STUDY GUIDE
3rd YEAR MBBS
Y3 – B3

DEPARTMENT OF MEDICAL EDUCATION

CMH KHARIAN MEDICAL COLLEGE

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MISSION

Our mission is to educate and produce exemplary doctors who practice ethical patient centered health care, discover and advance knowledge and are responsive to the community needs.

VISION

To produce competent doctors equipped with sound knowledge based on scientific principles, imbued with ethics and moral values primed to serve the community through the profession. Our aim is to

- Provide outstanding educational environment for medical students.
- Develop exemplary clinicians who are lifelong learners and provide the highest quality compassionate care and serve the needs of their community and the nation in the best traditions of medical profession.
- Ensure the highest ethical and professional standards in all of our deeds.

Exit Outcomes for the CKMC Graduate

At the end of five years MBBS degree program graduate of CMH Kharian Medical College should be able to:

Knowledge

- Integrate knowledge of basic and clinical sciences in disease prevention and promotion of health and well-being of community.
- Able to appraise varied information they would come across during professional work

and testify innovative ideas to benefit human society through evidence-based health care practice

- Demonstrate scientific knowledge in all professional activities
- Demonstrate research skills which bring innovation and significance to health care practices.

Skills

- Able to perform physical examinations, formulate provisional diagnosis with appropriate investigations to identify specific problems.
- Perform various common procedures to diagnose and manage non critical clinical problems.
- Demonstrate competency in life saving procedures.
- Exhibit propensity of critical thinking, problem solving and lifelong self-directed learning skills.

Attitude

- Manifest ethical values and professionalism.
- Demonstrate professional attitude towards patients, their families, seniors and colleagues.
- Demonstrate dedication and professionalism when faced natural disasters in country.
- Demonstrate communication skills, inter professional skills and leadership.

knowledge	Skill	Attitude
Integrated knowledge of basic & clinical sciences	Communication skills	Ethical values
Patient centered care	Research skills	
Health promotion & disease prevention	Patient management skills	Professionalism
Community needs	Leadership skills	
	Critical thinking skills	

Introduction to the Study Guide

Dear Students,

We, at the Department of Medical Education, CMH Kharian Medical College, have developed this study guide especially for you. This study guide is an aid to

- Inform you how this part of your syllabus has been organized.
- Inform you how your learning programs have been organized in this block.
- Help you organize and manage your studies throughout the block
- Guide you on assessment methods, rules and regulations.
- Communicate information on organization and management of the block. This will help you to contact the right person in case of any difficulty.
- Define the objectives which are expected to be achieved at the end of the block.
- Identify the learning strategies such as lectures, small group discussions, clinical skills, demonstration, tutorial and case-based learning that will be implemented to achieve the block objectives.
- Provide a list of learning resources such as books, and journals for students to consult in order to maximize their learning.

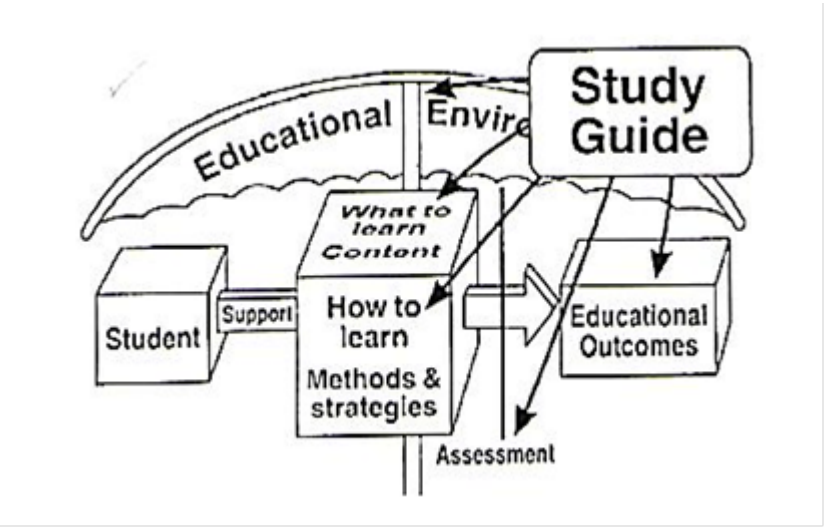
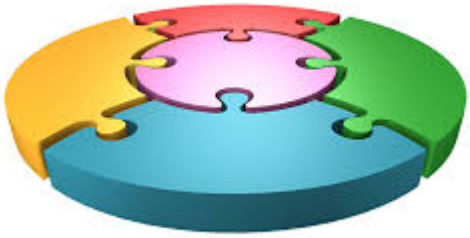


Figure 1 Objectives of study guide by Harden

Curriculum Integration



Medical college curriculum shall be organized in blocks of modules. The modules are named after body system for example a module of blood in a block. The key details are as follows:

1. There shall be three blocks in first year MBBS comprising modules.
2. The blocks shall be labeled as1, 2 and 3.
3. Each module in a block shall have a title. The name of the module shall represent the content taught and learned the majority of time in that module. Module shall be named after body systems.
4. The duration of three blocks shall vary between 10-12 weeks according to syllabus.
5. The syllabus shall be integrated horizontally around systems of the body.
6. There shall be vertical integration to the extent decided by the curriculum coordination committee.
7. Vertical integration shall be in case based learning sessions and in clinical lectures of basic sciences, scheduled in the structured training program.

Teaching and Learning Methods

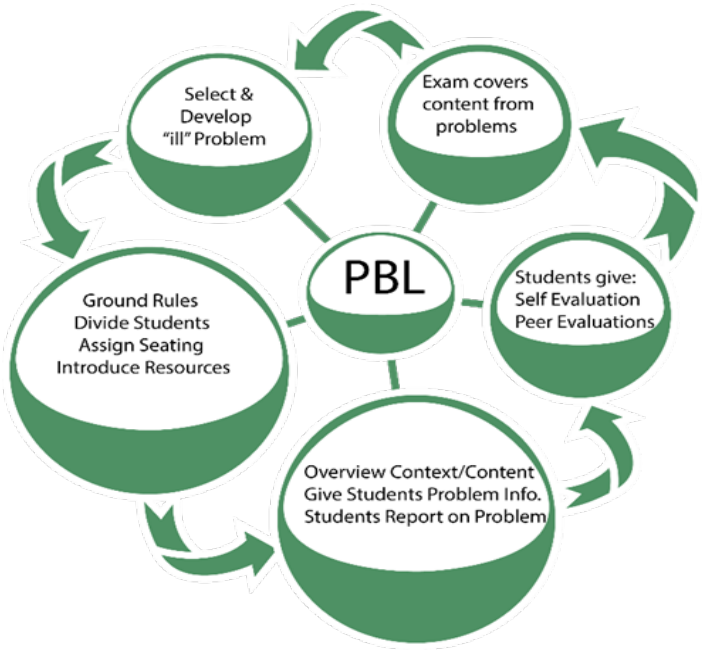
1: Small Group Discussions (SGD)

The topic will be taught in groups with the help of models and audiovisual aids. Pre-planned topics would help students to combine their wisdom in achieve learning objectives. Facilitator would be guiding to achieve learning objectives and making them on right track by clarify any misconception.

"Small group learning provides more active learning, better retention, higher satisfaction, and facilitates development of problem-solving and team-working abilities (Jahan, Siddiqui, AlKhouri, Ahuja, & AlWard, 2016).

2: Problem Based Learning (PBL)

This is group learning comprising of 8-10 students guided by a facilitator. For a specific problem given to students two sessions of 2 hours would be scheduled to achieve the learning objectives. In the first session students will discuss problem based upon their existing knowledge among the group and will produce a list of their learning objectives for further study. In the second session students share, discuss with each other to build new knowledge.



PBL is a self-directed learning and that type of educational strategy most likely produce doctors who are prepared for lifelong learning and able to meet the changing needs of their patients (Spencer & Jordan, 1999).

3: Large Group Interactive Session (LGIS)

These are meant to give overview of certain course content. They should be interactive so that students can not only gain knowledge but should completely understand it. Students may clarify the difficult concepts in these sessions. The lecturer introduces a topic and explains the underlying phenomena through questions, pictures, videos of patient's interviews, exercises, etc. Students are actively involved in the learning process.

4: Self Directed Learning (SDL)

In this modern era of medical education, students assume responsibilities of their own learning according to the principles of adult learning. They can study independently, can share and discuss with peers, can take information from the sources of information college have like library, internet and teachers. Students will be provided time within the scheduled college hours for self-study.

5: Hands on Training

- **Lab session**

Practical, being the most basic and effective tool for imparting knowledge, goes hand in hand with theory for better understanding and concept building. In view of the complexities in the basics and fundamentals of Medical sciences, a good practical demonstration of the underlying concept is a must to simplify the subject. Pharmacology, microbiology and forensic medicine practical will build skills in students of 3rd year and there would be test of these skills in OSPE exam.

- **Clinical Rotations**

The students will rotate in the clinical departments to see integration of knowledge into clinical practices.

Teaching and learning activities are meant to help students to gain new knowledge. It should be kept in mind that they are not meant to fully cover the objectives of the subject. It is therefore responsibility of students to attain more information to cover all objectives given in the overall objectives.

Class attendance and participation is of most important in gaining knowledge. If any help is needed module team can be contacted without any hesitation. Attendance will be strictly checked in different teaching activities. If attendance is less than 75%, students would not be allowed to sit for the examination.

Attendance in the examination is must and no students would be allowed to enter

the examination area after starting the examination. In case of sickness, sick leaves from government/private hospitals or the emergency of the college hospital will only be entertained.

Assessment Format

Assessment is a goal-oriented process (Angelo, 1995). We assess in order to check whether the learning objectives set at the initiation of the program are met or not and to what extent (Amin, 2007).

No student will be allowed to sit in the annual examination if attendance is below 75% in theory and practical separately.

Assessment types

The assessment will be continuous. The purpose of continuous assessment is formative and summative.

Summative Assessment:

The marks of this type of assessment contribute in the final university result through internal assessment. It comprises:

- CBL/tutorial assessment
- Scheduled tests
- Sub-stages
- End of block exam
- Pre-annual exam

Scheduled tests and sub-stages will be conducted intermittently throughout the block. Their schedule will be intimated through the time tables.

The end of the block exam will be conducted after completion of weeks of instruction. It will comprise one theory paper and one practical exam for Anatomy, Physiology and Biochemistry. (Table of specifications (TOS) for exam has been provided)

Formative Assessment: Tests may be quizzes, surprise tests/written assignments/self-reflection by students during the teaching time but their marks will not be added to internal evaluation

marks. The purpose of formative assessment is to provide feedback to the students, for the purpose of improvement and to teachers to identify areas where students need further guidance.

Internal Assessment

(Will be submitted to the university before professional exam)

- The weightage of internal assessment shall be 10 % in the annual professional examination (or 10 marks for 100 marks in theory and practical each)
- Scheduled tests, sub-stages, CBLs/tutorials, block examinations and pre-annual examinations, conducted by the college shall contribute towards internal assessment for professional examination.

Annual Professional Examination:

- The professional examinations schedule will be provided by NUMS.
- There will be two components of the final result

  (i) Examination-90 % (ii) Internal Assessment- 10 %
- There will be one theory paper and one Practical exam for Pharmacology, General Pathology & Microbiology and Forensic Medicine each. For practical the class will be divided into batches. Each batch will have practical exam of one subject on the specified day, according to schedule.
- Annual Theory & Practical Examination shall be of 300 marks each in Gen Pathology/Microbiology; Pharmacology/Therapeutics and 200 marks in Forensic Medicine/Toxicology. The pass score shall be 50% in theory and practical separately
- The Annual Theory paper shall be of 135 marks for each Pharmacology/ Therapeutics and General Pathology/ Microbiology. 15 marks of internal assessment papers, conducted throughout the year will be added to it, to make annual theory assessment of 150 marks. Similarly, the annual practical examination will be of 135 marks. 15 marks of internal evaluation of practical exams, conducted throughout the year will be added to it, to make annual practical assessment of 150 marks.
- The pass score shall be 75 out of 150, in theory and practical separately.
- The Annual Theory paper shall be of 90 marks for Forensic Medicine. 10 marks of internal assessment papers, conducted throughout the year will be added to it, to make annual theory assessment of 100 marks.
  Similarly, the annual practical examination will be of 90 marks. 10 marks of internal evaluation of practical exams, conducted throughout the year will be added to it, to make annual practical assessment of 100 marks.
- The pass score for Forensic Medicine shall be 50 out of 100, in theory and practical separately.

Schedule of examinations:

a) Continuous assessments schedule

Schedule provided by each department in Time table.

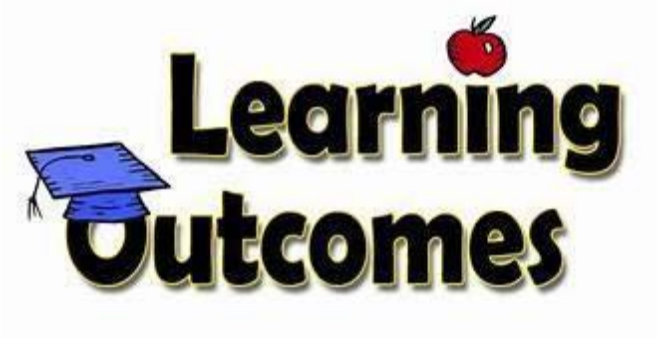
b) Formative tests: Throughout the block

Block Development Committee

Chairperson curriculum committee	Principal Brig (Retd) Shoaib Nayyar Hashmi
Director Medical education	Dr Aasma Qaiser
Block Planner	Dr Aasma Qaiser
Resource Persons	**Pharmacology: Dr Hammad Ahmed Butt** **G. Pathology: Prof. Inam Qadir** **Forensic Medicine: Prof. Dr. Talat** **Medicine: Brig Khalid** **Surgery: Col Nisar**
Study Guide Developed By	Department of Medical Education CMH Kharian Medical College Kharian

Structured Summery of Y3B3

Block Code	Y3B3
Pre requisite Block	Y3B1 &Y3B2
Duration	10 weeks
Rationale	The Y3B3 block is taught as 3rd block after the students clear their Y3B2 modular exam. In a period of 10 weeks, the block aims to form a basis for knowledge and skills related to use of therapeutic agents in treatment of diseases, understand pathophysiology of infectious diseases with various test used for investigation and how to perform autopsy and medicolegal examination in forensic context.
Pharmacology	• Chemotherapy-II • Endocrinology • Drugs acting on GIT • Drugs acting on Respiratory System, • Miscellaneous Topics
General Pathology	• Genetics • Neoplasia • Environmental diseases • Virology • Parasitology
Forensic Medicine	• Specific Poisons • Law in relation to medical man • Medical Ethics, Consent, & Negligence • Forensic Psychiatry



Knowledge	• Justify the treatment modalities for various fungi, viruses, helminthes & protozoa according to mode of action, resistance patterns and regional current practices. • Correlate the pathophysiological basis of pituitary, thyroid and adrenal hormones with their therapeutics. • Correlate types of diabetes mellitus to their different treatment modalities. • Justify the clinical use of sex hormones in relation to reproductive physiology. • Correlate the pathophysiological basis of osteoporosis to its pharmacological management. • Develop and justify the management plan of common disorders of GIT (peptic ulcer, vomiting, constipation, gastroparesis & diarrhea). • Develop and justify the management plan of bronchial asthma & chronic obstructive pulmonary disorders (COPD).

	• Outline management approach for different types of cough. • Outline the essential pharmacological principles of management of heavy metal toxicity. • Correlate the mechanisms of disease production with clinical manifestations, diagnostic modalities, treatment and preventive strategies of medically important parasites and fungi. • Explain certain infectious diseases related to respiratory tract, central nervous system, urogenital tract and gastrointestinal tract in context to their etiology, pathogenesis, laboratory diagnosis, treatment and preventive measures. • Describe the etiology, clinical features, pathogenesis, laboratory findings, morphological features and clinic-pathological consequences of Neoplasia, Environmental and Nutritional Disease, Mycology, Parasitology and Infectious Diseases. • Legal system of Pakistan • Special toxicology having all poisons/ drugs prevailing in our society along with it medicolegal aspects, and other signs symptom, treatment & postmortem finding.
Skill	• Identify the unknown drug by observing its effects on heart /blood vessels / reflex time /CNS of frog. • Write a suitable prescription/ select appropriate P-drug according to the given scenario

	• Establish diagnosis of given topics of General Pathology by correlating findings of given slides and photomicrographs with Gross findings.
Attitude	• Demonstrate the effective attitude towards the colleagues • Analyze and address problems collaboratively. • Execute analytic, communicative and collaborative skills along with content knowledge • Demonstrate a professional attitude, team building spirit and good communication skills • Observe lab safety rules

Course content:

3rd YEAR MBBS

Block 1 CODE Y3B1

In case of online classes MIT and Assessment will be online via zoom meeting and Google classroom

Pharmacology

Learning outcomes:

Chemotherapy II:

- Justify the treatment modalities for various fungi, viruses, helminthes & protozoa according to mode of action, resistance patterns and regional current practices.

Endocrinology

- Correlate the pathophysiological basis of pituitary, thyroid and adrenal hormones with their therapeutics.
- Correlate types of diabetes mellitus to their different treatment modalities.
- Justify the clinical use of sex hormones in relation to reproductive physiology.
- Correlate the pathophysiological basis of osteoporosis to its pharmacological management.

Drugs acting on gastrointestinal tract (GIT)

- Develop and justify the management plan of common disorders of GIT (peptic ulcer, vomiting, constipation, gastroparesis & diarrhea).

Drugs acting on Respiratory System

- Develop and justify the management plan of bronchial asthma & chronic obstructive pulmonary disorders (COPD).
- Outline management approach for different types of cough.

Miscellaneous topics

- Outline the essential pharmacological principles of management of heavy metal toxicity.

S.No	Topic	Learning Objctives	MIT	Name of Instructor	Mod of Assessment
	By the end of Block, the students should be able to:				
1.	Anti- fungal agents	• Classify anti- fungal drugs. • Describe chemistry, pharmacokinetics, spectrum of activity, MOA, mechanism of resistance, therapeutic uses, adverse effects, drug interactions of amphotericin B / azoles/	LGIS	Dr.Abeera (Sr.Lec)	Theory (MCQs, SEQS) Viva voce
		echinocandins /antimetabolites. □ Describe miscellaneous anti- fungal drugs regarding their MOA, therapeutic uses & adverse effects.			

2.	Anti- viral agents	• Outline the structure & life cycle of a virus. • Classify anti- viral drugs. • Enlist the drugs used for herpes simplex virus / cytomegalovirus and influenza virus infections. Describe their MOA, pharmacokinetics, therapeutic uses & adverse effects. • Describe the drug treatment of hepatitis C (interferon, ribavirin, sofosbuvir) and hepatitis B (Lamivudine, adefovir, telbivudine). • Describe the pharmacokinetics, therapeutic uses & adverse effects of drugs used to treat HIV infection. • Illustrate the site of action of drugs used to treat HIV infections with the help of a diagram.	LGIS	Maj (R) Dr Khalida Ajmal Assoc. Prof	Theory (MCQs, SEQS) Viva voce
3.	Anti- malarial drugs	• Recall species & life cycle of malarial parasites. • Classify anti- malarial drugs according to site of action & chemical structure.	LGIS / CBL	Maj (R) Dr Khalida Ajmal Assoc. Prof	Theory (MCQs, SEQS) Quiz Viva voce

		• Describe MOA, mechanism of resistance, pharmacokinetics, indications adverse effects and contraindications of chloroquine / artemisinins. • Describe other antimalarial drugs briefly • Tabulate the WHO recommended regimens for treatment of chloroquine resistant falciparum malaria. • Summarize chemoprophylaxis of malaria.			

4.	Anti-amoebic drugs.	• Recall life cycle of Entamoeaba histolytica & pathogenesis produced by it. • Classify anti-amoebic drugs. • Describe pharmacokinetics, mechanism of action, mechanism of resistance & antimicrobial spectrum of metronidazole. • Enlist therapeutic uses, adverse effects, drug interactions & contraindications of metronidazole. • Describe other anti – amebic drugs briefly. • Design a management plan for various forms of amebiasis.	LGIS	Prof Dr. Iffat Ara	Theory (MCQs, SEQS) Viva voce

5.	Antihelminthic drugs.	• Classify anti-helminthic drugs. • Recall life cycle & pathogenesis produced by helminths. • Plan treatment strategies for helminthic infections. • Describe MOA, pharmacokinetics, clinical indications & adverse effects of different anti-helminthic drugs.	LGIS	Dr.Saima Asst. Prof	Theory (MCQs, SEQS) Viva voce

6.	Anti-Mycobacterial drugs	• Outline characteristics of Mycobacterium tuberculosis. • Enlist first line &second line anti-tuberculosis (TB) drugs. • Tabulate various regimens of anti-TB drugs with their doses and duration of therapy. Describe standard regimen in detail. • Justify combination therapy in TB. • Describe MOA, mechanism of resistance, therapeutic uses, adverse effects, drug interactions & contraindications of first line anti-T.B drugs. • Enlist the indications of 2nd line anti- T.B drugs. • Evaluate the role of directly observed treatment, short course (DOTS) in T.B. • Describe the chemoprophylaxis of TB. • Enumerate drugs used in leprosy.	LGIS CBL	Prof Dr. Iffat Ara	Theory (MCQs, SEQS) Quiz Viva voce
		□ Describe MOA of dapsone / other antileprosy drugs. Enlist their adverse effects.			

7.	Cancer chemotherapy	• Classify anti-cancer agents on the basis of cell cycle specific & non cell cycle specific actions. • Describe the general adverse effects produced by anti-cancer agents. • Describe MOA, development of resistance, pharmacokinetics, therapeutic uses & adverse effects of cyclophosphamide. • Enlist antimetabolites. Describe MOA, mechanism of resistance, pharmacokinetics, therapeutic uses & adverse effects of methotrexate. • Describe MOA, therapeutic uses & adverse effects of vinca alkaloids, hormones/ hormonal antagonists, & anthracyclines.	LGIS	Dr. Ayesha Afzal Assoc. Prof	Theory (MCQs, SEQS) Viva voce
8.	Hypothalamic & pituitary hormones.	• Classify hypothalamicpituitary hormones. • Describe mechanism of action of various hormones. • Describe pharmacological effects of growth hormone / gonadotrophins & prolactin. Enlist their uses & adverse effects.	LGIS	Dr. Saima Asst. Prof	Theory (MCQs, SEQS) Viva voce

		□ Evaluate role of posterior pituitary hormones in therapeutics.			
9.	Adreno Corticosteroids & Adreno Cortical antagonists	• Recall synthesis, release & feedback control of corticosteroids. • Classify corticosteroids. □ Describe pharmacokinetics, MOA and pharmacological effects of glucocorticoids. • Identify adrenal & nonadrenal therapeutic uses of glucocorticoids. • Enlist adverse effects of glucocorticoids after short period therapy. • Summarize adverse effects of glucocorticoids on long term therapy. • Enlist contraindications to use of glucocorticoids. • Describe mineralocorticoids and their antagonists briefly. • Enlist adrenocorticoids synthesis inhibitors and receptor antagonists along with their site of action.	LGIS	Maj (R) Dr Khalida Ajmal Assoc. Prof	Theory (MCQs, SEQS) Quiz Viva voce

10.	Gonadal hormones & inhibitors	• Recall the physiology of female sex hormones. Describe the pharmacological effects of estrogen & progesterone. • Enlist the therapeutic uses, adverse effects & contraindications of estrogen & progesterone, anti-estrogens, antiprogestins.	LGIS	Dr. Ayesha Afzal Assoc. Prof	Theory (MCQs, SEQS) Viva voce

		Enlist anabolic steroids / other androgens & anti androgens. Identify their uses & adverse effects.			
11.	Drugs used in infertility	• Classify drugs used in infertility. • Describe the ovulation inducing agents. • Describe the hormonal replacement therapy.	LGIS	Dr. Ayesha Afzal Assoc. Prof	Theory (MCQs, SEQS) Viva voce

12.	Hormonal contraceptives	• Classify hormonal contraceptives. • Enlist formulations types / sub types of combination oral contraceptive preparations (COCP). • Describe mode of action of combination oral contraceptive preparations (COCP). • Describe pharmacologic effects of COCP. • Enlist therapeutic uses, beneficial effects other than contraception, adverse effects, drug interactions & contraindications of COCP. • Describe the serious adverse effects of COCP. • Describe other types of contraceptives briefly. • Enlist merits & demerits of progestin only pills.	LGIS	Prof Dr. Iffat Ara	Theory (MCQs, SEQS) Viva voce
13.	Anti-Diabetic Drugs	• Recall biosynthesis, release, chemistry, and pharmacokinetics, mode of action & effects of insulin. • Define diabetes mellitus &outline its types.	LGIS	Prof Dr. Iffat Ara	Theory (MCQs, SEQS) Viva voce

		• Classify insulin preparations according to onset & duration of action. • Describe various insulin preparations & their regimens for controlling diabetes mellitus. • Compare the advantages of rapidly acting insulin analogs over regular insulin when administered S/C. • Outline insulin delivery system. • Rationalize the role of insulin in therapeutics. • Enlist/ describe the hazards/ complications of insulin therapy. • Design a management plan for insulin induced hypoglycemia. • Outline insulin treatment of DKA, HHS. • Compare the intensive & conventional insulin therapy.			

14.	Anti-Diabetic Drugs	• Give classification of non-insulin (oral / newer) anti diabetic drugs. • Describe in detail pharmacokinetics, MOA, uses, adverse effects & drug interactions of insulin secretagogues/ sensitizers. • Evaluate the role of other non-insulin anti diabetic agents in therapeutics.	LGIS	Prof Dr. Iffat Ara	Theory (MCQs, SEQS) Viva voce

15.	Thyroid & Anti-thyroid drugs.	• Recall synthesis, storage, release, MOA & physiologic effects of thyroid hormones. • Classify anti thyroid drugs. • Describe MOA of thioamides. Enlist their indications & adverse effects. • Describe the role of other anti-thyroid drugs in hyperthyroidism. • Plan the management of hyperthyroid crisis & Grave's disease. • Describe thyroxin with its indications & adverse effects. • Plan the management of myxedema.	LGIS	Dr. Saima (Asst. Prof)	Theory (MCQs, SEQS) Viva voce

16.	Drugs affecting uterine motility	• Classify oxytocic drugs. • Evaluate role of oxytocin, prostaglandins & ergotamine in inducing uterine contraction. • Classify tocolytic drugs. • Rationalize the use of tocolytic drugs in premature labor.	LGIS	Dr. Abeera (Sr. Lecturer)	Theory (MCQs, SEQS) Viva voce
17.	Agents that effect Bone Mineral Homeostasis	• Define osteoporosis. • Relate the pathophysiology of post- menopausal osteoporosis to the process of bone formation /remodeling. • Classify hormonal and non-hormonal drugs used in treatment of osteoporosis. • Describe MOA, pharmacokinetics,	LGIS	Dr. Abeera (Sr. Lecturer)	Theory (MCQs, SEQS) Viva voce

		therapeutic uses & adverse effects of bisphosphonates.			

18.	Anti-emetic drugs.	• Recall the role of CTZ & vestibular pathways in nausea & vomiting (emesis). • Classify anti-emetic drugs. • Describe mechanism of action of various groups of anti-emetic drugs. Enlist their adverse effects. • Justify use of specific antiemetic drugs in patients with vomiting due to various causes • (chemotherapy induced nausea and vomiting, motion sickness, hyperemesis gravidarum). • Evaluate the role of prokinetic agents in therapeutics.	LGIS	Maj (R) Dr Khalida Ajmal Assoc. Prof	Theory (MCQs, SEQS) Viva voce
19.	Anti-diarrheal drugs.	• Recall the physiology of gastrointestinal motility • Classify anti-diarrheal drugs. • Describe the mechanism of various drug groups used for diarrhea. • Outline approaches to treat diarrhea. • Justify the use of various drugs in the treatment of acute / chronic diarrhea.	LGIS	Dr. Saima (Asst. Prof)	Theory (MCQs, SEQS) Viva voce

20.	Drugs used for Inflammatory Bowel Disease.	Describe mechanism of action, uses & A/E of Drugs used for treatment of Inflammatory Bowel Disease.	LGIS	Dr. Saima (Asst. Prof)	Theory (MCQs, SEQS) Viva voce

		• Discuss mechanism of action, uses and A/E of Drugs used for treatment of Inflammatory Bowel syndrome. • Summarize mechanism of action , uses and adverse effects of antispasmodics			

21.	Drug used in acid peptic diseases	• Recall the physiology of gastric acid secretion & natural protective mechanisms against it. • Identify location & role of different receptors on various gastric cells. • Define & enlist acid peptic diseases (APD) • Identify etiological factors of APD (H.pylori, stress & drugs) • Classify drugs used for APD. • Describe mechanism of action of various drugs used to reduce intragastric acidity in APD. Enlist their therapeutic uses, adverse effects & drug interactions. • Summarize triple & quadruple drug regimens for eradication of H.pylori in peptic ulcers. • Evaluate the role of mucosal protective agents in APD.	LGIS CBL	Prof Dr. Iffat Ara	Theory (MCQs, SEQS) Quiz Viva voce
22.	Purgative/laxatives	• Define purgative/laxatives. • Identify the underlying pathophysiological mechanism of constipation.	LGIS	Dr. Abeera (Sr. Lecturer)	Theory (MCQs, SEQS) Viva voce

		• Classify purgative/laxatives. • Describe site, onset & mechanism of action of various groups of purgatives. • Tabulate the clinical applications of purgatives /laxatives			
23.	Drug used for cough	• Enlist types of cough. • Outline the management approach for different types of cough. • Difine mucolytics / expectorants& anti-tussives. • Classify anti-tussive drugs. • Describe the MOA & adverse effects of commonly prescribed mucolytics/ expectorants & anti-tussives agents.	LGIS	Dr. Abeera (Sr. Lecturer	Theory (MCQs, SEQS)
24.	Drug used in asthma.	• Describe pathophysiology of bronchial asthma. • Classify drugs used in bronchial asthma. • Describe MOA, therapeutic uses, adverse effects & drug interactions of various drugs used in bronchial asthma as relievers / long term controllers. • Outline management of acute severe asthma (Status Asthmaticus)	LGIS / CBL	Maj (R) Dr Khalida Ajmal Assoc. Prof	(MCQs, SEQS) Quiz Viva Voce

Case Based Learning (CBL)

CBL :01(a).Antivirals

Mrs Ali is feeling unwell for the last few weeks. She has vague symptoms of malaise, easy fatigability and anorexia. On consultation, her physician advised some investigations.

The lab results shows positive anti-HCV antibodies. Her history reveals repeated visits to non-qualified dentists.

Learning Objectives:

- Reproduce pathophysiology of hepatitis C & B.
- Identify drugs used for treatment of hepatitis C & B.
- Interpret role of interferon and ribavirin in hepatitis C.
- Explain types, MoA and side effects of interferon therapy.
- Enlist other clinical uses of interferon
- Explain MoA, therapeutic uses and adverse effects of ribavirin
- Describe MoA, therapeutic uses and adverse effects of Sofosbuvir

CBL :01 (b) Antifungal

A 28 year old man, complains of having nail infection of his toes. He is diagnosed suffering from dermatophytes infection. The skin specialist has prescribed him itraconazole to take orally and its cream to apply locally. The patient's symptoms are improving.

Learning objectives:

1. Classify anti- fungal drugs.
2. Describe chemistry pharmacokinetics, spectrum, MOA, therapeutic uses & adverse effects of azoles & amphotericin B.
3. Discuss various drug interactions of azoles.
4. Compare the benefits of terbanafine over itraconazole.

CBL : 02 Anti diabetic

A 66 year obese male, presents to Diabetes Center for advice regarding his diabetes treatment. His diabetes was diagnosed 10 years previously on routine testing. He was initially given metformin but when his control deteriorated, the metformin was stopped and insulin treatment initiated. The patient was taking 50 units of insulin glargine and 25 units of insulin aspartate pre-meals. He had never seen a diabetes educator or a dietitian. On examination, his weight is 132 kg (BMI 39.5); blood pressure 145/71; and signs of mild peripheral neuropathy are present. Laboratory tests reveals HbA1c 8.1% with albuminuria.

Learning Objectives:

- Design a management plan to treat this patient.
- Classify oral antidiabetic agents and discuss their MOA & adverse effects.
- Discuss the types of Insulin, its MOA and adverse effects.
- Assess the signs & symptoms hypoglycemic coma and formulate its management.
- Rationalize the use of Insulin in diabetic ketoacidosis.
- Review the importance of life style modification necessary for tight control for DM.

CBL : 03 Asthma

A known case of asthma presents to emergency with acute shortness of breath. She appears frightened and refuses to lie down but is not cyanotic. Her pulse is 120 bpm and respiratory rate is 32/min. On chest auscultation, there is both inspiratory and expiratory wheeze. She is already using albuterol inhaler frequently but not relieved.

Learning Objectives:

At the end of CBL, the students should be able to:

- Formulate a management plan for immediate relief to this patient. Summarize the groups of "controllers" with one example each.
- Discuss the drugs used for long term management of asthma.

CBL : 04 Antimalarials

A 27 year old man has just returned to Europe from a trip to Southeast Asia. He was advised some drugs for prevention of malaria, but he refused this therapy. Over the past 24 hours he has developed shaking, chills, and high grade fever with temperature of

104F°. A blood smear reveals ring forms of Plasmodium. He has been prescribed tablet Chloroqiune & Paracetamol for 3 days. On revisit after 3 days, he was afebrile but he was prescribed another drug for 2 weeks.

- Classify the drugs used in Malaria
- Discuss the Chloroqiune; regarding its pharmacokinetics, mode of antimalarial action, mechanism of resistance, therapeutic uses, adverse effects / DIs & CIs
- Rationalize use of drug prescribed on revisit.
- Tabulate WHO recommendations for treatment of Chloroquine resistant falciparum malaria.
- Identify Standard Regimens for Chemoprophylaxis of Malaria

CBL : 05 Antituberculous

A 45 year male has been diagnosed having acute pulmonary tuberculosis. His treatment regimen included multiple first line anti TB drugs. He reports back to medical unit after one year and x-ray chest reveals active lesion, indicating the resistance to treatment.

Learning Objectives:

- Enlist first line anti TB drugs.
- Identify the underlined cause for development of resistance.
- Design the management plan for this patient.
- Justify the rationale of combination therapy in TB.
- Evaluate the role of directly observed treatment (DOTS) in T.B.
- Describe MOA, mechanism of resistance, therapeutic uses, adverse effects, drug interactions & contraindications of first line anti-T.B drugs

CBL : 06 (a) Hormonal contraceptives

A 28 year old mother of two kids, ages 2 years and 9 months, wants to space out her next pregnancy and consults you for taking oral contraceptive pills.

Learning Objectives:

At the end of CBL, all students should be able to:

- Enlist various preparations used as hormonal contraceptives. Elaborate the mode of action of COCPs (combined oral contraceptive pills).
- Enlist & describe the mild, moderate & severe adverse effects of COCPs.
- Discuss the cautions and C/I associated with their use.
- Compare the merits & demerits of progestin only pills with combination pills Summarize the other clinical use of COCPs apart from contraception

CBL : 06 (b) Antiemetics

A patient is receiving highly emetogenic chemotherapy for metastatic carcinoma. She is pretreated with Dolasateron to prevent nausea and vomiting. During the infusion phase there was no episode of vomiting but patient again experienced it after 24 hrs of chemotherapy. Vomiting was controlled by adding dexamethasone.

Learning Objectives:

- Rationalize the use of dexamethasone in controlling the vomiting.
- Classify the Antiemetics drugs.
- Describe the MOA of 5-HT3 receptor antagonists and contraindications.
- Enlist the Prokinetics, their MOA and therapeutics uses.

- Differentiate between Metoclopramide and Domperidone.

Learning resources:

- Basic and clinical Pharmacology by Bertram G Katzung 14th Edition
- The Pharmacological Basis of Therapeutics by Goodman & Gilman Latest Edition Edition
- Current Medical Diagnosis and treatment- Latest Edition

Practical work

Learning Outcomes:

After completion of practical work, students should be able to:

- Identify the unknown drug by observing its effects on heart /blood vessels / reflex time /CNS of frog.
- Write a suitable prescription/ select appropriate P-drug according to the given scenario.

S.no	Topic	Learning objectives:	M IT	Mode of assessment
	After completion of practical work, students should be able to			
1	Kymograph machine	• Identify the parts of kymograph machine • Operate kymograph machine.	Experiment on animal	OSPE
2	Effects of drugs on frog's heart	• Record the normal contractions of frog's heart. • Observe the effects of drugs (Epinephrine, Propranolol, Atropine, Digoxin) on frog's heart. • Identify the drug/ group of drug by recording its effect on frog's heart and comparing it with the normal recording.	Experiment on animal	OSPE

3	Effects of drugs on frog's blood vessels	• Observe the effects of drugs (epinephrine, prazosin, atropine, acetylcholine) on frog's blood vessels. • Identify the unknown drugs by observing its effect on blood vessels of frog	Experiment on animal	OSPE
4	Effects of drugs on reflex time of frog	• Observe the normal reflex time of frog. • Observe the effects of drugs (mucilage of acacia, lignocaine, caffeine & diazepam) on reflex time of frog. • Identify the unknown drugs by observing its effect on reflex time of frog.	Experiment on animal	OSPE
5	Effects of drugs on CNS of frog	• Observe the effects of drugs (caffeine, diazepam, MgSO4, CaCl2) on various parameters (size of pupil, respiratory rate, spontaneous movement, coordination & rightening reflex) in frog. • Identify the unknown drugs by observing its effect on CNS of frog.	Experiment on animal	OSPE

6	Pharmacy preparations	□ Recognize the characteristics of various pharmacy preparations (powders, mixtures, emulsions, ointments).	Pharmacy preparation.	
7	Prescription writing	□ Write suitable prescription / select	Practical work	OSPE
		appropriate P-drug according to given scenario for the following diseases/ailments: • Vaginal candidiasis • Acute malarial fever • Cerebral malaria • Typhoid fever • Urinary tract infection • Bacillary dysentery • Amoebic dysentery • Ascariasis • Tapeworm infestation • Scabies • Acute watery diarrhea • Acid peptic disease • Allergic rhinitis • Bronchial asthma		

Learning Resource:
Hand Book of applied Pharmacology by Muzammil Hassan Najmi / Munir Ahmad Khan

General Pathology

Microbiology

MICROBIOLOGY LEARNING OUTCOMES:

At the end of third Block, the student of 3rd year MBBS should be able to

- Correlate the mechanisms of disease production with clinical manifestations, diagnostic modalities, treatment and preventive strategies of medically important parasites and fungi.
- Explain certain infectious diseases related to respiratory tract, central nervous system, urogenital tract and gastrointestinal tract in context to their etiology, pathogenesis, laboratory diagnosis, treatment and preventive measures.
- Describe the etiology, clinical features, pathogenesis, laboratory findings, morphological features and clinic-pathological consequences of Neoplasia, Environmental and Nutritional Disease, Mycology, Parasitology and Infectious Diseases.

S. No	Topic	LEARNING OBJECTIVES	MIT	Mode of assessment
	By the end of Block, the students should be able to:			
1	**Mycology**	Define and classify mycoses.	LGIS	MCQs/ SEQs / Structured Viva
2		Outline the etiological agents for different mycoses.	LGIS	MCQs/ SEQs / Structured Viva
3		Correlate the mechanisms of diseases production caused by different fungi with their clinical manifestations	LGIS	MCQs/ SEQs / Structured Viva

4		□ Analyze different methods of diagnosis of infections caused by fungi.	LGIS	MCQs/ SEQs / Structured Viva

5		□ Interpret the various treatment options available for fungal infections.	LGIS	MCQs/ SEQs / Structured Viva
6		□ Apply the preventive measures for control of fungal infections.	LGIS	MCQs/ SEQs / Structured Viva
7	**Parasitology**	□ Define and classify parasitology.	LGIS	MCQs/ SEQs / Structured Viva
8		□ Identify, describe and contrast protozoa and metazoa.	LGIS	MCQs/ SEQs / Structured Viva
9		□ Differentiate between various types of hosts.	LGIS	MCQs/ SEQs / Structured Viva
10		□ Describe the role of vectors and carriers in the transmission of parasitic diseases.	LGIS	MCQs/ SEQs / Structured Viva
11		□ Recognize significant morphological characteristics for identification of parasites to taxonomic group and the life cycles.	LGIS	MCQs/ SEQs / Structured Viva

12	**Entamoeba**	□ Differentiate morphological forms of Entamoeba.	LGIS	MCQs/ SEQs / Structured Viva
13		□ Explain the life cycle of Entamoeba histolytica.	LGIS	MCQs/ SEQs / Structured Viva
14		□ Discuss the mode of transmission of Entamoeba histolytica.	LGIS	MCQs/ SEQs /

				Structured Viva
15		□ Contrast Entamoeba histolytica from non pathogenic Entamoeba.	LGIS	MCQs/ SEQs / Structured Viva
16		□ Explain the mechanisms of diseases production by Entamoeba histolytica.	LGIS	MCQs/ SEQs / Structured Viva
17		□ Elaborate the clinical manifestations of Entamoeba histolytica infection.	LGIS	MCQs/ SEQs / Structured Viva
18		□ Discuss the methods for laboratory diagnosis of Entamoeba histolytica.	LGIS	MCQs/ SEQs / Structured Viva
19		□ Interpret the diagnostic modalities for diagnosis of Entamoeba infestations.	LGIS	MCQs/ SEQs / Structured Viva

20		□ Analyze the various treatment options available for amoebic infestations.	LGIS	MCQs/ SEQs / Structured Viva
21		□ Apply the preventive measures for control of infections caused by Entamoeba.	LGIS	MCQs/ SEQs / Structured Viva
22	***Giardia lamblia Trichomonas vaginalis***	□ Differentiate morphological forms of Giardia lamblia, Cryptosporidium and Toxoplasma.	LGIS	MCQs/ SEQs / Structured Viva
23	***, Cryptosporidium hominis, Toxoplasma gondii***	□ Explain the life cycle of Giardia lamblia, Trichomonas vaginalis, Cryptosporidium hominis and Toxoplasma gondii.	LGIS	MCQs/ SEQs / Structured Viva
24		□ Explain their mechanisms of disease production.	LGIS	MCQs/ SEQs / Structured Viva
25		□ Describe the clinical manifestations of Giardia lamblia, Trichomonas vaginalis and Cryptosporidium hominis and Toxoplasma gondii infestations.	LGIS	MCQs/ SEQs / Structured Viva
26		□ Interpret the diagnostic modalities for giardiaisis, trichominiasis, cryptosporidiosis and toxoplasmosis.	LGIS	MCQs/ SEQs / Structured Viva

27		□ Analyze various treatment options available for above mentioned protozoal infestations.	LGIS	MCQs/ SEQs / Structured Viva
28		□ Apply the preventive measures for control of above mentioned protozoal infestations.	LGIS	MCQs/ SEQs / Structured Viva
29	**Trypanosomes/ Leishmania Plasmodium**	□ Describe general characteristics of trypanosomes and Leishmania.	LGIS	MCQs/ SEQs / Structured Viva
30		□ Explain the life cycles of trypanosomes and Leishmania.	LGIS	MCQs/ SEQs / Structured Viva
31		□ Explain their mechanisms of disease production.	LGIS	MCQs/ SEQs / Structured Viva
32		□ Describe the clinical manifestations of trypanosomes and	LGIS	MCQs/ SEQs /

		Leishmania infestations.		Structured Viva
33		□ Interpret the diagnostic modalities for above mentioned protozoal infestations.	LGIS	MCQs/ SEQs / Structured Viva
34		□ Analyze various treatment options available for above mentioned protozoal infestations.	LGIS	MCQs/ SEQs / Structured Viva

35		□ Apply the preventive measures for control of above mentioned protozoal infestations.	LGIS	MCQs/ SEQs / Structured Viva
36		□ Define malaria and identify the causative agent.	LGIS	MCQs/ SEQs / Structured Viva
37		□ Differentiate types of malaria.	LGIS	MCQs/ SEQs / Structured Viva
38		□ Recall its epidemiology.	LGIS	MCQs/ SEQs / Structured Viva
39		□ Correlate the clinical manifestations of malaria with the life cycle of plasmodium.	LGIS	MCQs/ SEQs / Structured Viva
40		□ Identify the various stages of the malarial parasite found in human blood.	LGIS/ Practical	MCQs/ SEQs / Structured Viva/ OSPE
41		□ Interpret various diagnostic modalities for malaria.	LGIS	MCQs/ SEQs / Structured Viva

42		□ Analyze various treatment options available for malaria.	LGIS	MCQs/ SEQs / Structured Viva
43		□ Apply the preventive measures for control of malaria.	LGIS	MCQs/ SEQs / Structured Viva

44		□ Describe general characteristics of cestodes.	LGIS	MCQs/ SEQs / Structured Viva
45		□ Enumerate important species included in cestodes.	LGIS	MCQs/ SEQs / Structured Viva
46		□ Differentiate between Cestodes and Trematodes.	LGIS	MCQs/ SEQs / Structured Viva
47	**Cestodes**	□ Explain the life cycles of medically important cestodes (Taenia saginata, Taenia solium, Diphylobothrium latum, Echinococcus,Hymenol epis nana)	LGIS	MCQs/ SEQs / Structured Viva
48		□ Explain their mechanisms of disease production.	LGIS	MCQs/ SEQs / Structured Viva
49		□ Describe the clinical manifestations of above mentioned parasitic infestations.	LGIS	MCQs/ SEQs / Structured Viva
50		□ Interpret the diagnostic modalities for cestodal infestations.	LGIS	MCQs/ SEQs / Structured Viva
51		□ Analyze various treatment options available for above mentioned infestations.	LGIS	MCQs/ SEQs / Structured Viva

52		□ Apply the preventive measures for control of cestodes	LGIS	MCQs/ SEQs / Structured Viva
53	**Naematodes**	□ Describe general features of Naematodes.	LGIS	MCQs/ SEQs / Structured Viva
54		□ Classify Naematodes.	LGIS	MCQs/ SEQs / Structured Viva
55		□ Describe the mechanisms of disease production caused by Ascaris lumbricoides, Enterobius vermicularis, Trichuris trichura,Trichinella and filarial worms.	LGIS	MCQs/ SEQs / Structured Viva
56		□ Correlate the life cycles and clinical manifestations of Ascaris lumbricoides, Enterobius vermicularis, Trichuris trichura,Trichinella and filarial worms.	LGIS	MCQs/ SEQs / Structured Viva
57		□ Interpret the diagnostic modalities for nematodal infestations.	LGIS	MCQs/ SEQs / Structured Viva
58		□ Analyze various treatment options available for above mentioned infestations.	LGIS	MCQs/ SEQs / Structured Viva

59		□ Apply the preventive measures for control of nematodes.	LGIS	MCQs/ SEQs / Structured Viva
60	**Schistosomes**	□ Describe general features of Trematodes.	LGIS	MCQs/ SEQs / Structured Viva
61		□ Classify Trematodes.	LGIS	MCQs/ SEQs / Structured Viva
62		□ Correlate the life cycles and clinical manifestations of schistosomes.	LGIS	MCQs/ SEQs / Structured Viva
63		□ Interpret the diagnostic modalities for schistosomiasis.	LGIS	MCQs/ SEQs / Structured Viva
64		□ Interpret the diagnostic modalities for schistosomiasis.	LGIS	MCQs/ SEQs / Structured Viva
65		□ Analyze various treatment options available for schistosomiasis.	LGIS	MCQs/ SEQs / Structured Viva
66		□ Apply the preventive measures for control of schistosomiasis.	LGIS	MCQs/ SEQs / Structured Viva
67	**Infectious Diseases, Respiratory tract Infections**	□ Identify the components of respiratory system and differentiate between upper and lower respiratory tract infections.	LGIS/ CBL	MCQs/ SEQs / Structured Viva

68		□ Enlist the pathogens which cause respiratory tract infections and	LGIS/ CBL	MCQs/ SEQs /
		describe their mechanisms of disease production.		Structured Viva
69		□ Analyze the clinical manifestations of respiratory tract infections and their diagnostic modalities.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
70		□ Interpret the various treatment options available for respiratory tract infections.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
71		□ Apply the preventive measures for control of various respiratory tract infections.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
72	**Meningitis**	□ Define meningitis and enlist the pathogens which cause meningitis.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
73		□ Interpret the findings of cerebrospinal fluid in different types of meningitis.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
74		□ Differentiate between infectious and noninfectious meningitis	LGIS/ CBL	MCQs/ SEQs / Structured Viva
75		□ Differentiate between acute and chronic meningitis.	LGIS/ CBL	MCQs/ SEQs / Structured Viva

76		□ Describe the mechanisms of disease production by various pathogens in case of meningitis.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
77		□ Analyze the clinical manifestations of meningitis and their diagnostic modalities.	LGIS/ CBL	MCQs/ SEQs / Structured Viva

78		□ Predict the complications of untreated or delayed treatment of meningitis.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
79		□ Interpret the various treatment options available for meningitis.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
80		□ Apply the preventive measures for control of meningitis.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
81	**Sexually transmitted diseases**	□ Define sexually transmitted diseases. (STDs)	LGIS/ CBL	MCQs/ SEQs / Structured Viva
82		□ Classify different types of sexually transmitted diseases.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
83		□ Enlist the pathogens which cause STDs and describe their mechanism of disease production.	LGIS/ CBL	MCQs/ SEQs / Structured Viva

84		□ Analyze the clinical manifestations of STDs and their diagnostic modalities.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
85		□ Identify the complications of untreated STDs.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
86		□ Interpret the various treatment options available for STDs.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
87		□ Preventive measures for control of STDs	LGIS /CBL	MCQs/ SEQs / Structured Viva

88	**Urinary tract Infections**	□ Recall anatomy of urinary tract and differentiate between upper and lower urinary tract infections.	LGIS	MCQs/ SEQs / Structured Viva
89		□ Contrast between complicated and uncomplicated UTIs.	LGIS	MCQs/ SEQs / Structured Viva
90		□ Contrast between acute and chronic UTIs.	LGIS	MCQs/ SEQs / Structured Viva
91		□ Enlist the pathogens which cause UTIs.	LGIS	MCQs/ SEQs / Structured Viva
92		□ Analyze the clinical manifestations of UTIs and their diagnostic modalities.	LGIS	MCQs/ SEQs / Structure d Viva

93		□ Identify the complications of untreated UTIs.	LGIS	MCQs/ SEQs / Structured Viva
94		□ Interpret the various treatment options available for UTIs.	LGIS	MCQs/ SEQs / Structured Viva
95		□ Apply the preventive measures for control of UTIs.	LGIS	MCQs/ SEQs / Structured Viva
96	**Infections in the immunocompromised**	□ Identify the immunocompromised conditions.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
97		□ Enumerate the pathogens which cause infections in immunocompromised patients.	LGIS/ CBL	MCQs/ SEQs / Structured Viva

98		□ Summarize the pathogenesis of infections in immunocompromised patients.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
99		□ Interpret the diagnostic modalities for these infections in immunocompromised patients.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
100		□ Analyze the treatment and chemoprophylaxis for infections in immunocompromised patients.	LGIS/ CBL	MCQs/ SEQs / Structured Viva

101	**Diarrhea/ dysentery**	Contrast between diarrhea and dysentery.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
102		Categorize the pathogens which cause diarrhea.	LGIS/C BL	MCQs/ SEQs / Structured Viva
103		Categorize the pathogens which cause dysentery.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
104		Explain the mechanisms of disease production by different pathogens.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
105		Interpret the diagnostic modalities for diarrhea and dysentery.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
106		Analyze the treatment strategies for diarrhea and dysentery.	LGIS/ CBL	MCQs/ SEQs / Structured Viva
107		Apply the preventive measures for control of diarrhea and dysentery.	LGIS/ CBL	MCQs/ SEQs / Structured Viva

General Pathology

1.	**Neoplasia.**	1. Define Neoplasia. Describe the nomenclature of various Epithelial, Endothelial and Mesenchymal tumors 2. Describe the differences between benign and malignant tumors 3. Enlist the histologic changes in tumors. 4. Enlist the pathways of tumor spread.	LGIS	MCQs / SEQs / OSPEs / Structured viva
2.		1. Define Epidemiology. Enlist the estimated cancer incidence by site and sex. 2. Enlist the estimated cancer deaths by site and sex. 3. Describe the role of environmental, racial, gender and cultural risk factors alongwith age and acquired predisposing conditions in the development of cancer.	LGIS	MCQs / SEQs / OSPEs / Structured viva

3.		1. Enlist the Carcinogenic agents related to etiology of cancer. 2. Describe the chemical carcinogens 3. Explain Radiation Carcinogenesis	LGIS	MCQs / SEQs / Structured viva

		4. Describe the role of viral and microbial carcinogenic agents		
4.		1. Define the cancer genes. 2. Describe the different genetic lesions in cancer. 3. Role of Epigenetic modification in cancer. 4. Carcinogenesis – Multi step process. Enlist the fundamental changes in cell physiology which are the hallmarks of cancer. 5. Describe self sufficiency in growth signals and in sensitivity to inhibitory signals of cancer cells.	LGIS	MCQs / SEQs / OSPEs / Structured viva

5.		1. Describe Altered cellular metabolism and evasion of Apoptosis in cancer cells. 2. Describe the immortality and sustained angiogenesis in cancer cells. 3. Describe invasion and metastasis in cancer. 4. Explain how cancer cells evade immune surveillance.	LGIS	MCQs / SEQs / OSPEs / Structured viva
6.		1. Describe the effects of tumor own the host and cancer cachexia. 2. Define and describe the paraneoplastic syndromes. 3. Explain the grading and staging of cancer. 4. Discuss the laboratory diagnosis of cancer	LGIS	MCQs / SEQs / OSPEs / Structured viva

1	**Malaria.**	• Discuss malaria; enlist the organisms and mode of transmission. • Discuss the life cycle of Plasmodium vivax and falciparum. • Identify the various stages of the malarial parasite found in human blood. • Describe clinical signs and symptoms and complications of falciparum malaria. • Explain different methods of diagnosis of malaria in laboratory. • Outline the treatment plans and preventive measures for malaria.	LGIS	MCQs/ SEQs / Structured Viva
2	**Leishmania.**	• Describe general characteristics of Leishmania. • Enlist the leishmania species • Explain the life cycle of Leishmania donovani.	LGIS	MCQs/ SEQs / Structured Viva

		• Describe their pathogenesis, epidemiology, mode of transmission and clinical manifestations. • Enlist the complications of leishmania donovani. • Discuss the Laboratory diagnosis of leishmaniasis. • Briefly discuss the treatment and prevention of leishmaniasis.		
3	**Trypanosomes.**	• Describe general characteristics of *trypanosomes.* • Classify *trypanosomes.* • Explain the life cycles of *trypanosomes.* • Discuss the pathogenesis of diseases caused by *trypanosomes.* • Enlist the clinical findings of infection by *trypanosomes.* • Outline the methods of diagnosis of infections and preventive measures caused by them. • Enlist the treatment options.	LGIS	MCQs/ SEQs / Structured Viva

References:

Robbins Basic Pathology, 10th ed. & Robbins and Cotran Pathologic Basis of Disease, 9th Edition.

Practical work

Learning Outcomes:

At the end of third module, the student of 3rd year MBBS should be able to

- Establish diagnosis of given topics of General Pathology by correlating findings of given slides and photomicrographs with Gross findings.

Sr.No	**Topic** Upon completing this topic the students should be able to:	**MIT**	**Name of Instructor**	**Mode of Assessment**
1	Identify the features of Lipoma on histopathology slide	Practical	Sr. Lecturer Dr. Muhammad Bilal and ALL Lecturers	OSPE / Structured Viva
2	Identify the features of Leiomyoma on histopathology slide.	Practical	Sr. Lecturer Dr. Muhammad Bilal and ALL Lecturers	OSPE / Structured Viva
3	Identify the features of Basal cell carcinoma on Histopathology slide.	Practical	Sr. Lecturer Dr. Muhammad Bilal and ALL Lecturers	OSPE / Structured Viva
4	Identify the features of Squamous cell carcinoma on histopathology slide	Practical	Sr. Lecturer Dr. Muhammad Bilal and ALL Lecturers	OSPE / Structured Viva
5	Identify the slide of stool R/E	Practical	Dr. Tahira and all lecturers	OSPE / Structured Viva

6	Identify various ova and cysts of parasite on the basis of their morphology	Practical	Dr. Tahira and all lecturers	OSPE / Structured Viva
7	Identify and differentiate between various stages of malarial parasites in blood smears	Practical	Dr. Tahira and all lecturers	OSPE / Structured Viva
8	Identify LD bodies in slides	Practical	Dr. Fareena and all lecturers	OSPE / Structured Viva
9	Interpret the Results in pregnancy test	Practical	Dr.Hajira and all lecturers	OSPE / Structured Viva

Forensic Medicine

LEARNING OUTCOMES:

- Legal system of Pakistan
- Special toxicology having all poisons/ drugs prevailing in our society along with it medicolegal aspects, and other signs symptom, treatment & postmortem finding.

S.#	Topic	Learning Objective At the end of session student of should be able to	MIT	Mode of Assessment
1	LAMP	The student should be able to describe the power & jurisdiction of courts, procedures for inquest &legal procedure. Must define important legal terms, sections, privileges & obligations	LGIS	MCQs/SEQs OSPE/VIVA
2.	LAMP	The student must define role of medical doctor in ML system. Court procedure, court attendance & recording of evidence.	LGIS	MCQs/SEQs OSPE/VIVA
3.	Medical Ethics,	Medical Ethics, introduction & codes of medical ethics.	LGIS	MCQs/SEQs OSPE/VIVA
4.	Medical Ethics,	The student must define the privileges & obligation of RMP, Professional misconduct.	LGIS	MCQs/SEQs OSPE/VIVA

5.	Medical Ethics,	Professional secrets, privileged communication consent, Medical Negligence civil & criminal	LGIS	MCQs/SEQs OSPE/VIVA
6.	Medical Ethics,	Must define the organ transplant & doctor responsibility. biomedical research, Euthenesia, etc.	LGIS	MCQs/SEQs OSPE/VIVA
Special toxicology				
7.	Corrosives	The student must define corrosives includes H_2 So_4 ,HCL, HNO_3	LGIS	MCQs/SEQs OSPE/VIVA
8.	Corrosives	Carbolic & oxalic Acid	LGIS	MCQs/SEQs OSPE/VIVA
9.	Corrosives	Aspirin, Cyanide	LGIS	MCQs/SEQs OSPE/VIVA
10	Hydrocarbons	Hydrocarbons	LGIS	MCQs/SEQs OSPE/VIVA
11.	Irritants	Irritants includes Phosphoric	LGIS	MCQs/SEQs OSPE/VIVA
12.	Irritants	$CUSO_4$	LGIS	MCQs/SEQs OSPE/VIVA
13.	Irritants	Arsenic	LGIS	MCQs/SEQs OSPE/VIVA
14.	Irritants	Lead	LGIS	MCQs/SEQs OSPE/VIVA
15.	Irritants	Mercury	LGIS	MCQs/SEQs OSPE/VIVA
16.	Irritants	Antimony & thalium	LGIS	MCQs/SEQs OSPE/VIVA
17.	Vegetable Irritants	Irritants Vegetable includes Castor oil ,	LGIS	MCQs/SEQs OSPE/VIVA
		Abrus Precaution & Capsicum		

18.	Vegetable Irritants	Making nut/ Madar ergot & croton tiglium	LGIS	MCQs/SEQs OSPE/VIVA
19.	Animal Irritants	Animal irritant like snake	LGIS	MCQs/SEQs OSPE/VIVA
20	Animal Irritants	Spider & scorpion	LGIS	MCQs/SEQs OSPE/VIVA
21.	Somniferous	Somniferous includes opium &pethidine	LGIS	MCQs/SEQs OSPE/VIVA
22.	Deleriants	Deleriants include dhatura	LGIS	MCQs/SEQs OSPE/VIVA
23.	Deleriants	Cocaine	LGIS	MCQs/SEQs OSPE/VIVA
24.	Deleriants	Cannabis indica	LGIS	MCQs/SEQs OSPE/VIVA
25.	Inebriants	Alcohol	LGIS	MCQs/SEQs OSPE/VIVA
26.	Inebriants	Alcohol & Methanol & Drinking	LGIS	MCQs/SEQs OSPE/VIVA
27.	Gases	Carbon monoxide Co	LGIS	MCQs/SEQs OSPE/VIVA
28.	Mushrooms & Paracetamol	Mushrooms & Paracetamol	LGIS	MCQs/SEQs OSPE/VIVA
29.	Organophosphorus Compounds	Organophosphorus Compounds	LGIS	MCQs/SEQs OSPE/VIVA
30.	Organophosphorus Compounds	Aluminium Phosphide & Zinc Phosphide	LGIS	MCQs/SEQs OSPE/VIVA
31.	Barbiturates	Barbiturates	LGIS	MCQs/SEQs OSPE/VIVA
32.	Spinal Poison	Spinal Poison , nux vomica and conium	LGIS	MCQs/SEQs OSPE/VIVA
33.	Cardiac Poisons	Cardiac Poisons	LGIS	MCQs/SEQs OSPE/VIVA

Learning Resources

Pharmacology

Recommended Books

- Lippincott Illustrated Pharmacology, Richard a Harvey Karen Whalen, 7th Edition
- Basic and clinical Pharmacology by Bertram G Katzung 14th Edition. Lippincott Illustrated Reviews Pharmacology 6th Edition.
- Katzung & Trevor's Pharmacology Examination & Board Review 11th Edition.

- The Pharmacological Basis of Therapeutics by Goodman & Gilman Latest Edition.
- Current Medical Diagnosis and treatment- latest Edition.
- Hand Book of applied Pharmacology by Muzammil Hassan Najmi / Munir Ahmad Khan
- Goodman & Gilman's The Pharmacological Basis of Therapeutics, 13th Edition

General Pathology/ Microbiology

- Robbins and Cotran. Pathological Basis of Disease. 9th Edition.
- Review of Medical Microbiology and Immunology, Warren Levinson, 15th Edition
- Medical Microbiology, Jawetz, Melnick& Adelberg, 27th Edition
- Robbins and Cotran. Pathological Basis of Disease. 9th Edition
- Monica Cheesbrough District Laboratory Practice in Tropical Countries

Feedback on the study guide

We value your feedback and will use it for improvement of this Study guide.

Kindly provide feedback for this study guide. At the email:

dme@ckmc.edu.pk

References:

HARDEN, J.M. LAIDLAW, E.A. HESKETH, R. M. (1999). AMEE Medical Education Guide No 16: Study guides-their use and preparation. *Medical Teacher*, *21*(3), 248–265. https://doi.org/10.1080/01421599979491