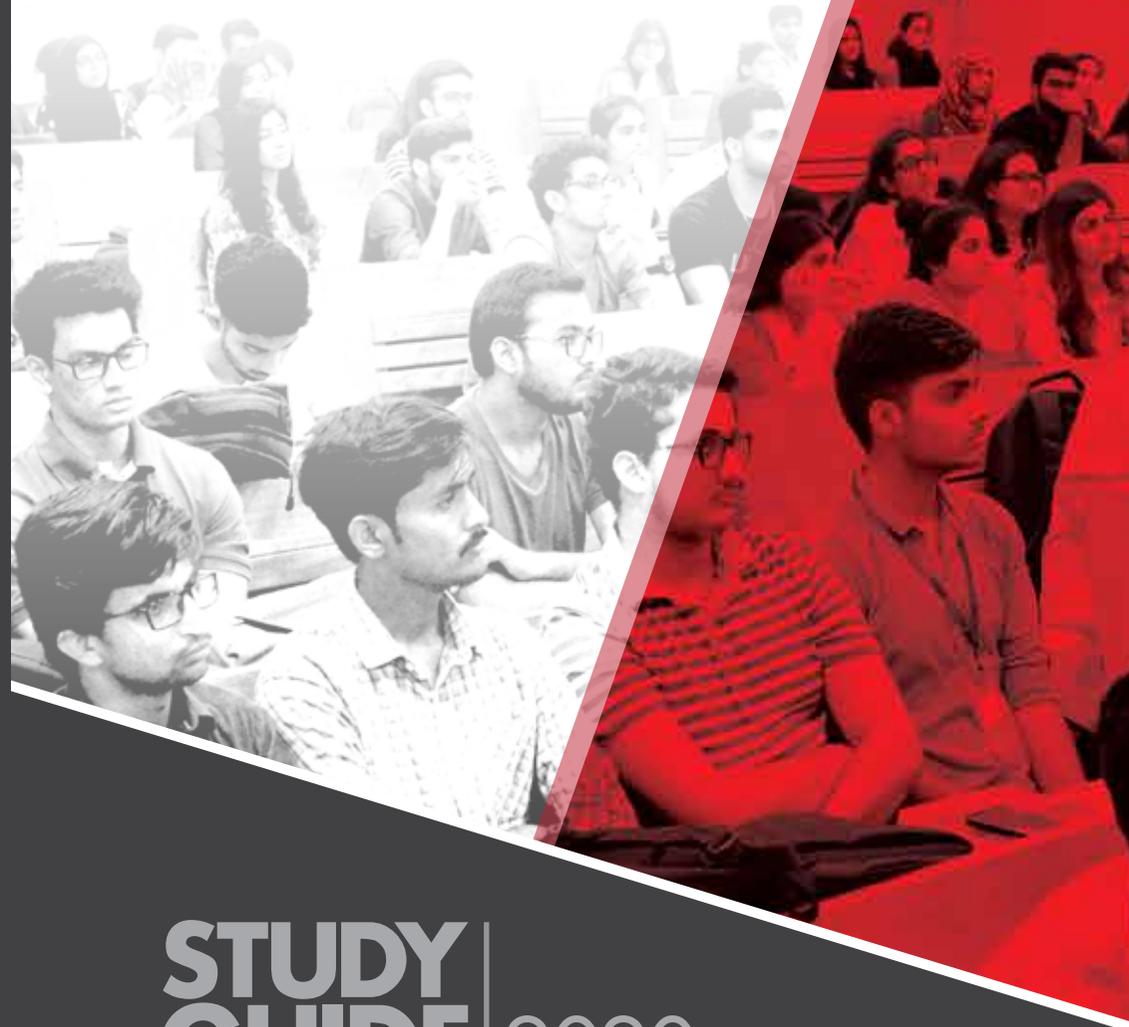


ZIAUDDIN UNIVERSITY

COLLEGE OF MEDICINE



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**KNOWLEDGE
& BEYOND...**

**STUDY
GUIDE** | 2020
MBBS THIRD YEAR
SEMESTER V
2020/01/D.F.B



Mission of Ziauddin Medical and Dental Colleges

Develop in each student, the virtues and values of humanity, dignity and worthiness; a desire and capacity for critical reasoning; an appreciation and understanding of the social sciences; and the ability to communicate. Special emphasis is placed on promoting self-directed learning and developing lifelong learners and leaders in health professions with the skills to acquire new knowledge and meet the challenges of an exponential growth of information.

TABLE OF CONTENTS

S. No	Page
1. Introduction	1
2 Learning methods	2
3. Whom to Contact	2
4. Rules & Regulations	5
• Administrative Rules and Regulations with Student Code of Conduct	
• Examination Rules and Regulations	
5. Competencies of a ZU graduate	15
6. Exit level outcomes	15
7. Course Objective	17
Module-1 Nervous System	17
Module-2 Communicable & Infectious Diseases	29
8. Learning Resources	34
APPENDIX- I (PATIENT SAFETY)	37
APPENDIX- II (ETHICS OBJECTIVES – YEAR 3)	37
Grid showing total taught hours for every subject	39
Planner Semester V	40
Expected schedule of CAT and Semester V exam	41

1. INTRODUCTION

As we progress to third year MBBS our focus will be on CNS and infectious diseases modules. This will enable the students to correlate the concepts of underlying body structures and processes with central nervous system and infectious diseases. To gain the practical knowledge of cases and diseases clinical rotations will be started from semester V onwards.

The ethics content is integrated in all the courses of MBBS program by keeping in view that Pre-clinical years will be equipped with theoretical underpinnings of medical ethics and application in clinical years. Various teaching strategies will be used like orientation sessions for understanding new concepts of Medical ethics and PBL sessions for application of ethical principles in clinical scenarios. These concepts are also required to be reinforced by revisiting the objectives in spiral manner with increasing complexity from Year 1 to Year 5.

The Curriculum:

Students experience a combination of subject- based and integrated modules, in addition to clinical training and family assignment.

Curriculum organization:

Integrated modules: cover module objectives of anatomy, physiology, biochemistry, pathology, pharmacology & therapeutics, community health sciences and Ethics.

Clinical program: The emphasis is on acquiring competences in history taking, and physical examination skills on simulated and real patients in multiple settings. *A separate clinical guide book will define the details.*

Curriculum Organization:

Two semesters of 22 to 24 weeks' duration are scheduled in one academic year. Several modules of different duration will be offered in each semester.

Test(s) Schedule:

Modules Tests / semester examinations that carry weightage will be held according to the announced schedule of the Department of Examination.

Weekly schedule:

This is posted on the notice board weekly. You **MUST** read the notice board to find out the schedule and/or announcements.

Module Objectives:

All modules have defined objectives in semesters of what students are expected to achieve on completion of each module. Your academic experiences, including learning methods and assessment, have been designed relevant to the objectives.

2. LEARNING METHODS

The following teaching / learning methods/strategies are used to promote better understanding:

- Lectures
- Problem Based Learning (PBL)
- Practicals - Assignments
- Case- Based Learning (CBL)
- Small Group Discussion (SGD)

The program emphasis is on Problem-Based Learning AND Self-Directed Study.

3. WHOM TO CONTACT?

Any queries or difficulties with the schedule, learning strategy should be directed:

In the first instance to the individual, teacher or module coordinator and then to Semester In-charge.

Contacts:**Semester Incharge**

Dr. Faraz Ahmed Baig

Dean, Faculty of Medicine

Prof. Abbas Zafar

Principal, Ziauddin College of Medicine

Prof. Nuzhat Hassan

Controller of Examinations

Mr. Suhail Ahmed

Director Department of Educational Development

Dr. Iram Khurshid

Director Quality Enhancement Cell

Dr. Arshia Samin Naqvi

Director Continuing Professional Education

Dr. Almas Farhan

Registrar:

Capt (Retd). Syed Waqar Hussain

MANAGEMENT/ ORGANIZATION**Semester -V Incharge:**

Dr. Faraz Ahmed Baig, (Associate Professor, Department of Pathology)

Course Name:Nervous System
Communicable & Infectious Diseases**Co-coordinator**Dr Qamber Kazmi/Dr. Akhtar Ali
Dr. Syeda Zehra**Other Team Members:**

Dr Shamim Mushtaq (C & M)

Dr. Owais Ismail (C & M)

Dr. Syed Nudrat (C & M)

Dr. Huma Asif (C & M)

Dr. Shumaila (C & M)

Dr. Akhtar Ali

Dr. Tabinda

Dr. Hafiz Osama

Dr. Sidra Farooq

Dr. Mehreen Inam

Dr. Naveera

Dr. Shahryar

Dr. Hannah Jawed

Resource Persons:***Basic Health Sciences:******Anatomy***Prof. Bushra Wasim
Prof. Nuzhat Hassan
Dr. Kevin Borges
Dr. Syed Nudrat
Dr. Madecha Sadiq
Dr. Mubina***Biochemistry***Prof. Saeeda Baig
Prof. Zile Rubab
Dr. Shamim Mushtaq
Dr. Syed Zaryab Ahmed***Physiology***Prof. Syed Touseef Ahmed
Dr. Sofia Amjad
Dr. Shazia Hasmat
Dr. Huma Asif***Pathology***Prof. Serajuddaula Syed
Prof Qamar Jamal
Dr. Fouzia Shaikh
Dr. Faraz Baig
Dr. Najia Tabassum
Dr. Santosh Kumar Sidhwani***Pharmacology & Therapeutics***Prof. Zahida Memon
Prof. M. Owais Ismail
Dr. Shehla Shaheen
Dr. Kauser Moin Mirza
Dr. Abdul Jabbar***Community Health Sciences:***Dr. Imran Shaikh
Dr. Farah Ahmad
Dr. Syed Hassan Danish***Clinical Sciences:***Dr. Yaseen Usman
Dr. Ayesha Ishaq***Medical Ethicist:***

Prof. Qudsia Hassan

Medical Educational DevelopmentDr. Iram Khursheed
Dr. Maneeza Kishwar
Dr. Naila Baig
Dr. Afzal Fatima
Dr. Narmeen Ahmed

4. RULES AND REGULATIONS

Administrative Rules and Student Code of Conduct

1. INTRODUCTION:

- 1.1 The ZU was established with the objective of developing human resources appropriately equipped to deal with the problems, which are of particular relevance to its environment. The University considers its students to be mature and responsible individuals and makes all efforts for developing matching professional attributes.
- 1.2 The University expects that behaviour of the students, within and outside the premises of the University, should be in conformity with the highest standards of honesty, morality and discipline. The students should respect the rights and privileges of the members of the University community at all times. They should refrain from conduct that might damage the reputation of the University or any of its programmes.
- 1.3 The students should refrain from any conduct that may lead to the disruption of an academic programme of the University and from cheating and plagiarism in any setting of the University.

2. THE CONDUCT OF STUDENTS:

2.1 GENERAL CONDUCT:

- All students should present themselves with dignity befitting their status as mature professionals and responsible citizens.
- a. Students in all settings on campus are expected to dress in a simple and decent manner.
 - b. Students individually or as a group, should obtain written ZU approval before organizing or assisting in organizing demonstrations, rallies or picketing on campus.
 - c. Students individually or as a group should refrain from disseminating or causing to disseminate material or engage in activity which hinder or prevent the full participation of another person or group in the life of the University.
 - d. Religious and social activities held on campus must have prior written University authorization.
 - e. Students should ensure that their actions do not endanger or threaten the health, safety or wellbeing of other persons.
 - f. Students should refrain from any behaviour, which can be interpreted by others as sexual harassment.
 - g. Students should obtain written authorization before making public statements, communication, or correspondence with the press or other media for mass communication on behalf of the University.
 - h. Unless otherwise authorized in writing the students should refrain from inviting government and or foreign dignitaries, ministers, representatives of foreign governments/agencies or other public personalities in their official capacity on campus.
 - i. Students should refrain from any activity, which is subversive of discipline and may constitute misconduct.

2.2 ACADEMIC CONDUCT:

All students should diligently apply themselves to their registered courses of study. They should respect the confidentiality of information and should use it in no other circumstances than for professional and authorized academic purposes.

- a. Students should attend lectures, PBLs, tutorials, seminars, practicals, clinics and ward assignments, examinations and other scheduled courses, activities and assignments given by the faculty except for reasons acceptable to the University.
- b. Students should ensure that any original academic writing, including essays, theses, research projects or assignments in a course or programme of study either represents their own words, ideas, images or data or is appropriately referenced.
- c. Students should obtain authorization before procuring, possessing, distributing or receiving any confidential material pertaining to academic tests, examinations, and research or laboratory results from any source.
- d. Students should respect the confidentiality of information pertaining to patients, including their records or files.
- e. Plagiarism is defined as "taking over ideas, methods or written words of another, without acknowledgement and with the intention that they be taken as the work of the deceiver", by American Association of University Professors (September/October, 1989). Plagiarism is a serious form of ethical misconduct/fraud and all students are expected to refrain from it as ZU has zero tolerance policy for plagiarism.

RULES:

1. INTRODUCTION:

- 1.1 Students of ZU are required to exhibit good attitude and discipline. Guidelines have been delineated in the University's Code of Conduct ("Code of Conduct") framed by the University to provide students with a reference to the standards for discipline. It is expected that all students will strictly uphold and adhere to the Code of Conduct, but in cases where there are grounds to suspect a breach or any infringement of the Code of Conduct or disregard or contempt of the Code of Conduct, disciplinary action may be initiated for such behaviour committed either within or outside the precincts of the University or any establishment, project or setting thereof anywhere located. The reference to the expression "University" shall mean and include (unless the context provides otherwise), any establishment, project or setting of the University located anywhere in the world.
- 1.2 The disciplinary procedure to be followed upon breach and /or infringement of the Code of Conduct is defined herein, along with the actions, which constitute disciplinary offences and the decision- making authority.

2. DISCIPLINARY OFFENCE:

Without prejudice to the generality of the provisions of the Code of Conduct and the provisions of Rules 1.1 and 1.2, the following conduct will constitute disciplinary offence:

1.1. MINOR OFFENCES:

- a. Repeated failure to conform to scheduled instruction, practical work, examination, clinical assignments and or forcing other students to act likewise.
- b. Smoking, eating and drinking are prohibited in the University Premises.

NOTE: All minor offences will be dealt with as major if repeated.

1.2. MAJOR OFFENCES:

- a. Assault on students, members of staff, faculty or patients.
- b. Any form of unauthorized picketing, rallies, demonstrations or organized obstructions of any student/University/University Hospital function in any manner whatsoever.
- c. Any attempt to conceive, design or affect any plans of whatever nature whose object or consequence is to disrupt academic programmes of the University or its operations.
- d. Malicious acts, theft, willful damage or misuse of University property.
- e. Disorderly conduct and/or molestation of other members of the University Community within and outside the University premises.
- f. Bringing unauthorized persons in the university premises or any other building related to the University.
- g. Cheating, plagiarism and or use of unfair means in examinations or any other academic setting.
- h. Possession, use and display of firearms, drugs, alcohol or other contraband items on campus or at University related events.
- i. Any other offence, which is considered to be harmful to the academic atmosphere.

3. DISCIPLINARY ACTIONS:

The University will have the powers to impose any one or more of the following actions. However, nothing will preclude the University from requiring any student or parent or both to execute any bond, assurance or undertaking to support expected conduct throughout his/her stay at the University.

3.1 MINOR DISCIPLINARY OFFENCE will be liable to one or more of the following sanctions.

- a) Counselling of the student.
- b) Probation: A student can be put on probation for a specified period of time with mandatory periodic counseling.
- c) A letter of warning or reprimand to the student with information to the parents.
- d) The payment of fine by the offender commensurate with the nature and gravity of the offence committed amounting up to 5% of the annual fees of the student.

3.2 MAJOR DISCIPLINARY OFFENCE will be liable to one or more of the following sanctions

- a) The payment of fine by the offender commensurate with the nature and gravity of the offence committed amounting up to 5% of the annual fees of the student.
- b) Suspension from the University for a specified period.
- c) Expulsion from the University.
- d) Any other penalty which the University may deem fit to impose.

4. DISCIPLINARY PROCEDURE:

The following steps constitute the disciplinary procedure.

- 4.1 Any disciplinary offence not of serious nature may be brought to the attention of the offender by an affected student through the faculty/staff member concerned of the University. The purpose of this in the first instance is to resolve the matter

through constructive criticism counseling and/or admonition. The expression "offence not of serious nature" appearing herein above shall be such offence as is considered as an offence of not a serious nature by the faculty/staff member of the University in his/her sole discretion. The expression "faculty/staff member of the University" shall be in relation to the following Units of the University namely,

- (i) Medical College, (ii) College of Nursing, (iii) College of Physical Therapy (iv) School Medical Technology (v) College of Pharmacy.
- (vi) College of Speech Language Therapy (vii) Dental college (viii) Faculty of Media Sciences.

- 4.2 If the matter is not resolved or the student repeats an offence or if the offence is a serious one, the head of the Unit concerned i.e. (i) in the case of Medical College/College of Pharmacy – the Dean, (ii) in the case of school of Medical & CSLT Technology – the Director and (iii) in the case of school of Physiotherapy / School of Nursing respective dean/Principal or their designate will be informed, who shall advise investigation by the Disciplinary Committee constituted under Rule 5.1. The outcome of the investigation shall be communicated to the head of the relevant Unit. He/she may act upon the recommendation of the Disciplinary Committee or in accordance with his/her judgment. The decision shall then be communicated to the offender. The matter shall be resolved normally within fourteen working days of the day the Head of the Unit is informed of the offence.
- 4.3 A student may appeal in writing against such a decision to the Head of his Unit within ten working days of the decision having been communicated in writing to the student. The student shall within the said period of time submit his/her appeal to the Head of his/her Unit i.e. Dean or his designate in the case of Medical College and College of Pharmacy, Dental College, College of Nursing– (ii) in the case of Institute of Medical Technology the Director and (iii) in the case of College of Physical Therapy Principal as the case may be for onward submission to the Vice Chancellor. The Head of the Unit shall request the Vice chancellor to constitute the Appeal Committee under Rule 5.2 and refer the matter to it for consideration of the appeal.
- 4.4 The Appeal Committee shall take up and review the case and communicate its decision in writing to the VC normally within ten working days. The VC may act upon the recommendations of the Appeal Committee or in accordance with his/her own judgment.
- 4.5 If the decision is not acceptable to the student, he/she may request a final review by the VC. The VC's decision thereafter shall be final and binding.

5. STRUCTURE OF THE DISCIPLINARY AND APPEAL COMMITTEES:

- 5.1 The structure of Disciplinary Committee shall consist of five members of the faculty, one of whom shall be the Chairperson. The Chairperson and members may serve for three years. They may be appointed for another term of two years. The Committee shall be appointed by the ZU Academic Council.
- 5.2 A University Appellate Committee shall be appointed as and when required, by the VC. It shall consist of three faculty members (one of whom shall be the chairperson) who have not been associated with counseling or with investigation of the student's current or his/her any previous offence.

- 5.3 The Disciplinary Committee and the Appellate Committee will have authority to call for evidence or questioning any person witness to the offence/ event reported for investigation to the disciplinary committee.

6. DISCIPLINARY AUTHORITY:

Notwithstanding anything contained herein, the VC shall be the final disciplinary authority of the University with powers to:

- Appoint or change a Disciplinary Committee and define disciplinary procedures.
- Suspend the privileges of enrolment of a student who is suspected of a breach of the code, pending investigation.
- Act upon the recommendations of the Disciplinary Committee which may include expulsion of a student from the University.
- Appoint an Appeal Committee and define procedures for appeal.
- Take any measure that may be necessary for ensuring effective disciplinary procedures.
- Delegate any of his authority.
- Make, alter and modify the Disciplinary Procedure (Rules).

TEST ADMINISTRATION RULES and REGULATIONS

GENERAL:

- All tests /examinations are monitored by the Department of Examination with the support of the College Dean/Principal, faculty and staff.
- To ensure that the examinations are held according to the standard conditions and that no examinee or group of examinees receives unfair advantage in the examination. **Students (examinees) must strictly adhere to / abide by the rules and regulations of the University.**

IRREGULAR BEHAVIOR:

Specific examples of irregular behavior include, but are not necessarily limited to the following:

- Copying answers from another examinee or allowing answers to be copied.
- Making notes of any kind during an examination.
- Failure to follow instructions of the staff present in the examination hall.
- Acts of disruptive behavior such as raising one's voice, talking to others, interrupting the examination process upon entering the examination hall, or during an examination and other similar acts of behavior.

- During an examination usage of any unauthorized material such as photographic equipment, communication or recording devices, including electronic paging devices and cellular telephones.
- Altering or misrepresenting examination result, theft or unauthorized possession of examination materials.
- Memorizing and reproducing examination materials and any unauthorized reproduction by any means and / or dissemination of examination materials.
- Looking in the direction of another examinee, passing of written notes, leaving written notes on vacant seats/ desks not occupied by examinees during the examination may be considered as evidence of copying or attempting to copy and a report of such behavior may result in irregular behavior.
- Sitting for an examination without being eligible for it, impersonating an examinee or engaging a proxy to take the examination.

ASSESSMENT: MOST FREQUENTLY ASKED QUESTIONS

(i) **CONTINUOUS ASSESSMENT**

Q. Are tests scheduled throughout both semesters? YES

Q. What contribute to continuous assessment in Semesters V?

- Scheduled test/s for every module during the semester
- PBL, assignments, presentations (may not necessarily be all)
- E-Log book for PBL (Formative and Summative Assessment)

Q. What is Formative and Summative assessment?

The purpose of formative assessment is to provide useful feedback on student's strengths and weaknesses with respect to learning objectives in order to bring improvement.

Summative assessment "sums up" the achievement in a course of study and counts in the grading scheme.

(Assessment in Health Professions Education by S.M. Downing & R.Yudkowsky)

Q. In tests and semester examinations, what methods are used to assess knowledge and skills?

- **MCQs:** One best
- **Objective Structured Viva Examination (OSVE)**
- **Practicals and Objective Structured Practical Examinations (OSPE)**

Q. Is there a separate examination of clinical training? YES, and the method used is Objective Structured Clinical Examination (OSCE). This will be counted towards your continuous assessment of clinical subjects.

Q. What is the passing mark or score for tests and semester examinations?

Fifty-five percent (55%).

Q. What is the grading system?

Marks	Grade
90 and above	A+
85-89	A
80-84	A-
75-79	B+
71-74	B
68-70	B-
64-67	C+
61-63	C
55-60	C-
Below 55	Fail

Q. Are the students notified of the marks in tests and semester examinations and receive feedback of their progress?

Marks are *not* notified but Results are notified in semesters as grades.

Q. How is the semester result compiled?

Semester V has three continuous assessment tests which carries a defined weightage. Test marks are totaled according to the weightage.

The following EXAMPLE may help you understand how Continuous Assessment result is compiled.

Weightage for Continuous Assessment (Sample)

Tests	PBL	Total
75%	25%	100%

Note: Quizzes etc may be scheduled by individual module Coordinator, which may not contribute towards your aggregate score.

Q. Does continuous assessment have any credit or contribute towards the Semester Examination? YES (20%).

Continuous Assessment	Semester Examination	Total
20%	80%	100%

Q. Is there a final or annual examination? No.
There are two semester examinations for 3rd year MBBS – Semester V & VI.

Q. Are all enrolled students eligible to take the Semester examination?

NO. Eligibility is determined as follows:

(a)	Attendance	Cont. Assess.	Decision
1	≥ 80%	≥ 45%	Eligible for Semester
2	75-80%	≥55%	Eligible for Semester
3	60 – 75%	≥35%	Eligible for Re-sit
4	<60%	Any score	Repeats the year*
5	Any value	<35%	Repeats the year*
			*Note: To decide about repeating the year cumulative scores for two semesters is considered (Attendance and Continuous Assessment)

Q. Who is declared Pass?

Student is declared Pass if,

- o He/she scores an aggregate of 55% cumulative in each semester.
- AND**
- o Scores a minimum of 50% in each subject.

Note: If a student score an aggregate of 55% in the two semesters, but in any individual subject scores <50%, then cumulative score of that subject in both semesters will be considered to declare him satisfactory.

Q. What happens if a student, is unable to sit for the Semester Examination?

He/she can avail one chance (for that academic year), that is to take the Resit Examination.

Q. What happens if a student is unable to sit for the Resit Examination?

The student will be asked to repeat the year.

ADVICE FOR STUDENTS DURING EXAMS:**WHAT TO DO**

1. Students should arrive at the examination hall before scheduled time. Students arriving within 10 minutes after scheduled test time may be admitted only by the approval of head examiner or official of the Department of Examination. In case a student arrives late, that is, after scheduled time, he / she is not to be admitted.
2. Students should present College Identity Card, and Admit Card for Annual / Resit Examinations. If student/s does not bring the required Identification Card, he / she may not be admitted to the examination.

WHAT NOT TO DO

1. Do not bring into the examination hall any personal belongings, including mechanical or electrical devices, backpacks, handbags, books, notes or study guide materials, calculators, digital watches, watches with computer communication and/ or memory capability, electronic paging devices, recording or filming devices, radios, cellular telephones, food and drinks. Only for specified subject/s special instruction will be given on use of calculator for examination.
2. Do not make written notes or record in anyway the contents of an examination.
3. Any notes found will be confiscated and reported for disciplinary action.
4. Do not communicate with, seek aid from, or provide aid to any other examinee during the examination.
5. Once you (students) start taking an examination, you cannot cancel that examination.
6. If the test is completed in less than the time allotted then do not leave without seeking permission from the staff present in the examination hall.

No extra time will be allowed if he /she leaves the examination hall for any reason.

WARNING

- Students (examinees) observed in act/s that is/are possible violation of test administration rules or other forms of irregular behavior during an examination will be reported to the disciplinary committee for action

ALL STUDENTS FOUND INVOLVED IN INDISCIPLINARY ACTION IN THE UNIVERSITY PREMISES (INCLUDING SMOKING) WILL BE SUBJECTED TO DISCIPLINARY ACTION WHICH MAY BE IN FORM OF DEDUCTION IN ATTENDANCE FIVE CONSECUTIVE ACADEMIC SESSIONS.

Dress code:

- Wearing white coat is mandatory in all clinical and lab sessions.
- Dress should be decent and formal for both boys & girls.
- Slippers are not allowed.

5. COMPETENCIES OF A ZU GRADUATE

At Ziauddin University we expect to develop in you the following competencies,

- a. Provide safe patient care holistically
- b. Integrate basic science concepts to clinical situations
- c. Communicate effectively
- d. Collaborate with other team members
- e. Contribute as researchers
- f. Apply evidence based practice
- g. Role model professionalism

6. EXIT LEVEL OUTCOMES:

At the end of five year MBBS program all ZMC graduates will be able to:

- i. Diagnose the common presenting diseases on the basis of:
 - Patho-physiology
 - Clinical features (symptoms and signs)
 - Investigation findings
- ii. Provide safe and patient-centered approach for the diagnosis of the common clinical presentations by using critical reasoning skills on the basis of:
 - Relevant basic and clinical science knowledge
 - Evidence-based medicine (EBM)
- iii. Compare various therapeutic options on the basis of their indications, contraindications, mechanism of action, side effects & cost-effectiveness.
- iv. Elaborate management plan of the common clinical problems, listed on the basis of:
 - Severity of the disease
 - Complexity of the disease
- v. Justify the management plan with or without referral decisions by using critical reasoning skills on the basis of:
 - Relevant basic & clinical science knowledge
 - Evidence-based medicine (EBM)
- vi. Demonstrate truthfulness with patients, their care-givers, peers and teachers, and in their professional work (e.g., taking patient consent, verbal and written communication like documentation, presentations and research).
- vii. Demonstrate the ability to resolve ethical issues faced during common clinical scenarios.

- viii. Demonstrate accountability to patients as well as colleagues and accepts responsibility for errors.
- ix. Works cooperatively and communicates effectively to achieve common patient care and educational goals of all involved health care providers.
- x. Apply ethical principles in treating patients and conducting research.
- xi. Demonstrate sensitivity to ethical issues and ethical behavior within and outside professional practice.
- xii. Demonstrate awareness of the main professional obligations of doctors

To acquire the exit-level outcomes, students should achieve enabling objectives designed for each level (semester/year/end of rotation):

7. COURSE OBJECTIVES:**MODULE - 1****Course: Nervous System****Course No: 217****OBJECTIVES:****At the end of the course, students should be able to:**

1. **Describe** the general organization of CNS.
2. **Describe** the neuron, neuroglia and myelination.
3. **Explain** the ionic characteristics and mechanisms involved in sensory processing of stimuli with particular reference to the role of:
 - a) Receptors.
 - b) Neuronal pathways and circuits.
 - c) Synapses.
 - d) Sensory cortex.
4. **Describe** the organization and function of autonomic nervous system.
5. **Differentiate** between sympathetic and parasympathetic nervous systems on the basis of:
 - a) Preganglionic and postganglionic receptors involved.
 - b) Neurotransmitters.
 - c) Effects on systems with particular reference to:
 - Cardiovascular system.
 - Gastrointestinal system.
 - Genitourinary system.
 - Respiratory system
 - Skin.
6. **Discuss** the synthesis, degradation and role of the following neurotransmitters in sensory and motor processing.
 - a) Acetylcholine.
 - b) Serotonin.
 - c) Adrenaline and nor-adrenaline.
 - d) GABA and glycine.
 - e) Glutamate and aspartate.
 - f) Dopamine.
7. **Describe** atlanto occipital joint and atlantoaxial joint.
8. **Describe** the general topography of cranium, vertebral column, face and neck.
9. **Describe** the development of head and neck (Pharyngeal Apparatus)
10. **Describe** the development of CNS along with the following congenital anomalies:
 - a) Microcephaly.
 - b) Macrocephaly.
 - c) Neural tube defects.
 - d) Hydrocephalus.

11. **Describe** the general arrangement of meninges with their blood and nerve supply.
12. **Describe** the Dural venous sinuses.
13. **Describe** the gross and microscopic features and internal structure of spinal cord with formation of a typical spinal nerve.
14. **Describe** the anatomical land marks and structures pierced while performing lumbar puncture in a child and adult.
15. **Identify** the dermatomes involved on the basis of given signs and symptoms.
16. **Describe** the gross anatomy and functions of brain stem.
17. **Describe** the gross anatomy and functions of diencephalon.
18. **Describe** the gross and microscopic structure and functions of cerebrum.
19. **Describe** the structure of internal capsule.
20. **Describe** the structure and functions of basal ganglia.
21. **Describe** the limbic system.
22. **Describe** the gross and microscopic structure and functions of cerebellum.
23. **Describe** the gross structure of blood and nerve supply and lymphatic drainage of scalp.
24. **Describe** the muscles of facial expression with their blood and nerve supply and lymphatic drainage.
25. **Describe** the nuclei, pathways, branches and supply of cranial nerves I –XII.
26. **Describe** the deep fascia of neck and cervical plexus
27. **Describe** the triangles of neck and their sub divisions and contents and supra and infra hyoid group of muscles.
28. **Identify** different parts of skull, brain and vertebral column on given models with various imaging techniques like X-ray, CT scan and MRI.
29. **Differentiate** on the basis of signs and symptoms, with reference to the levels of lesions, between:
 - a) Upper motor neuron lesions.
 - b) Lower motor neuron lesions.
30. **Describe** the components of reflex arc.
 - a) Receptors.
 - b) Synapses.
 - c) Neuronal pathways.
31. **Describe** the perception of following sensations with reference to their type of receptors, nerve fibers, pathways and centers in the CNS:
 - a) Mechano sensation.
 - b) Thermal sensation.
 - c) Proprioception
 - d) Vibration.
32. **Describe** cortical brain stem and control of motor function.
33. **Describe** the mechanism and pathways involved in the following functions of brain:
 - a) Regulation of temperature.
 - b) Function of limbic system and reticular activating system
 - c) Memory and recall.
 - d) Speech.
 - e) Sleep and wakefulness.

- 34. Explain** with the mechanism and significance of waves produced by electrical activity of brain with special reference to sleep.
- 35. Describe** intracranial hemorrhages with respect to etiology, clinical presentation and survival.
- 36. List** important infections affecting nervous system and discuss their etiology morphological features, clinical presentation and complications.
- 37. Describe** the ventricular system of brain.
- 38. Describe** the formation, circulation, absorption and composition of CSF. Differentiate between normal CSF and CSF in meningitis (bacterial, tuberculosis and viral) on the basis of clinical CSF findings.
- 39. Interpret** the biochemical constituents of CSF on given laboratory reports.
- 40. Describe** the arterial supply and venous drainage of nervous system.
- 41. Interpret** the site of lesion on a given set of signs and symptoms involving the cranial nerves.
- 42. Differentiate** on the basis of clinical data between:
- Stroke.
 - Parkinson's disease.
 - Cerebellar disorders.
 - Brown-Sequard syndrome.
- 43. Discuss** the tertiary care of patients presenting with muscular weakness.
- 44. Describe** the pathogenesis, morphological and clinical features of Alzheimer's diseases.
- 45. Discuss** the major infectious diseases affecting central nervous system with respect to etiology, morphological features and clinical presentation.
- 46. Describe** the major neurologic disorders associated with demyelination.
- 47. Discuss** the biochemical mechanism in the development of neurodegeneration.
- 48. Describe** the role of trace elements in neurodegeneration.
- 49. Describe** the biochemical basis of neuropharmacology.
- 50. Describe** the pharmacokinetics and pharmacodynamics of Benzodiazepines and Barbiturates.
- 51. Describe** the mode of action and treatment of the following substances of abuse, Ethanol, heroin, Cocaine, Methyl Phenidate and Methamphetamine.

- 52. Classify** ant seizure drugs on the basis of their mechanism of action and clinical use in different types of seizures.
- 53. Discuss and compare** the pharmacological effects and adverse effects of various anti-seizure drugs.
- 54. Describe** the pharmacological effects, clinical uses and adverse effects of opioid analgesics and their antagonists.
- 55. Describe** the mechanism of action, merits, demerits and adverse effects of IV intravenous and inhalational anesthetics.
- 56. Classify and describe** the local anesthetics on the basis of their chemical structure and clinical uses.
- 57. Describe** the mechanism of action, side effects and factors affecting the effects of local anesthetics.
- 58. Classify** antidepressant drugs on the basis of their mode of action.
- 59. Discuss** the clinical use and side effects of antidepressant drugs in different types of depressive disorders.
- 60. Describe** major clinical and pathological features of Parkinson's diseases.
- 61. Classify** the various drugs used for the treatment of Parkinson's disease on the basis of their target of action.
- 62. Discuss** the mechanism of action and adverse effects of the drugs used for the treatment of Parkinson's diseases.
- 63. Discuss** the mechanism of action and adverse effects of the drugs used for the treatment of Schizophrenia.
- 64. List** the important types of intracranial tumors (astrocytoma, oligodendrogliomas, ependymoma, medulloblastoma and meningioma) and discuss their major clinical and pathological features.
- 65. Discuss** the underlying concepts behind the following neurological Disorders disorders / conditions with the treatment.
- Epilepsy.
 - Schizophrenia.
 - Depression
 - Migraine and Motion Sickness

66. Discuss and describe the pharmacokinetics, clinical uses and adverse effects of the drugs which modulate the following receptor systems according to their selectivity, specificity and mode of action.

- a) Cholinergic systems.
- b) Adrenergic systems.
- c) Serotonergic systems.
- d) Histaminergic system.

67. Examine the normal parameters of rabbit eyes to understand the concepts of organ effects of adrenergic and cholinergic receptor systems.

68. Interpret the actions of various drugs on rabbit eyes by computer simulated program which include the following.

- a) Atropine.
- b) Pilocarpine.
- c) Epinephrine.
- d) Lignocaine.

69. Communicate drug-drug, drug-food interactions to the patients and their care-givers with reference to poly-pharmacy & common diseases psychoneuronal disorders.

70. Identify symbols and abbreviations used in pharmacology.

71. Identify the flaws in written drug prescription as an essential component of patient safety

72. Discuss the importance of 'rationale drug prescription' with reference to patient safety regarding:

- Prescription components
- Doctor's information
- Patient's parameters
- Drug related information
- Patient's understanding
- Clinical audit of drug prescription

73. Identify the role of effective team player with reference to drug prescription in special scenarios.

74. Demonstrate the role of effective team player with reference to drug prescription in special scenarios.

75. Perform clinical examination of sensory and motor systems.

76. Perform clinical examination to test the integrity of cranial nerves.

77. Demonstrate the following: -

- a) Knee jerk.
- b) Plantar reflex.
- c) Abdominal reflex.
- d) Bicep and Triceps reflexes

78. Take consent from the simulator/patient before starting the clinical examination / procedure.

79. Explain the steps to the simulator/patient before starting the examination/procedure.

80. Sanitize your hands before and after the examination/procedure.

81. Demonstrate punctuality in all of the sessions.

82. Demonstrate respect to peers, teachers and other staff members of all the disciplines

Course Name: CNS

Course No: 217

Semester Incharge: Dr. Faraz Baig

Course Coordinator: Dr. Qamber Kazmi/Dr. Akhtar Ali

S. No.	TOPICS	STRATEGY	HR.
1	Introduction to the course	Orientation Class	1
2	Nervous system: organization and layout	Lecture	1
3	Neurons, neuroglia and myelination	Lecture	1
4	Development of brain and spinal cord	Lecture	4
5	Congenital anomalies of nervous system	PBL	6
6	Development of Head and Neck.	Lecture	2
7	Anatomy Demonstrations		
	Skull, Meninges and Vertebral Column		
	1. Norma lateralis, frontalis occipitalis and verticalis.	Demo	3
	2. Norma basalis.	Demo	3
	3. Intracranial fossa I and II.	Demo	3
	4. Vertebral Column	Demo	3
	5. Meninges and dural venous sinuses	Demo	3
	CNS		
	6. Spinal cord	Demo	3
	7- Mid brain, Pons and Medulla Oblongata (External feature)	Demo	3
	8- Mid brain, Pons and Medulla Oblongata (Internal feature)	Demo	3
	9- Cerebellum	Demo	3
	10- Superolateral surface of cerebrum	Demo	3
	11- Medial and inferior surface of cerebrum	Demo	3
	Neck		
	12- Gross topography of neck and deep fascia	Demo	3
	13- Triangles of Neck	Demo	3
	14- CN I,II/CN III,IV and VI/CN V	Demo	3+3+3
	15- CN VII/CN VIII	Demo	3+3
	16- CN X	Demo	3
	17- CN IX, CN XI, XII	Demo	3
	18- great vessels and lymphatic of head & neck	Demo	3
	19- face, scalp, cervical plexus	Demo	3

	20- Surface marking of the neurovasculature of the head and neck.	Demo	3
8.	Introduction to CNS pharmacology	Lecture	1
9.	Drugs used in parkinsonism	Lecture	1
10.	Traumatic Brain Injury	PBL	6
11.	List and describe intracranial hemorrhages	Lecture	1
12.	Equilibrium and balance	Lecture	1
13.	CNS Infections	PBL	6
14.	Role of brain stem in motor control	Lecture	1
15.	Ventricular system: Structure and functions	PBL	6
16.	Formation, absorption and circulation of CSF	Lecture	1
17.	Biochemical mechanism of neurodegeneration	Lecture	1
18.	Role of trace elements neurodegeneration	Lecture	1
19.	CNS Infection	Lecture	1
20.	Imaging techniques used in CNS	Lecture	4
21.	Sleep and wakefulness and EEG	Lectures	1
22.	Speech	Lecture	1
23.	Migraine and Motion sickness	CBL	2
24.	Dementia	PBL	6
25.	Degenerative diseases	Lecture	1
26.	Autonomic nervous system	Lectures	8
27.	CD Session on CNS Examination	Interactive session	2
28.	Opioid Analgesics	Lecture	1
29.	Local Anesthetics	Lecture	1
30.	IV and Inhalation Anesthetics	Lecture	1
31.	Treatment of drugs of abuse	Lecture	1
32.	Antiseizure drugs	Lecture	1
33.	Benzodiazepines/Barbiturates	Lecture	1
34.	Antidepressant drugs	Lecture	1
35.	Antipsychotic drugs	Lecture	1
36.	Space Occupying lesion	PBL	6
37.	Tumors of CNS	Lecture	2
38.	Introduction to ANS pharmacology	Lecture	1
39.	Drugs acting ANS on Adrenergic, Cholinergic, Histaminergic and Serotonergic receptor systems	CBL+ Lecture	2+4
40.	Drug-drug, drug-food interactions to the patients and their care-givers with reference to poly-pharmacy & common diseases	Practical	8
41.	Flaws in written drug prescription with reference to patient safety	Practical	4

42.	The rationale drug prescription with reference to patient safety regarding: <ul style="list-style-type: none"> • Prescription components • Doctor's information • Patient's parameters • Drug related information • Patient's understanding • Clinical audit of drug prescription 	Small Group Discussion PBL/Clinical Setting	4
43.	The role of effective team player with reference to drug prescription in special scenarios	CBL /Clinical Setting	2
44.	Pharmacology	Practical	8
45.	Pathology	Practical	6
46.	Skills	Practical	12
47.	Topic for Medical Ethics Willful negligence and unintentional medical error Negligence and ways of avoiding them Formulation and objectives of hospital ethics committee Ethical dilemmas in clinical practice	Lectures	3

Assessment of the course objectives will be done by:

- 1) MCQs (One best type)
- 2) Objective Structured Practical Examination (OSPE)
- 3) Objective Structured Viva Examination (OSVE)

Course Name: Special Senses

Course No: 225**Objectives****At the end of the course, students should be able to:**

1. **Describe** the development of eye, ear, tongue and nose with the mechanisms involved in the development of following anomalies:
 - a) Coloboma of the eyelid, iris, retina
 - b) Congenital glaucoma
 - c) Congenital cataract
 - d) Congenital deafness
 - e) Auricular appendages
 - f) Microtia
 - g) Preauricular sinus
2. **Describe** the gross anatomy of eye.
3. **Define** the following terms:
 - a) Vision
 - b) Focus
 - c) Refraction
 - d) Reflection
 - e) Focal point
 - f) Focal distance
 - g) Refractive index
 - h) Amblyopia
4. **Describe** the mechanisms and pathways involved in:
 - a) Movements of the eye ball
 - b) Refraction of light
 - c) Perception of image
 - d) Pupillary light reflex
 - e) Accommodation
 - f) Color vision
 - g) Visual acuity
 - h) Vestibule-ocular reflex
 - i) Perception of light
5. **Describe** the following abnormalities on the basis of development, signs/ symptoms and available treatment:
 - a) Myopia
 - b) Hyperopia
 - c) Astigmatism
 - d) Presbyopia
 - e) Color blindness
 - f) Tunnel vision (field of vision)
 - g) Night blindness

6. **Demonstrate:**
- Test of visual acuity using Snellen's chart
 - Test of visual field (confrontation, perimetry)
 - Test of color vision
 - Test of extra ocular movements
 - Test of perception of light reflex
 - Procedure of ophthalmoscope
7. **Describe** the gross anatomy of external, middle and internal ear.
8. **Describe** the mechanism and pathway involved in the following mechanisms:
- Perception of sound
 - Deafness
 - Labyrinth dysfunction
9. **Demonstrate** the following tests of auditory function:
- Bone conduction
 - Air conduction
10. **Describe** the gross anatomy of tongue and nose.
11. **Describe** the mechanism and pathway involved in the following mechanisms:
- Perception of olfaction
 - Perception of taste.
12. **Identify** the following cranial nerves involved with the site of lesion on a given set of signs & symptoms:
- | | | |
|--------------|-------------|----------------------|
| a) Olfactory | b) Optic | c) Occulomotor |
| d) Trochlear | e) Abducent | f) Vestibulocochlear |
13. **Take consent** from the simulator/patient before starting the clinical examination / procedure.
14. **Explain** the steps to the simulator/patient before starting the examination/procedure.
15. **Sanitize** your hands before and after the examination/procedure.
16. **Demonstrate** punctuality in all of the sessions.
17. **Demonstrate** respect to peers, teachers and other staff members of all the disciplines.

Course Name: Special Senses

Course No: 225

Term Incharge: Dr. Faraz Baig

Course Coordinator: Dr Qamber Kazmi/Dr. Akhtar Ali

S.no	Topics	Strategy	Hours
1	Introduction to the course	Lecture	1
2	Development of eye	Lecture	1
3	Development of ear	Lecture	1
4	Olfactory epithelium and taste buds	Lecture	1
5	Hearing and equilibrium	Lecture/Presentation by a clinician	2 +1
6	Visual pathway	Lecture	2
7	Neurophysiology of vision	PBL	6
8	Gross structure of special sense organs	Demonstrations	16
9	Olfaction	Lecture	1
10	Visual optics and Errors of refraction	Lecture	1
11	Nystagmus & labyrinth dysfunction	SGD	2
12	Glaucoma	CBL/Presentation by a Clinician	2 +1
13	Taste	Lecture	1
14	Microscopic Structure of tongue	Practical	2
15	Brief overview of nose and cranial nerve I	Demo	2
16	Structure of eyeball and lacrimal apparatus	Demo	2
17	Cranial nerve II	Demo	2
18	Extraocular muscles	Demo	2
19	Cranial nerve III, IV, VI	Demo	2
20	Structure of external & middle ear	Demo	2
21	Structure of internal ear	Demo	2
22	Structure of Tongue	Demo	2
23	Topics for Medical Ethics Willful negligence and unintentional medical error Negligence and ways of avoiding them Formulation and objectives of hospital ethics committee Ethical dilemmas in clinical practice	Lectures	3

Assessment of the course objectives will be done by:

- MCQs (One best type)
- Objective Structured Practical Examination (OSPE)
- Objective Structured Viva Examination (OSVE)

MODULE – 2**COMMUNICABLE & INFECTIOUS DISEASES**

Course Name: Communicable & Infectious Diseases
Course No. 222

At the end of the course, the student should be able to

1. **Describe** the general defense mechanisms of the body.
2. **Describe** the general characteristics and taxonomy of prions, viruses, rickettsia, chlamydia, bacteria, fungi, protozoa and helminthes.
3. **Discuss** the mechanisms used by these invading microorganisms to cause infection.
4. **Describe** the methods of disinfection and sterilization.
5. **Describe** the principles of aseptic techniques such as: venipuncture, urinary catheterization, bandaging, suturing and lumbar puncture.
6. **Describe** universal precautions for infection control.
7. **Describe** the principles of proper collection and submission of specimens for laboratory investigations
8. **Define** normal microbial flora of the body and the following terms:
 - Communicable, endemic, epidemic and pandemic diseases,
 - Carriers, pathogens, opportunists, commensals and colonizers.
9. **Describe** the general principles of Antimicrobial Therapy.
10. **Classify** and describe antimicrobial agents on the basis of the mode of action.
11. **Describe** the mechanism of action and principles of using antimicrobial agents on the basis of:
 - a. Molecular basis of chemotherapy
 - b. Biochemical reaction as potential targets
 - c. Formed structures of the cell as potential targets
12. **Describe** the mechanism of resistance to antimicrobial drugs, include the following:
 - a. Genetic determinants of antibiotic resistance.
 - b. Transfer of resistance of genes.
 - c. Biochemical mechanism of resistance
 - d. Multi drug resistance.
13. **Describe** the general characteristics route of transmission, pathogenesis, clinical sign and symptoms and diagnosis of diseases caused by the following bacteria:
 - **Gram positive cocci:**
Staphylococcus species, Streptococcus pneumoniae, Beta hemolytic streptococcus groups A & B.
 - **Gram negative cocci:**
Neisseria meningitidis, Neisseria gonorrhoeae.
 - **Gram positive rods:**

Diphtheria species, Bacillus species, Clostridium species, Actinomyces israelii, Nocardia asteroides, Gardnerella vaginalis, Listeria monocytogenes.

- **Gram negative rods:**

E. coli, Klebsiella, Proteus, Pseudomonas, Salmonella, Shigella, Vibrio cholera, Vibrio parahaemolyticus, Campylobacter jejuni, Helicobacter pylori, Yersinia pestis, Legionella, Haemophilus influenza, Mycoplasma pneumoniae, Bordetella pertussis.

- **Acid fast bacilli:**

Mycobacterium tuberculosis, Mycobacterium leprae,

- **Rickettsia species, Chlamydia species and Spirochaetes** (*Treponema pallidum, Leptospira*)

14. **Describe** the mechanism of action, clinical uses, adverse effects, and common drug interactions of following:
 - 1 Cell wall synthesis inhibitors
 - 2 Protein synthesis inhibitors
 - 3 Folate antagonist
 - 4 Fluoroquinolone
 - 5 Antituberculosis drugs therapy
 - 6 Antileprosy drugs
 - 7 UTI antiseptics
15. **Describe** the general characteristics, transmission, sign, symptoms and diagnosis of medically important DNA, RNA & Retroviruses
16. **Describe** the general characteristics, transmission sign, symptoms and diagnosis of medically important Fungi
17. **Classify** antiviral drugs on the basis of their clinical spectrum.
18. **Describe**, mode of action, adverse effects and common drug interactions of antiviral drugs.
19. **Classify** and describe, mode of action, adverse effects and common drug interactions of antifungal drugs.
20. **Describe** pathogenesis mode of transmission and diagnostic modalities of the following parasites:
 - a) **Parasites common in Pakistan**
 1. **Protozoa**
 - *Plasmodium species, Entamoeba histolytica, Giardia lamblia, Leishmania species, Trichomonas vaginalis, Toxoplasma gondii*
 2. **Helminths**
 - i. **Nematodes**
 - *Ascaris Lumbricoides, Ancylostoma duodenale, Enterobius vermicularis, Trichuris trichiura*
 - ii. **Cestodes**

- *Echinococcus species, Hymenolepis nana*
- b) Parasites not commonly seen in Pakistan**
- 1. Protozoa**
 - *Cryptosporidium species, Trypanosoma species*
 - 2. Helminths**
 - i. Nematodes**
 - *Strongyloides stercoralis, Filaria species, Trichinella spiralis*
 - ii. Cestodes**
 - *Teania saginata, Taenia solium*
 - iii. Trematodes**
 - *Schistosoma species, Liver fluke (fasciola hepatica)*
- 21. Classify** drugs used for the treatment of malaria on the basis of their target site of action.
- 22. Describe** the mode of action and adverse effects of drugs used for the treatment and prophylaxis of malaria.
- 23. Classify and explain** mode of action, clinical uses and adverse effects of antiamoebic drugs.
- 24. Classify** and describe mode of action and adverse effects of antihelminthic drugs.
- 25. Write** a rational prescription for the following topics:
- a) Upper and lower respiratory infections
 - b) Enteric infections.
 - c) Bacterial meningitis
 - d) Tuberculosis
 - e) Ameobic dysentery
 - f) Malaria
 - g) Hepatitis B and C
 - h) Fungal infections
- 26. Identify** the flaws in written prescription/s for the given topic/s (as mentioned in objective 25).
- 27. Describe** the etiology, pathogenesis, diagnostic work-up, treatment & prevention of communicable disease caused by helminthes.
- 28. Describe** the etiology, pathogenesis, diagnostic work-up, treatment & prevention of Emerging and reemerging diseases.
- 29. Describe** the etiology, pathogenesis, diagnostic work-up, treatment & prevention of neglected tropical diseases.
- 30. Identify** the drug/drug and drug food interaction with reference to poly-pharmacy & common infectious diseases.
- 31. Demonstrate** punctuality in all of the sessions.
- 32. Demonstrate** respect to peers, teachers and other staff members of all the discipline.

Course Name: Communicable and Infectious Diseases

Course No. 222

Semester Incharge: Dr. Faraz Baig

Course Coordinator: Dr. Syeda Zehra

S.NO.	TOPIC	STRATEGY	HRS.
1.	General defense mechanisms of body	Lecture	1
2.	Classification of bacteria with respect to their structure	Lecture	2
3.	General characteristics and taxonomy of rickettsia and Chlamydia.	Lecture	1
4.	Mechanisms used by invading microorganisms to cause infection.	Lecture	1
5.	Methods of sterilization & disinfection	Lecture	1
6.	Principles of aseptic techniques and infection control	Video Session Lecture	1 1
7.	Proper collection and submission of specimens for laboratory investigations	Video Session Lecture	1 1
8.	classification of antimicrobial agents on the basis of their mode of action and general principles of antibiotic therapy	Lecture	2
9.	Mechanism of resistance to antimicrobial drugs	Lecture	1
10.	Etiology, epidemiology, pathogenesis, diagnostic work-up, prevention and treatment of upper respiratory tract infection (sore throat).	PBL	6
11.	Etiology, epidemiology, pathogenesis, diagnostic work-up, prevention and treatment of pneumonia	PBL	6
12.	Important properties, epidemiology, pathogenesis and diagnostic work-up of Gram-positive cocci	Lecture	2
13.	Important properties, epidemiology, pathogenesis and diagnostic work-up of Gram-negative cocci	Lecture	2
14.	Important properties, epidemiology, pathogenesis and diagnostic work-up of Gram-positive rods	Lecture	2
15.	Etiology, epidemiology, pathogenesis, diagnostic work-up, prevention and treatment of gastroenteritis, food poisoning and diarrhea / dysentery	PBL/ Role play	6
16.	Important properties, epidemiology, pathogenesis and diagnostic work-up of Gram-negative rods	Lecture	3
17.	Cell wall synthesis inhibitors (Penicillin, Cephalosporin and miscellaneous)	Lecture	3
18.	Protein synthesis inhibitors	Lecture	3
19.	Folate antagonists	Lecture	1
20.	Floroquinolones	Lecture	1

21.	Urinary antiseptics	Lecture	1
22.	Anti Tuberculous therapy	PBL/Role play + Lecture	6 + 1
23.	Normal microbial flora of the body	Lecture	1
24.	Antituberculosis therapy and Antileprosy drugs	Lecture	2
25.	Classification of viruses with respect to their structure	Lecture	1
26.	Mechanisms used by viruses to cause infection.	Lecture	1
27.	Etiology, epidemiology, pathogenesis, diagnostic work-up, prevention and treatment of Hepatitis.	PBL/Role play + Lecture	6 + 2
28.	Important properties, epidemiology, pathogenesis and diagnostic work-up of DNA viruses	Lecture	2
29.	Important characteristics, transmission, pathogenesis and diagnostic workup of different hepatitis viruses	Lecture	2
30.	Etiology, epidemiology, pathogenesis, diagnostic work-up and prevention of poliomyelitis	PBL	6
31.	Important properties, epidemiology, pathogenesis, diagnostic work-up of RNA viruses and Retrovirus	Lecture	3
32.	Etiology, epidemiology, pathogenesis, diagnostic work-up and prevention of dengue fever	PBL	6
33.	Drugs for herpes	Lecture	1
34.	Drugs for HIV	Lecture	1
35.	Drugs for influenza	Lecture	1
36.	Drugs for hepatitis	Lecture	1
37.	Treatment of common superficial and deep mycoses	Lecture	3
38.	Antifungal drugs	Lecture	1
39.	Treatment of malaria	PBL+ lecture	6+1
40.	Important properties, epidemiology, pathogenesis and diagnostic work-up of parasitic organisms	Lecture	8
41.	Treatment and prophylaxis of malaria.	Lecture	1
42.	Anti-amoebic drugs, metronidazole and diloxanide furoate	Lecture	1
43.	Anti-helminth drugs	Lecture	1
44.	Pharmacology	Practical	10
45.	Pathology	Practical	10

Assessment of the course objectives will be done by:

- 1) MCQs (One best type)
- 2) Objective Structured Practical Examination (OSPE)
- 3) Objective Structured Viva Examination (OSVE)

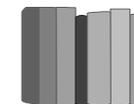
8. LEARNING RESOURCES

Recommended Books

ANATOMY

Essential

- **K.L. Moore.** Clinically Oriented Anatomy, 7th edition 2013.
- **B Young, J.W. Heath.** Wheater's Functional Histology, 6th edition 2013.
- **Keith L. Moore** The Developing Human 10th edition 2015.
- **Medical Histology** by Laiq Hussain 4th edition 1999.
- **Richard S. Snell.** Clinical Anatomy for Medical Students, 9th edition 2011.
- **Langman's Medical Embryology** 13th edition 2014.
- **Snells Neuroanatomy** 7th edition 2010.



PHYSIOLOGY

Essential

- **Arthur C. Guyton, John E. Hall.** Textbook of Medical Physiology, 13th edition 2015.

Recommended

- **Robert M. Berne, Matthew N. Levy.** Principle of Physiology, 7th edition 2017.
- **William F. Ganong.** Review of Medical Physiology, 25th edition 2016.
- **Sherwood, Lauralee.** Human physiology: from cells to systems 9th edition 2015.
- **Bijlani, R.L.** Understanding Medical physiology: a textbook of medical students 4th edition 2010.
- **Neurophysiology: A Conceptual Approach.** Roger Carpenter, Benjamin Reddi. 5th Edition 2012.
- **Manter and Gatz's Essential of Clinical Neuroanatomy and Neurophysiology.** Sid Gilman, Sarah Wnans Newman. 10th Edition 2002.

BIOCHEMISTRY

Essential

- **Robber K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell.** Harper's Biochemistry, 30th edition 2015.
- **Pamela C. Champe, Richard A. Harvey.** Lippincott's Illustrated Review of Biochemistry, 5th edition 2011.

Recommended

- **Harold C. Sox Jr.** Common Diagnostic Tests, use and interpretation 2nd edition 1990.
- **Joan F. Zilva, Peter R. Pannall, Philip D. Mayne.** Clinical Chemistry in Diagnosis and Treatment, 6th edition 1994.

PHARMACOLOGY**BOOKS:****Essential**

- **Bertram G. Katzung.** Basic and Clinical Pharmacology, 14th Edition. 2017.
- **Katzung and Trevor's pharmacology** Examination and Board Review 11th Edition 2015.
- **Rang, Dale, Ritter and Moore.** Pharmacology, 8th Edition. 2015.

Recommended

- **Bennett and Brown.** Clinical Pharmacology, 11th Edition. 2012.
- **Lippincott's illustrated review of Pharmacology.** 6th Edition. 2015.
- **Kaplan Medical USMLE STEP 1.** Lecture Notes. Pharmacology 2017
- **Goodman and Gillman.** The Pharmacological Basis of Therapeutics, 13th Edition. 2017.

PATHOLOGY**BOOKS:**

- **Peter D. Turnpenny,** Emery's Elements of Medical Genetics 15th Edition. New York: Churchill Livingstone. 2017.
- **Cotran RS, Kumar V and Collins T. Robbin's** Pathologic Basis of Disease 9th Edition. Philadelphia: W.B. Saunders. 2015.
- **Walter JB and Talbot IC.** Walter and Israel's General Pathology (7th ed.). New York: Churchill Livingstone. 1996.
- **Kumar, Abbas, and Aster,** Robbins Basic Pathology 10th Edition, 2017, Saunders/ ElsevierSL.
- **Rubin E,** Pathology (6th) Philadelphia: Lippincott-Raven. 2012.
- **Ivan Roitt.** Riott's Essential Immunology 13th Edition. New Delhi: I.K. International Pvt. Ltd. 2017.

ATLAS:

- **Wheater P et al. Basic Histopathology:** A Color Atlas and Text 5th Edition. Edinburgh: Churchill Livingstone. 2005.

MICROBIOLOGY**BOOKS:**

- **Levinson W.** Review of Medical Microbiology and Immunology: Examination. 14th Edition. 2016. Mc Graw and Lange.
- **Stokes RJ and Ridgway GL.** Clinical Microbiology (latest ed). Butler & Tanner
- **Greenwood D.** Medical Microbiology. 17th Edition. ELST Publishers. 2007
- **Cheesbrough M.** District Laboratory Practice in Tropical Countries Part I & II. Cambridge University Press, 2nd Edition. 2006

COMMUNITY HEALTH SCIENCES**BOOKS:**

- **Shah-Ilyas-Ansari-Irfan.** Public Health and Community Medicine. 8th Edition 2016.
- **Floyd J. Fowler, Jr.** Survey Research Methods. 3rd Edition; International Educational and Professional Publisher: Thousand Oaks, 2002.

MEDICAL ETHICS

- Hippocratic Oath http://www.nlm.nih.gov/hmd/greek/greek_oath.html.
- PMDC code of ethics:
- <http://www.pmdc.org.pk/LinkClick.aspx?fileticket=v5WmQYMvhz4%3D&tabid=102&mid=55>
- **Tom L. Beauchamp, James F. Childress,** "Principles of biomedical ethics," Oxford University Press, USA (2001).
- **Aamir Jafaray,** 'Bioethics: Challenging the new normal,' Paramount Textbook of Preventive Health and Community Medicine, chp. 1(2014):1-26

=>>>> **END** <<<<<<

APPENDIX- I (PATIENT SAFETY)**PATIENT SAFETY**

To enhance the status of 'Patient Safety' and prepare students to practice safe health care; a longitudinal theme of Patient Safety has been integrated in the curriculum. WHO Patient safety guide recommends 11 topics to be covered as a broad range of context in which Patient Safety will be learned throughout the program from first to final year.

Out of these topics, 1-9 will be covered in Semester 5:

Topics:

1. What is patient safety?
2. What is a human factor and why is it important to patient safety?
3. Understanding systems and the impact of complexity on patient care
4. Being an effective team player.
5. Understanding and learning from errors.
6. Understanding and managing clinical risk.
7. Introduction to quality improvement methods.
8. Engaging with patients and caregivers.
9. Minimizing infection through improved infection control.
10. Patient safety and invasive procedures.
11. Improving medication safety.

APPENDIX- II(ETHICS OBJECTIVES – YEAR 3)

At the end of Semester V, all the student will be able to

- 1.1-Explain the meaning of the term "ethics"
- 1.2-Describe the global development of medical ethics
- 1.3-Describe the core principles of medical ethics and their implications
- 1.4-Recognize ethical issues relevant to the clinical situation and apply the ethical codes as appropriate
- 1.5-Discuss the development of indigenous ethical codes in the South- East Asian Region
- 1.6-Demonstrate sensitivity to cultural diversity in medical care
- 2.1-Discuss the ethical principles applicable within the doctor patient relationship
- 2.2-Discuss the patient's expectations with regard to doctor's attitude towards patient's expectations
- 2.3-Recognize the doctor-patient relationship based on mutual trust and facilitated by effective communication.
- 3.1-Explain the importance of patient autonomy
- 3.2-Explain current procedures adopted in the ward (clinical) setting in maintaining patient autonomy
- 3.3-Identify situations in which a doctor may have to take decisions in the best interests of the patient
- 3.4-Explain the process of ensuring patient autonomy while informing/deciding on a treatment modality.
- 4.1-Describe the different types of consent and the situations in which obtaining consent is required
- 4.2-Recognize the importance of obtaining valid consent from a patient for investigations and treatment
- 4.3-Explain how to proceed if a patient refuses treatment
- 4.4-Explain how to proceed if a patient is incompetent to give consent
- 4.5-Consider when it is justifiable to refrain from obtaining patient consent

- 5.1-Recognize the importance of confidentiality in the doctor patient relationship
- 5.2-Identify potential weaknesses in the health care and information system
- 5.3-List the potential situations where it is justifiable to breach confidentiality (e.g. legal requirements).
- 5.4-Evaluate critically the practice of the principle of confidentiality in the ward setting
- 6.1-Recognize the importance of telling the patient the truth about his/her medical condition
- 6.2-Consider when it is justifiable to withhold information from a patient/relative
- 6.3-Making decisions about giving relevant information to a patient or family by a medical student/doctor
- 6.4-Analyse the doctor's role when there is disagreement between the doctor's view and the views of patient, guardians or relatives
- 7.1-Explain what is meant by "a good death" and the principles involved in providing "a good death" to a terminally ill patient
- 7.2-Explain the terms best interest, advance directives, withdrawal or withholding of life support systems, do not Resuscitate (DNR) orders and euthanasia
- 7.3-Explain the legal situation in context of religious believes with regards to euthanasia
- 7.4-Respond appropriately to a patient who requests euthanasia
- 7.5-Apply the ethical principles underlying management options (i.e. ventilation and other options) in the terminally ill
- 8.1-Describe the concept of rights of individuals including provider rights
- 8.2-Identify the relationship between rights, duties and responsibilities
- 8.3-Outline the International Declaration of Human Rights
- 8.4-Describe the Declaration of Rights of the Patient developed by World Medical Association (WMA)
- 10.1-Explain professional code of conduct and etiquette for medical doctors
- 10.2-Demonstrate awareness of situations in which doctors have a right to treat or not to treat a patient
- 10.3-Discuss the ethical importance of good communication within the medical profession and amongst other professions
- 10.4-Describe the international and local codes of conduct for medical practitioners
- 10.5-Illustrate with examples, the statutory requirements for medical practitioners
- 11.1-Explain the terms "medical profession" and "professionalism"
- 11.2-Describe the key attributes of a medical professional
- 11.3-Demonstrate the relationship of a professional with his/her colleagues and the public
- 11.4-Describe how professionalism benefits the medical practitioner and the patient
- 12.2-Differentiate between willful negligence and unintentional medical error
- 12.3-Discuss the factors that could lead to negligence and ways of avoiding them
- 12.4-Discuss the formulation and objectives of hospital ethics committee
- 12.5-Discuss ethical dilemmas in clinical practice.

GRID SHOWING TOTAL TAUGHT HOURS FOR EVERY SUBJECT

S. No.	Subject	Contact Hours	
		CNS	Infectious Diseases
1.	Anatomy	98 Hours	-
2.	Physiology	38 Hours	-
3.	Biochemistry	7 Hours	-
4.	Pathology	6 Hours	47 Hours
5.	Pharmacology	30 Hours	30 Hours
6.	Community Health Sciences including patient Safety	-	10 Hour
7.	Ethics	3 Hours	
8.	PBL	32 Hours	28 Hours
TOTAL		214 Hours	115 Hours

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26																				
		18-11	25-11	2-12	9-12	16-12	23-12	30-12	6-1	13-1	20-1	24-1	3-2	10-2	17-2	24-2	2-3	9-3	16-3	23-3	30-3	6-4	13-4	20-4	27-4	4-5	11-5																				
		Module-I Nervous system (CNS, ANS & Special Senses)																																													
		CAT-1										CAT-2																																			
		Module-II Infectious Disease																																													
		Co-curricular Week																																													
		Module-II Infectious Disease																																													
		Study Time																																													
		Semester V Exam																																													

3rd Year MBBS Batch-XXIII

Expected Schedule of CAT and Semester- V Exams (2019-20)

EXAM	STRATEGY	DATE
CAT-I	Written	6 th January 2020
	SPE	7 th January 2020
	Written	20 th February 2020
CAT-II	SPE	21 st February 2020
	Written	23 rd April 2020
CAT-III	SPE	24 th April 2020
	Written (Paper-I)	11 th May 2020
	Written (Paper-II)	12 th May 2020
SEMESTER-V	SPE	13 th May 2020
	OSVE	14 th , 15 th & 16 th May 2020