary apnea**
* **Discuss pulmonary circulation & asphyxia**
* **Identify primary signs utilized for evaluating**
* Interactive Lecture

**newly born babies during resuscitation**

* **Define the APGAR score and its purpose**

**Puerperium**

* **Define puerperium**
* **Describe signs and symptoms of normal and abnormal puerperium and its management (including for puerperal pyrexia and puerperal sepsis)**
* Interactive Lecture

ObGyn

|  |  |  |  |
| --- | --- | --- | --- |
| * **Discuss the clinical presentation of post-partum depression** | * Interactive Lecture | Psychiatry | |
| * **Discuss the advantages of breastfeeding for the baby, mother, family, and country** * **Counsel the mother about advantages of breast feeding** | * Small Group Discussion | | ObGyn |

* **Summarize postnatal diagnosis of the commonest congenital abnormalities**
* Interactive Lecture

Pediatrics

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| --- | --- | --- |
|  | | |
|  | | |
| **Gestational Trophoblastic Disease** | | |
| * **List gestational trophoblastic diseases** * **Differentiate between Partial and Complete hydatidiform mole** | * Small Group Discussion | Pathology |
| **breast cancer** | | |
|  |  |  |
| * **Recognize the various risk factors in development of breast cancer** * **Differentiate between Hereditary and Sporadic breast cancer in terms of pathogenesis** * **Classify various morphological types of DCIS and Invasive carcinoma in terms of morphology and** | * Interactive Lecture/practi cal | Pathology |

**ABBREVIATION**

**LMP: last menstrual period PMP: previous menstrual period**

**EDC: estimated date of confinement**

**GP: gravida, para: Gravida is how many pregnancies; Para is the number of times the uterus is emptied**

**TPAL: (“Tennessee Power and Light”): Term (#) (the number**

**of term pregnancies – twins count as 1 pregnancy!) Preterm**

**(#) Abortions (elective or spontaneous #) Living # (all children counted here)**

**G1P1002 = Twins**

**CKC: cold knife conization LEEP: loop electrocautery excision procedure**

**BTL: bilateral tubal ligation D&C: dilation and currettage POC: products of conception Hystero: uterus TVH: transvaginal hysterectomy TAH: transabdominal hysterectomy LAVH: laparoscopic assisted vaginal hysterectomy TLH: total laparoscopic hysterectomy BSO: bilateral salpingoopherectomy**

**Definitions**

**Oligo: few trachelo: cervix**

**Hyper: too much culpo: vagina**

**Hypo: not enough ectomy: removal of**

**Meno: menses ootomy: incision**

**Metr: uterus ostomy: making a new opening**

**Rrhea: flow centesis: needle into something Rrhagia: excess flow polymenorrhea: cycle every 20 days**

**PROM: premature rupture of membranes PPROM: preterm premature rupture of membranes**

**SVD: spontaneous vaginal delivery LTCS: low transverse cesarean section**

**R LTCS: repeat LTCS FAVD: forceps assisted vaginal delivery VBAC: vaginal birth after c/s**

**VAVD: vacuum assisted vaginal delivery VMI: viable male infant VFI: viable female infant SAB: spontaneous abortion (miscarriage) EAB: elective abortion**

**IUFD: Intrauterine fetal demise**

**ASCUS: atypical squamous cells of undetermined significance LGSIL: low grade squamous intra epithelial lesion**

**HGSIL: high grade squamous intra epithelial lesion**

***1st Trimester*: w0 – w12 gestational age**

***2nd Trimester*: w12 – 28**

***3rd Trimester*: w28 – 40**

***Previable*: less than 20 weeks; if delivered considered Abortion, not SVD**

***Preterm*: 24-37 w**

***Term*: 37 – 42 w**

***Embryo*: fertilization to 8 weeks**

***Fetus*: 8 weeks to birth *Infant*: delivery to 1 year *Post Dates*: > 41-42 weeks**

#### Clinic notes:

21 yo G2P1001 at 28 2/7 by 8 week ultrasound (always include dating criteria) complaining of inguinal pain on walking. Denies contractions, vaginal bleeding, rupture of membranes, and has fetal movement (the cardinal questions of obstetrics).

**BP 110/68 Urine: trace protein (pregnant women usually have trace protein) neg glucose**

**Fundal Height(FH): (measured from the pubic symphysis to fundus- correlates within 1-2 cm unless obese) 29cm**

**Fetal Heart Tones (FHT): 140s (count them out on your watch in the beginning; normal 120s-160s)**

**Extremities: no calf tenderness**

**(any results of recent ultrasounds, lab work here) A/P: 1. IUP at 28 2/7: size appropriate for dates**

1. **Round Ligament Pain: recommended maternity belt**
2. **RH Neg: Rhogam 300 mcg IM today**
3. **Continue PNV/ Fe, discussed preterm labor precautions**
4. **O Sullivan today**

**Complaints:**

* 1. **Student, L3**
     + **Discharge do cultures, wet prep (look for trich); mucus normal at term**
     + **The baby doesn’t move at times babies go through normal sleep cycles. As long as it moves every couple of hours, that’s fine. Kick counts- lie on side and count the amount of kicks in one hour after dinner- should be over 10.**

**TEXT BOOK**

1. Obstetrics by Ten Teachers, Louise C. Kenny, Jenny E. Myers
2. Gynaecology by Ten Teachers, Louise Kenny, Helen Bickerstaff
3. Hacker & Moore's Essentials of Obstetrics and Gynecology
4. Textbook of Gynecology, Rashid Latif Khan
5. Fundamentals of Gynaecology, Dr Arshad Chohan

**ADDITIONAL LEARNING**

**RESOURCES Hands-on Activities/ Practical**

Students will be involved in Practical sessions and hands-on activities that link with the Reproductive Module to enhance learning.

**Museum** Models available in the museum are a rich learning resource for quick review of anatomy and related educational activities

**Skills Lab** Skills acquisition in a simulated environment in the skills lab involving experiential learning will ensure patient safety and will also help to build confidence in approaching the patients

**Internet Resources** Students will use easily accessible internet resources with added time flexibility to enrich and update their knowledge and its application

**APPENDIX: A**

**LIAQUAT MEMORIAL HOSPITAL, KIMS KOHAT**

FINAL YEAR MBBS, MATERNITY ROTATION

**Criteria: Group Task Presentation**

Speaker/Group:

Assignment:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| This criteria is designed to clarify the grading process for Group Oral Presentations | **Not Acceptable** | **Poor** | **average** | **Goo** | **Excellent** |
| **0** | **1** | **2** | **3** | **4** |
| **contents** | | | | | |
| 1.Objective were achieved during the presentation |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. Information in presentation is clear and organized. 2. Material presented was derived from authentic sources 3. Queries answered appropriately |  |  |  |  |  |
| Collaboration | | | | | |
| 5. Every member of the group contributed to the presentation. |  |  |  |  |  |
| 6. Smooth transition of group members from one presenter to another during presentation. |  |  |  |  |  |
| Presentation Style/ Professionalism | | | | | |
|  |  |  |  |  |  |
| 7. Appropriate interaction with audience members. |  |  |  | | |
| 8. Readiness to present at scheduled time. |  |  |  |  |  |
| 9. Presentation completed within assigned time |  |  |  |  |  |

Marks obtained out of 20

Facilitators’ signature:

**OFFICE OF THE HEAD OF DEPARTMENT OF GYNAE/OBS KMU INSTITUTE OF MEDICAL SCIENCES KOHAT**

W&C/LM Teaching Hospital Kohat Ph# + 92-922-9260325, Fax # +92-922-9260365

**CLINICAL TOPICS DISTRIBUTION FOR CLINICAL CLASSES OF FINAL YEAR MBSS GROUP C3 AND C4 FROM 30.11.2019 TO 03.1.2020.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DATE | DAYS | MORNING 9:20 AM TO 11:00AM | | | 11:20AM TO 12:45PM | | | EVENING 6:30 PM TO | | |
|  | TOPICS |  |  | TOPICS |  | 7:30PM | TOPICS |  |
| 30-11-2019 | SAT | ANTENATAL CARE  **Dr. MUSARRAT JABEEN** | | | DIAGNOSIS OF PREGNANCY  **Dr. MUSARRAT JABEEN** | | | CASE PRESENTATION HISTORY  **Dr. MUSARRAT JABEEN** | | |
| 01-12-2019 | SUN | **SUNDAY** | | | | | | | | |
| 02-12/2019 | MON | APH  **Dr. MUSARRAT JABEEN** | | | PPH  **Dr. MUSARRAT JABEEN** | | | HISTORY  **Dr. MUSARRAT JABEEN** | | |
| 03-12-2019 | TUE | RETAINED PLACENTA  **Dr. FOZIA GUL** | | | SHOULDER DYSTOCIA  **Dr. FOZIA GUL** | | | VIDEOS ON SHOULDER DYSTOCIA  **Dr. FOZIA GUL** | | |
| 04-12-2019 | WED | VACUUM DELIVERY/ FORCEPS | | | CORD  PROLAPSED,COMPOUND PRESENTATION | | | CASE PRESENTATION | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Dr. MUSARRAT JABEEN** | **Dr. MUSARRAT JABEEN** | **Dr. MUSARRAT JABEEN** |
| 05-12-2019 | THU | MULTIPAL PREGNANCY  **Dr FOZIA GUL** | .DEEP TRANSVERS ARREST,BROW&FACE PRESENTATION  **Dr FOZIA GUL** | POST-OPERATIVE COMPLICATION  **Dr FOZIA GUL** |
| 06-12-2019 | FRI | GYNECOLOGICAL HISTORY TAKING  **Dr FOZIA GUL** | CASE PRESENTATION  **Dr FOZIA GUL** | EPILEPSY IN PREGNANCY  **Dr FOZIA GUL** |
| 07-12-2019 | SAT | SECONDARY AMENOORHEA PCOS  **Dr. MUSARRAT JABEEN** | STI  **Dr. MUSARRAT JABEEN** | INTERSEXUALITY  **Dr. MUSARRAT JABEEN** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 08-12-2019 | SUN | SUNDAY | | |
| 09-12-2019 | MON | HYPEREMESIS GRAVIDARUM  **Dr. MUSARRAT JABEEN** | TRANSVERSE, OBLIQUE&UNSTABLE LIE  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION  **Dr. MUSARRAT JABEEN** |
| 10-12-2019 | TUE | CA CX SCREENING  **Dr FOZIA GUL** | PREOPERATIVE ASSESSMENT & INTRA OPERATIVE COMLICATION  **Dr FOZIA GUL** | INTRAUTERINE FETAL DEATH  **Dr FOZIA GUL** |
| 11-12-2019 | WED | VULVAL CARCINOMA  **Dr. MUSARRAT JABEEN** | CONTRACEPTION  **Dr. MUSARRAT JABEEN** | MINOR GYNECOLOGICAL PROCEDURES  **Dr. MUSARRAT JABEEN** |
| 12-12-2019 | THU | VAGINAL& URETHERAL DISEASES  **Dr FOZIA GUL** | DYSPAREUNIA&BACKACHE  **Dr FOZIA GUL** | PMS  **Dr FOZIA GUL** |
| 13-12-2019 | FRI | PRIMARY & SECONDARY DYSMENORRHEA  **Dr FOZIA GUL** | CASE PRESENTATION  **Dr FOZIA GUL** | PUBERTY NORMAL & ABNORMAL  **Dr FOZIA GUL** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 14-12-2019 | SAT | EPISIOTOMY+PERINEAL INJURIES  **Dr. MUSARRAT JABEEN** | PROLONGED PREGNANCY  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION  **Dr. MUSARRAT JABEEN** |
| 15-12-2019 | SUN | SUNDAY | | |
| 16-12-2019 | MON | SUDDEN POSTPARTUM COLLAPSE  **Dr. MUSARRAT JABEEN** | PRIMARY AMENORRHEA  **Dr. MUSARRAT JABEEN** | MENSTRUATION & OVULATION  **Dr. MUSARRAT JABEEN** |
| 17-12-2019 | TUE | HTN  **Dr FOZIA GUL** | IUGR  **Dr FOZIA GUL** | CASE PRESENTATION  **Dr FOZIA GUL** |
| 18-12-2019 | WED | ENDOMETRIOSIS/ ADEOMYOSIS  **Dr. MUSARRAT JABEEN** | FISTULAE( RVF/VVF & VULVAL DYSTROPHIES  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION  **Dr. MUSARRAT JABEEN** |
| 19-12-2019 | THU | PRETERM LABOUR  **Dr FOZIA GUL** | THYROID DISORDERS  **Dr FOZIA GUL** | FETAL SKULL ANATOMY,MATERNAL BONY PELVIS ANATOMY  **Dr FOZIA GUL** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 20-12-2019 | FRI | ANATOMY&EMBRYOLOGY OF FEMALE GENITAL ORGAN  **Dr FOZIA GUL** | CASE PRESENTATION  **Dr FOZIA GUL** | MENOPAUSE & HRT  **Dr FOZIA GUL** |
| 21-12-2019 | SAT | AUTE UTERINE INVERSION  **Dr. MUSARRAT JABEEN** | ,RUPTURED UTERUS  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION RH-INCOMPATIBILITY  **Dr. MUSARRAT JABEEN** |
|  | SUN | **SUNDAY** | | |
| 22-12-2019 | MON | MENSTRUATION&OVULATION  **Dr. MUSARRAT JABEEN** | MISCARRIAGES  **Dr. MUSARRAT JABEEN** | CASE PRESENTATION  **Dr. MUSARRAT JABEEN** |
| 23-12-2019 | TUE | & BREECH PRESENTATION&MX  **Dr FOZIA GUL** | /AUGMENTAT ION OF LABOUR  **Dr FOZIA GUL** | PRENATAL ASSESSMENT OF FETAL WELLBEING  **Dr FOZIA GUL** |
| 1-1-2020 | MON | HOSPITAL ROUND OT  **DR MUSARRAT JABEEN** | HOSPITAL ROUND OPD  **DR MUSARRAT JABEEN** | CASE PRESENTAION  **DR MUSARRAT JABEEN** |
| 2-1-2020 | TUE | ASSESSMENT | **Dr FOZIA GUL** |  |
| 03-1-2020 | WED | ASSESSMENT | **Dr. MUSARRAT JABEEN** |  |

****

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**LECTURE SCHEDULE FOR FINAL YEAR MBBS**

**KIMS KOHAT 2019-20**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WEEK** | **TEACHER** | **TUESDAY /DATE** | **TEACHER** | **WEDNESDAY /DATE** |
| IST | DR FOZIA GUL  5/11/19  PHYSIOLOGICAL CHANGES OF PREGNANCY | | DR NOOR NASIR  PRENATAL DIAGNOSIS OF FETAL ABNORMALITIES  6/11/19 | |
| 2ND | DR FOZIA GUL  12/11/19  Maternal & Perinatal Mortality | | DR MUSARRAT JABEEN  CONCEPTION, FERTILIZATION, PLACENTATION  13/11/19 | |
| 3RD | DR MUSARRAT JABEEN  Fetal Circulation& Placental Abnormality  19/11/19 | | DR NOOR NASIR  Prenatal Assessment Of Fetal Wellbeing 20/11//19 | |
| 4TH | DR FOZIA GUL  ANEMIA IN PREGNANCY  26/11/19 | | DR NOOR NASIR  HEART DISEASE  27/11/19 | |
| 5TH | DR FOZIA GUL  3/12/19  HEMOGLOBINOPATHIES | | DR MUSARRAT JABEEN  HDP (PIH,PE,CH- HYPERTENSION  4/12/19 | |
| 6TH | DR MUSARRAT JABEEN  HDP (PIH,PE,CH- HYPERTENSION  10/12/20 | | DR NOOR NASIR  SLE & APLS  11/12/19 | |
| 7TH | DR FOZIA GUL  JAUNDICE ( AFLP, INTRAHEPATIC CHOLESTASIS+ VIRAL HEPATITIS  17/12/19 | | DR NOOR NASIR  CESAREAN SECTION  18/12/19 | |
| 8TH |  | | DR MUSARRAT JABEEN  ECLAMPSIA & HELLP SYNDROME  1/1/20 | |
| 9TH | DR FOZIA GUL  DVT & PULMONARY EMBOLISM  7/1/2020 | | DR NOOR NASIR  **ASSESSMENT**  8/1/20 | |
| 10TH | DR MUSARRAT JABEEN  **ASSESSMENT**  14/1/20 | | DR NOOR NASIR  ASTHAMA IN PREGNANCY  15/1/20 | |
| 11TH | DR FOZIA GUL  **ASSESSMENT**  21/1/20 | | DR MUSARRAT JABEEN  DIABETES AND PREGNANCY  22/1/20 | |
| 12TH | DR FOZIA GUL  CEPHALO -PELVIC DISPROPORTION  28/1/20 | | DR NOOR NASIR  AMNIOTIC FLUID& ITS ABNORMALITY  29/1/20 | |
| 13TH | DR MUSARRAT JABEEN  SYPHILIS, MALARIA & TB  4/2/20 | | KASHMIR DAY  5/2/20 | |
| 14TH | DR FOZIA GUL  INFECTIONS IN PREG( CMV, RUBELLA ,TOXOPLASMOSIS, CHICKEN POX  11/2/20 | | DR MUSARRAT JABEEN  PHYSIOLOGY OF LABOURFIRST STAGE OF LABOUR & PARTOGRAPH  12/2/20 | |
| 15TH | DR FOZIA GUL  **ASSESSMENT**  18/2/20 | | DR NOOR NASIR  ANATOMY OF BIRTH CANAL & FETUS  19/2/20 | |
| 16TH | DR MUSARRAT JABEEN  ABNORMAL FIRST STAGE OF LABOUR  25/2/20 | | DR NOOR NASIR  ANALGESIA AND ANESTHESIA IN LABOUR  26/2/20 | |
| 17TH | DR FOZIA GUL  MULTIPLE PREGNANCY  10/3/20 | | DR MUSARRAT JABEEN  SECOND STAGE OF LABOUR  11/3/20 | |
| 18TH | DR FOZIA GUL  ENDOMETRIAL HYPERPLASIA  17/3/20 | | DR NOOR NASIR  NORMAL PUERPERIUM &  p18/3/20 | |
| 19TH | DR MUSARRAT JABEEN  THIRD STAGE OF LABOUR  24/3/20 | | DR NOOR NASIR  FETAL DISTRESS  25/3/20 | |
| 20TH | DR FOZIA GUL  CARCINOMA ENDOMETRIUM  31/3/20 | |  | |
| 21ST | DR FOZIA GUL  ECTOPIC PREGNANCY  14/4/20 | | DR NOOR NASIR  **ASSESSMENT**  15/4/20 | |
| 22ND | DR MUSARRAT JABEEN  21/4/20  HIRSUITSM&VIRILISATION | | DR NOOR NASIR  22/4/20  INFERTILITY (male) | |
| 23RD | DR FOZIA GUL  PPH  28/4/20 | | DR MUSARRAT JABEEN  URODYNAMICS  29/4/20 | |
| 24TH | DR FOZIA GUL  **ASSESSMENT**  5/5/20 | | DR NOOR NASIR  INFERTILITY (female)  6/5/20 | |
| 25TH | DR MUSARRAT JABEEN  CERVICAL CRACINOMA  12/5/20 | | DR NOOR NASIR  BENIGN OVARIAN TUMORS  13/5/20 | |
| 26TH | DR FOZIA GUL  GTD  19/5/20 | | DR MUSARRAT JABEEN  U-VAGINAL PROLAPSE  20/5/20 | |
| 27TH | DR FOZIA GUL  2/6/20  DUB/ORGANIC CAUSES OF MENORRHAGIA | | DR NOOR NASIR  **ASSESSMENT**  3/6/20 | |
| 28TH | DR MUSARRAT JABEEN  **ASSESSMENT**  **9/6/20** | | DR NOOR NASIR  10/6/20  MALIGNANT OVARIAN TUMORS | |
| 29TH | DR. FOZIA GUL  CONTRACEPTION 01  16/6/2020 | | DR. MUSARRAT JABEEN  **ASSESSMENT**  17/6/2020 | |
| 30TH | DR. FOZIA GUL  CONTRACEPTION 02  23/6/2020 | | DR. NOOR NASIR  PUERPERAL COMPLICATION  24/6/2020 | |
| 31TH | DR. MUSARRAT JABEEN  PERINEAL INJURIES + EPISIOTOMY  1/9/2019 | | DR NOOR NASIR  UTI & HIV IN PREGNANCY  2/09/2020 | |
| 32TH | DR. FOZIA GUL  BRIEFING OF MCQs  8/09/2020 | | DR. MUSARRAT JABEEN  BRIEFING OF SAQs  9/09/2020 | |

**Peads**

The students should be equipped with the knowledge and confidence for the role of a physician, educator, supervisor and organizer, social motivator in a primary health care setting.

**OUTCOMES: By the end of 5 years, students should be able to**

1. **KNOWLEDGE AND UNDERSTANDING: Cognition.**

Acquire the knowledge of health promotion, disease prevention and management of common diseases/problems in children (including diseases and problems of the newborn).

**Students should be able to**

* + describe common paediatric problems and diseases, in children at different ages;
  + demonstrate understanding of national programs working for health promotion and disease prevention in children, e.g., **IMNC**I (Integrated Management of Neonatal and Childhood Illnesses), **EPI** (Extended Program of Immunization), **ARI (**Acute Respiratory

Infections) etc.;

* + apply the processes of **growth and development** in childhood to differentiate between normal and delayed growth parameters and developmental milestones at different ages;
  + demonstrate understanding of the **importance of nutrition** in children by being able to prescribe diets suitable for different ages and in different diseases;
  + show an understanding of the interaction between heredity and environment in the **genesis of disease in children;**
  + describe **care of new-born baby**, in health and when suffering from common problems, along with importance of perinatal factors impacting on the wellbeing of the new-born;
  + show understanding and knowledge about **common accidents and poisoning** in children and their management; and  identify social issues related to paediatrics.

1. **SKILLS:**

Students should become proficient in basic clinical skills of

History taking in paediatrics

Physical examination of a child (including newborn) an

interpretation of clinical findings.

Performing basic technical procedures as applied to children of different ages.

Ability to select appropriate investigations and interpret data.

**Students should be able to**

* demonstrate the ability to obtain a relevant clinical history from a parent or an older child;
* demonstrate ability to perform adequate clinical examination of a child of any age (including new-born);
* interpret clinical and laboratory data and arrive at diagnosis(es);
* advise appropriate nutritional measures for healthy and sick children (breast feeding, avoidance of bottle-feeding, proper weaning);
* counsel the parents on health promotive and disease preventive strategies for the child e.g. immunization procedures, hand washing);
* recognize and manage common health problems of children;
* recognize the danger signs of disease in children and be able to appropriately refer children with severe disease to appropriate specialists/hospital;
* demonstrate ability to perform **essential clinical procedures** relevant to children, for example:
* o Resuscitation of new-born
* o Basic cardio-pulmonary resuscitation
* o Anthropometric measurements
* o Use the growth chart effectively
* o Measuring blood pressure

o Starting Intravenous lines/draw blood sample

o Giving Nebulizer therapy and Bronchodilator as needed.

**ALL STUDENTS MUST OBSERVE THE FOLLOWING SKILLS:**

* Lumbar Puncture
* Bone marrow aspiration
* Thoracocentesis
* Liver Biopsy
* Observe passing of urinary catheter
* Observe pericardial tap

**C. DESIRED ATTITUDES**

The student will demonstrate empathy, caring, patient safety and costeffective-care in providing advice for health promotion and disease prevention, general care of sick children and in carrying out simple diagnostic tests in the side laboratory. Students should be able to

* demonstrate an attitude of sympathetic care for the child patient and his parents/ care takers;
* develop a desire for self-learning

visualize the impact of the disease on the community as a whole and be able to study the genesis of epidemics and be able to plan prevention of those.

**DAYs DISTRIBUTION FOR CLINICAL CLASSES OF 3rd 4th & 5th YEAR MBSS**

|  |  |  |  |
| --- | --- | --- | --- |
| DAYs | 3rd YEAR | 4th YEAR | Final YEAR |
| MON | Dr Khalid Mehmood | Dr. Sajid Hanif | Dr Sajid Munir  OPD |
| TUE | Dr Sajid Hanif | Dr. Aalia | Dr. Sajid Munir |
| WED | Dr Khalid Mehmood | ------ | Dr. Aalia |
| THU | ------ | Dr. Aalia | Dr Sajid Munir |
| FRI | Dr Khalid Mehmood | Dr. Sajid Munir  Dr. Sajid Hanif | Dr Sajid Munir |
| SAT | ------ | ------ | Dr. Aalia |

**LECTURE SCHEDULE FOR FINAL YEAR MBBS**

**KIMS KOHAT 2019-20**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WEEK** | **TEACHER** | **THU /DATE** | **TEACHER** | **SAT /DATE** |
| IST | Gastro esophageal reflux disease  **Dr SAJID MUNIR**  7-11-2019 | | Esophageal atresia,TEF  **Dr SAJID MUNIR**  9-11-2019 | |
| 2ND | PYLORIC STENOSIS  **Dr SAJID MUNIR**  14-11-2019 | | INTUSSUCEPTION  **DR SAJID MUNIR**  16-11-2019 | |
| 3RD | Acute and chronic diarrhea  **DR SAJID MINIR**  21-11-2019 | | Celiac disease  **DR SAJID MUNIR**  23-11-2019 | |
| 4TH | Hirchsprung disease, Biliar atresia  **DR SAJID MUNIR**  28-11-2019 | | PUD  **DR SAJID MUNIR**  30-11-2019 | |
| 5TH | Hepatitis A  **DR SAJID MUNIR**  05-12-2020 | | Congenital hypothyroidism  **DR AALIA**  7-12-2020 | |
| 6TH | Hepatitis B  **DR SAJID MUNIR**  13-12-2020 | | Hyperthyroidism( Grave s disease )  **DR AALIA**  15-12-2020 | |
| 7TH | Acute liver failure  **DR SAJID MUNIR**  19-12-2020 | | Type 1 diabetes mellitus  **DR AALIA**  21-12-2020 | |
| 8TH | Hepatitis C D;Chronic liver disease ( portal hypertension )  **DR SAJID MUNIR**  02-1-2020 | | Short stature  **DR AALIA**  04-1-2020 | |
| 9TH | Walison disease  **DR SAJID MUNIR**  09-1-2020 | | Croup  **DR SAJID MUNIR**  11-1-2020 | |
| 10TH | Acute epiglottitis  **DR SAJID MUNIR**  16-1-2020 | | Bronchiectasis  **DR SAJID MUNIR**  18-2-2020 | |
| 11TH | Pneumonia  **DR SAJID MUNIR**  23-1-2020 | | Pleural effusion  **DR SAJID MUNIR**  25-1-2020 | |
| 12TH | Bronchiectasis/Cystic fibrosis  **DR SAJID MUNIR**  30-1-2020 | | Asthma  **DR SAJID MUNIR**  2-2-2020 | |
| 13TH | ASD  **DR SAJID MUNIR**  6-2-2020 | | VSD  **DR SAJID MUNIR**  8-2-2020 | |
| 14TH | PDA,COA  **DR SAJID MUNIR**  13-2-2020 | | TOF  **DR SAJID MUNIR**  15-2-2020 | |
| 15TH | Other cyanotic heart diseases  **DR SAJID MUNIR**  20-2-2020 | | Rheumatic fever  **DR SAJID MUNIR**  22-2-2020 | |
| 16TH | Heart failure  **DR SAJID MUNIR**  27-2-2020 | | Anemia; iron deficiency  **DR SAJID MUNIR**  29-2-2020 | |
| 17TH | Megaloblastic anemia  **DR SAJID MUNIR**  12-3-2020 | | Sickle cell disease  **DR SAJID MUNIR**  14-3-2020 | |
| 18TH | Thalassemia  **DR SAJID MUNIR**  19-3-2020 | | Hereditary spherocytosis  **DR SAJID MUNIR**  21-3-2020 | |
| 19TH | G6PD deficiency  **DR SAJID MUNIR**  26-3-2020 | | Aplastic anemia  **DR SAJID MUNIR**  28-3-2020 | |
| 20TH | Von willebrand disease  **DR SAJID MUNIR**  16-4-2020 | | Hemophilia  **DR SAJID MUNIR**  18-4-2020 | |
| 21ST | ITP  **DR SAJID MUNIR**  23-4-2020 | | Leukemia and lymphoma  **DR SAJID MUNIR**  25-4-2020 | |
| 22ND | AGN  **DR AALIA**  30-4-2020 | | Nephrotic syndrome  **DR AALIA**  2-5-2020 | |
| 23RD | HUS  **DR AALIA**  7-5-2020 | | AKI  **DR AALIA**  9-5-2020 | |
| 24TH | CRF  **DR AALIA**  14-5-2020 | | UTI,PUV  **DR AALIA**  16-5-2020 | |
| 25TH | Meningitis,ncephalitis,cerebral malaria  **DR SAJID MUNIR**  21-5-2020 | |  | |
| 26TH |  | | Hydrocephalus and myelomeningocele  **DR SAJID MUNIR**  30-5-2020 | |
| 27TH | Epilepsy  **DR SAJID MUNIR**  4-6-2020 | | Febrile fits  **DR SAJID MUNIR**  6-6-2020 | |
| 28TH | Status epileptics  **DR SAJID MUNIR**  11-6-2020 | | Cerebral palsy  **DR SAJID MUNIR**  13-6-2020 | |
| 29TH | GBS  **DR SAJID MUNIR**  18-6-2020 | | Duchene muscular dystrophy  **DR SAJID MUNIR**  20-6-2020 | |
| 30TH | JIA  **DR AALIA**  25-6-2020 | | SLE  **DR AALIA**  27-6-2020 | |
| 31TH | Kawasaki disease  **DR AALIA**  3-9-2020 | | HSP  **DR AALIA**  5-9-2020 | |
| 32TH | Septic arthritis osteomyelitis  **DR AALIA**  10-9-2020 | | Osteomyelitis  **DR AALIA**  12-9-2020 | |

**TOPICS FOR 3RD YEAR MBBS PEDIATRICS**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No** | **Topics** | **Teacher`s name** | **MIT** |
|  | **OVERVIEW OF PAEDRIATICS/ORIENATION SESSION** | **Dr. Aalia** | **SGD** |
|  | **HISTORY TAKING** | **Dr. Khalid Mehmood** | **SGD** |
|  | **HISTORY TAKING** | **Dr. Khalid Mehmood** | **SGD** |
|  | **HISTORY TAKING** | **Dr. Khalid Mehmood** | **SGD** |
|  | **GENERAL PHYSICAL EXAMINATION** | **Dr. Khalid Mehmood** | **SGD** |
|  | **GENERAL PHYSICAL EXAMINATION** | **Dr. Sajid Hanif** | **SGD** |
|  | **GROWTH PARAMETERS (HEIGHT, WEIGHT, OFC, MUAC)** | **Dr. Khalid Mehmood** | **SGD** |
|  | **RESPIRATORY SYSTEM EXAMINATION** | **Dr. Khalid Mehmood** | **SGD** |
|  | **RESPIRATORY SYSTEM EXAMINATION** | **Dr. Khalid Mehmood** | **SGD** |
|  | **GIT EXAM** | **Dr. Khalid Mehmood** | **SGD** |
|  | **GIT EXAM** | **Dr. Khalid Mehmood** | **SGD** |
|  | **IMNCI** | **Dr. Aalia/ Dr.Sajid Munir/ Dr. Sajid Hanif** | **SGD** |
|  | **EPI SCHEDULE (PRATICAL EXPOSURE)** | **Dr. Khalid Mehmood** | **SGD** |
|  | **STUDENT ASSESSMENT** |  | **SGD** |
| **HX TAKING +PRESENTATION + EXAMINATION ON GOING ASSESSMENT** | | | |

**TOPICS FOR 4th YEAR MBBS PEDIATRICS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.No | TOPICS | SYSTEM | TEACHERS NAME | MIT | ASSESSMENT |
| 1 | Introduction to Pediatrics |  | DR SAJID HANIF | LGD/SGD | SAQ,MCQ |
| 2 | Growth and development |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 3 | Syndromes |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 4 | EPI schedule and Vaccines |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 5 | Breast feeding and weaning |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 6 | PCM AND SAM | NUTRITION | DR AALIA | LGD/SGD | SAQ,MCQ |
| 7 | Iron & vit BComplex defeciency |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 8 | Vit A,Vit K Defeciency |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 9 | Vit C scurvy, |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 10 | Vit D Defeciency Ricket |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 11 | Neonatology definitions  Neonatal Resuscitation | NEONATOLOGY | DR SAJID HANIF | LGD/SGD | SAQ,MCQ |
| 12 | Birth asphyxia, |  | DR SAJID HANIF | LGD/SGD | SAQ,MCQ |
| 13 | Prematurity |  | DR SAJID HANIF | LGD/SGD | SAQ,MCQ |
| 14 | RDS,MAS |  | DR SAJID HANIF | LGD/SGD | SAQ,MCQ |
| 15 | Neonatal sepsis |  | DR SAJID HANIF | LGD/SGD | SAQ,MCQ |
| 16 | Neonatal fits |  | DR SAJID HANIF | LGD/SGD | SAQ,MCQ |
| 17 | neonatal hypoglycemia |  | DR SAJID HANIF | LGD/SGD | SAQ,MCQ |
| 18 | Birthtrauma,congenital anomalies |  | DR SAJID HANIF | LGD/SGD | SAQ,MCQ |
| 19 | Enteric fever | INFECTIOUS DISEASES | DR AALIA | LGD/SGD | SAQ,MCQ |
| 20 | Malaria |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 21 | Dengue fever,meningococcemia |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 22 | Diphtheria, |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 23 | Tetanus, |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 24 | mumps,pertusis |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 25 | HIV |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 26 | chicken pox |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 27 | Measles,rubella, |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 28 | Giardiasis,Amoebiasis |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 29 | Poisonings |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 30 | Worm infestation | BEHAVIOR | DR AALIA | LGD/SGD | SAQ,MCQ |
| 31 | Nocturnal enuresis,Encoparesis |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 32 | Child abuse,Child Neglect |  | DR AALIA | LGD/SGD | SAQ,MCQ |
| 33 | Autism,ADHD |  | DR AALIA | LGD/SGD | SAQ,MCQ |

**TOPICS FOR FINAL YEAR MBBS PEDIATRICS**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No** | **Topics** | **Teacher`s name** | **MIT** |
|  | **REVISION OF 3RD YEAR 4TH YEAR CLINICAL COURSE /ORIENTATION SESSION** | **Dr. Sajid Munir** | **SGD** |
|  | **GIT HX, EXAM CASE DISCUSSIONS** | **Dr. Sajid Munir** | **SGD** |
|  | **GIT HX, EXAM CASE DISCUSSIONS** | **Dr. Sajid Munir** | **SGD** |
|  | **GIT HX, EXAM CASE DISCUSSIONS** | **Dr. Sajid Munir** | **SGD** |
|  | **RESPIRATORY SYSTEM (HX + EXAM) CASE DISCUSSION** | **Dr. Sajid Munir** | **SGD** |
|  | **RESPIRATORY SYSTEM (HX + EXAM) CASE DISCUSSION** | **Dr. Sajid Munir** | **SGD** |
|  | **RESPIRATORY SYSTEM (HX + EXAM)CASE DISCUSSION** | **Dr. Sajid Munir** | **SGD** |
|  | **CVS HX + EXAM + CASE DISCUSSION** | **Dr. Sajid Munir** | **SGD** |
|  | **CVS HX + EXAM + CASE DISCUSSION** | **Dr. Sajid Munir** | **SGD** |
|  | **CNS HX + EXAM + CASE DISCUSSION** | **Dr. Sajid Munir** | **SGD** |
|  | **CNS HX + EXAM + CASE DISCUSSION** | **Dr. Sajid Munir** | **SGD** |
|  | **CVS HX + EXAM + CASE DISCUSSION (CONCLUDED)** | **Dr. Sajid Munir** | **SGD** |
|  | **PROCEDURES** | **Dr. Aalia** | **SGD** |
|  | **PROCEDURES** | **Dr. Aalia** | **SGD** |
|  | **INSTRUMENTS (NG TUBE + ETT + IV CANNULAS + DRIP SETS + MEDICATIONS + DOSAGES) VISUALIZATION AND USAGE** | **Dr. Aalia** | **SGD** |
|  | **NEONATOLOGY: NEONATAL RESUCITATION (PARCTICAL + AUDIOVISUAL )** | **Dr. Sajid Hanif** | **SGD** |
|  | **NEW BORN HISTORY TAKING & EXAM + CASE DISCUSSION** | **Dr. Sajid Hanif** | **SGD** |
|  | **NEONATOLOGY HX + EXAM + CASE DISCUSSION (RDS, HIE, PREMATURE, NNJ ETC)** | **Dr. Sajid Hanif** | **SGD** |
|  | **REDIOLOGY SESSION (X-RAY + CT SCAN + MRI )** | **Dr. Aalia** | **SGD** |
|  | **DEVELOPMENT ASSESSMENT (PRACTICAL DEMONSTRATION + CASE DISCUSSION)** | **Dr. Aalia** | **SGD** |
|  | **DATA INTERPRETATION** | **Dr. Aalia** | **SGD** |
|  | **IMNCI** | **Dr. Sajid Munir** | **SGD** |
|  | **KARYOTYPING, PEDIGREE + CENTILE GROWTH CHARTS** | **Dr. Sajid Munir / Dr. Aalia** | **SGD** |
|  | **TOACS ORIENTATION SESSION** | **Dr. Sajid Munir / Dr. Aalia** | **SGD** |
|  | **WARD TEST** |  |  |

LECTURES SCHEDULE FINAL YEAR MBBS SESSION 2019-2020

UROLOGY, ENDOCRINOLOGY, BREAST

DR.SYED IFTIKHAR ALAM ASSISTANT PROFESSOR

DEPARTMENT OF SURGERY KIMS/KMU

|  |  |
| --- | --- |
| DATE | TOPIC |
| 05/11/2019 | ANATOMY OF GENITOURINARY TRACT |
| 12/11/2019 | SYMPTOMS OF DISORDERS OF GENITOURINARY TRACT |
| 19/11/2019 | UROLOGIC LABORATORY EXAMINATION |
| 26/11/2019 | RADIOLOGY OF THE URINARY TRACT |
| O3/12/2019 | URINARY STONE DISEASE LECTURE 1 |
| 10/12/2019 | URINARY STONE DISEASE LECTURE 2 |
| 17/12/2019 | INJURIES TO THE GENITOURINARY TRACT |
| 24/12/2019 | **WINTER VACATION** |
| 31/12/2019 | BLADDER OUTFLOW OBSTRUCTION (BENIGN PROSTATIC HYPEPLASIA) |
| 07/01/2020 | BLADDER OUTFLOW OBSTRUCTION (BLADDER NECK STENOSIS, URETHERAL STRICTURE |
| 14/01/2020 | PELVI-URETERIC JUNCTION OBSTRUCTION |
| 21/01/2020 | VESICO-URETERIC REFLUX |
| 28/01/2020 | URINARY INCONTINENCE |
| 04/02/2020 | SPECIFIC INFECTION OF GENITOURINARY TRACT |
| 11/02/2020 | RENAL CELL CARCINOMA |
| 18/02/2020 | UROTHELIAL CARCINOMA |
| 25/02/2020 | PROSTATE CARCINOMA |
| 03/03/2020 | GENITAL TUMORS |
| 10/03/2020 | PAROTID GLAND PATHOLOGIES AND TREATMENT |
| 17/03/2020 | SUBMANDIBULAR AND SUBLINGUAL GLAND PATHOLGIES AND TREATMENT |
| 24/03/2020 | HYPO AND HYPERTHROIDISM |
| 31/03/2020 | THYROID CARCINOMAS |
| 07/04/2020 | **SPRING VACATIONS** |
| 14/04/2020 | HYPERPARATHROIDISM |
| 21/04/2020 | BENIGNG BREAST CONDITIONS **(ANDI)** |
| 28/04/2020 | CARCINOMA OF THE BREAST |
| 05/05/2020 | ADRENAL CORTEX  TUMORS |
| 12/05/2020 | ADRENAL MEDULLA TUMORS |
| 19/05/2020 | **GRAND TEST** |
| 26/05/2020 | LAPAROSCOPIC AND ROBOTIC SURGERY IN UROLGY |
| 02/06/2020 | MALE INFERTILITY |
| 09/06/2020 | RENAL TRANSPLANTATION |

LECTURES SCHEDUALE FINAL YEAR MBBS

DR IMTIAZ AHMED KHATTAK

ASST PROFESSOR SURGERY

|  |  |
| --- | --- |
| 4/11/2019 | ANATOMY, PHYSIOLOGY AND RADIOLOGICAL INVESTIGATIONS OF GALL BLADDER AND BILIARY TREE |
| 11/11/2019 | CONGENITAL ANOMALIES OF GALL BLADDER AND BILIARY TREE |
| 18/11/2019 | BILIARY ATRESIA,CHOLEDOCHAL CYST,CAROLIES DISEASE |
| 25/11/2019 | GALL STONES |
| 2/12/2019 | GALL STONES |
| 9/12/2019 | ACALCULOUS CHOLECYSTITIS,CHOLESTEROSIS,POLYPOSIS,ADENOMYOSIS OF GALL BLADDER,DIVERTICULOSIS,TYPHOID INFECTION OF GALL BLADDER |
| 16/12/2019 | CHOLECYSTECTOMY,COMPLICATIONS OF CHOLECYSTECTOMY |
| 23/12/2019 | PRIMARY SCLEROSING CHOLANGITIS,PARASITIC INFESTATION OF BILIARY TRACT,BENIGN TUMORS OF BILIARY TREE |
|  | WINTER VACATION |
| 6/01/2020 | MALIGNANT TUMORS OF BILIARY TREE AND GALL BLADDER |
| 13/01/2020 | ANATOMY AND PHYSIOLOGY OF PANCREAS |
| 20/01/2020 | INVESTIGATIONS RELATED TO PANCREAS INCLUDING IMAGING |
| 27/01/2020 | CONGENITALABNORMALITIES OF PANCREAS,INJURIES TO THE PANCREAS |
| 3/02/2020 | PANCREATITIS(ACUTE AND CHRONIC) |
| 10/02/2020 | PANCREATITIS(COMPLICATIONS) |
| 17/02/2020 | CARCINOMA OF THE PANCREAS |
| 24/02/2020 | ASSESSMENT |
| 2/03/2020 | ANATOMY,LIVER FUNCTION AND TESTS/IMAGING |
| 9/03/2020 | ACUTE LIVER FAILURE |
| 16/03/2020 | LIVER TRAUMA |

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| 23/03/2020 | PORTAL HYPERTENTION |
| 30/03/2020 | PORTAL HYPERTENTION |
| 6/04/2020 | CHRONIC LIVER CONDITIONS |
| 13/04/2020 | SPRING VACATION |
| 20/04/2020 | LIVER INFECTIONS |
| 27/04/2020 | LIVER INFECTIONS |
| 4/05/2020 | BENIGN LIVER TUOMORS |
| 11/05/2020 | HEPATOCELLULAR CARCINOMA |
| 18/05/2020 | EMBRYOLOGY,ANATOMY AND PHYSIOLOGY OF SPLEEN |
| 25/05/2020 | CONGENITAL ABNORMALITIES,SPLENIC ARTERY,ANEURISM,INFART ANDRUPTURE |
| 1/06/2020 | SPLENOMEGALLY/HYPERSLENISM |
| 8/06/2020 | HAEMOLYTIC ANEMIAS |
| 15/06/2020 | ASSESSMENT |
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