GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT (GITAM)
(Deemed to be University)
VISAKHAPATNAM * HYDERABAD * BENGALURU

Accredited by NAAC with A^+ Grade

REGULATIONS AND SYLLABUS

of

MBBS

(w.e.f. 2021-22 admitted batch)

MBBS
Program Code: UMEDI01
(2020-21 admitted batch)

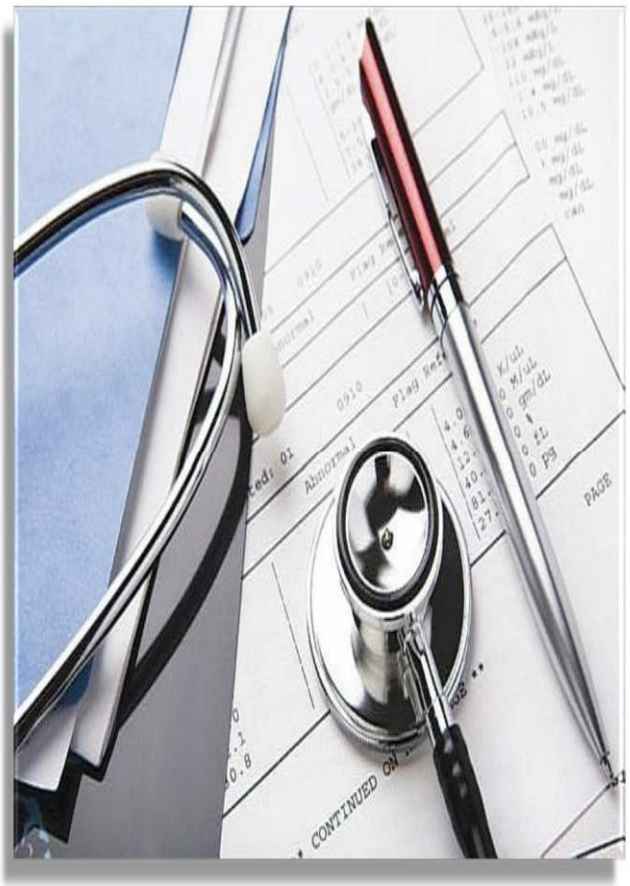
MEDICAL COUNCIL OF INDIA

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

Knows | Knows how | Shows | Shows how | Performs

Enumerate | Describe | Observe | Demonstrate | Assist

Counsel | Analyse | Guide | Correlate | Critique



Prescribe | Integrate | Communicate | Interpret | Collaborate

Clinician | Communicator | Team Leader | Professional | Lifelong Learner

Knowledge | Skills | Attitude | Values | Responsiveness | Communication

Introduction:

GITAM Institute of Medical Sciences and Research (GIMSR) was established in the year 2015 for admitting 150 MBBS students annually to give world-class training. Initially, it was operational with 650 beds with all basic specialties like Medicine, Surgery, Obstetrics, Gynaecology, Orthopaedics, Ophthalmology, Paediatrics, Dermatology, ENT, Psychiatry, Pulmonology, Anaesthesia, Radio diagnosis, etc. There are 11 operation theatres (9 major, 2 minor) to cater to the needs of various specialties. The out-patient departments are run by qualified specialists. The emergency medicine and trauma departments are working round the clock. It is adequately equipped to deal with all emergencies. The Intensive care unit is well equipped with monitors, ventilators, and other support systems for giving necessary treatment to critically ill patients. The well-established and state-of-the-art central clinical laboratory and modern blood bank facilities are available for handling all types of elective and emergency medical and Surgical problems. The Hospital has been upgraded to a full-fledged 780 beds teaching hospital with all basic and super specialty departments to take care of tertiary medical problems.

Assessment

Eligibility to appear for Professional examinations

The performance in essential components of training are to be assessed, based on:

(a) Attendance

1. Attendance requirements are 75% in theory and 80% in practical /clinical for eligibility to appear for the examinations in that subject. In subjects that are taught in more than one phase – the learner must have 75% attendance in theory and 80% in practical in each phase of instruction in that subject.

2. If an examination comprises more than one subject (for e.g., General Surgery and allied branches), the candidate must have 75% attendance in each subject and 80% attendancein each clinical posting.

3. Learners who do not have at least 75% attendance in the electives will not be eligible for the Third Professional - Part II examination.

(b) Internal Assessment: Internal assessment shall be based on day-to-day assessment. It shall relate to different ways in which learners participate in learning process including assignments, preparation for seminar, clinical case presentation, preparation of clinical case for discussion, clinical case study/problem solving exercise, participation in project for health care in the community, proficiency in carrying out a practical or a skill in small researchproject, a written test etc.

1. Regular periodic examinations shall be conducted throughout the course. There shall be no less than three internal assessment examinations in each Preclinical / Para-clinical subject and no less than two examinations in each clinical subject in a professional year. An end of posting clinical assessment shall be conducted for each clinical posting in eachprofessional year.
2. When subjects are taught in more than one phase, the internal assessment must be done in each phase and must contribute proportionately to final assessment. For example, General Medicine must be assessed in second Professional, third Professional Part I and third Professional Part II, independently.
3. Day to day records and log book (including required skill certifications) should be given importance in internal assessment. Internal assessment should be based on competencies and skills.
4. The final internal assessment in a broad clinical specialty (e.g., Surgery and allied specialties etc.) shall comprise of marks from all the constituent specialties. The proportion of the marks for each constituent specialty shall be determined by the time of instruction allotted to each.
5. Learners must secure at least 50% marks of the total marks (combined in theory and practical / clinical; not less than 40 % marks in theory and practical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject. Internal assessment marks will reflect as separate head of passing at the summative examination.
6. The results of internal assessment should be displayed on the notice board within a 1-2 weeks of the test. Universities shall guide the colleges regarding formulating policies for remedial measures for students who are either not able to score qualifying marks or have missed on some assessments due to any reason.

7. Learners must have completed the required certifiable competencies for that phase of training and completed the log book appropriate for that phase of training to be eligible for appearing at the final university examination of that subject.

University Examinations

University examinations are to be designed with a view to ascertain whether the candidate has acquired the necessary knowledge, minimal level of skills, ethical and professional values with clear concepts of the fundamentals which are necessary for him/her to function effectively and appropriately as a physician of first contact. Assessment shall be carried outon an objective basis to the extent possible.

Nature of questions will include different types such as structured essays (Long Answer Questions - LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). Marks for each part should be indicated separately. MCQs shall be accorded a weightage of not more than 20% of the total theory marks. In subjects that have two papers, the learner must secure at least 40% marks in each of thepapers with minimum 50% of marks in aggregate (both papers together) to pass.

Practical/clinical examinations will be conducted in the laboratories and /or hospital wards. The objective will be to assess proficiency and skills to conduct experiments, interpret data and form logical conclusion. Clinical cases kept in the examination must be common conditions that the learner may encounter as a physician of first contact in the community. Selection of rare syndromes and disorders as examination cases is to be discouraged. Emphasis should be on candidate's capability to elicit history, demonstrate physical signs, write a case record, analyze the case and develop a management plan.

Viva/oral examination should assess approach to patient management, emergencies,attitudinal, ethical and professional values. Candidate's skill in the interpretation of common investigative data, X-rays, identification of specimens, ECG, etc. is to be also assessed.

There shall be one main examination in an academic year and a supplementary

to be held not later than 90 days after the declaration of the results of the main Examination.

A learner shall not be entitled to graduate after 10 years of his/her joining of the first part of the MBBS course.

University Examinations shall be held as under:

(a) First Professional

1. The first Professional examination shall be held at the end of first Professional training (1+12 months), in the subjects of Human Anatomy, Physiology and Biochemistry.

2. A maximum number of four permissible tempts would be available to clear the first Professional University examination, whereby the first Professional course will have to be cleared within 4 years of admission to the said course. Partial attendance at any University examination shall be counted as an availed attempt.

(b) Second Professional

1. The second Professional examination shall be held at the end of second professional training (11 months), in the subjects of Pathology, Microbiology, and Pharmacology.

(c) Third Professional

1. Third Professional Part I shall be held at end of third Professional part 1 of training (12 months) in the subjects of Ophthalmology, Otorhinolaryngology, CommunityMedicine and Forensic Medicine and Toxicology

2. Third Professional Part II - (Final Professional) examination shall be at the end of training (14 months including 2 months of electives) in the subjects of General Medicine, General Surgery, Obstetrics & Gynecology and Pediatrics. The discipline of Orthopedics, Anesthesiology, Dentistry and Radiodiagnosis will constitute 25% of the total theory marks incorporated as a separate section in paper II of General Surgery.

3. The discipline of Psychiatry and Dermatology, Venereology and Leprosy (DVL), Respiratory Medicine including Tuberculosis will constitute 25% of the total theory marks in General Medicine incorporated as a separate section in paper II of General Medicine.

(d) Examination schedule is in Table 1.

(e) Marks distribution is in Table 10.

PROGRAM EDUCATIONAL OBJECTIVES

Introduction

The provisions contained in Part II of these Regulations shall apply to the MBBS course starting from academic year 2019-20 onwards

Indian Medical Graduate Training Programme

The undergraduate medical education programme is designed with a goal to create an "Indian Medical Graduate" (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training programme are hereby prescribed:-

National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

(a) Recognize "health for all" as a national goal and health right of all citizens and by undergoing training for medical profession to fulfill his/her social obligations towards realization of this goal.

(b) Learn every aspect of National policies on health and devote her/him to its practical implementation.

(c) Achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.

(d) Develop scientific temper, acquire educational experience for proficiency inprofession and promote healthy living.

(e) Become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

Institutional Goals

(1) In consonance with the national goals each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

(a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using

his/her clinical skills based on history, physical examination and relevant investigations.

(b) be competent to practice preventive, promotive, curative, palliative and rehabilitative medicine in respect to the commonly encountered health problems.

(c) appreciate rationale for different therapeutic modalities; be familiar with the administration of "essential medicines" and their common adverse effects.

(d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

(e) possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.

(f) be familiar with the basic factors which are essential for the implementation of the National Health

Programmes including practical aspects of the following:

(i) Family Welfare and Maternal and Child Health (MCH)

(ii) Sanitation and water supply

(iii) Prevention and control of communicable and non-communicable diseases

(iv) Immunization

(v) Health Education

(vi) Indian Public Health Standards (IPHS), at various levels of service delivery

(vii) Bio-medical waste disposal

(viii) Organizational and/or institutional arrangements.

(g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, hospital management, inventory skills and counseling.

(h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.

(i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.

(j) be competent to work in a variety of health care settings.

(k) have personal characteristics and attitudes required for professional life such as personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

(2) All efforts must be made to equip the medical graduate to acquire the skills as detailed in Table 11

Certifiable procedural skills – A Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate.

Goals and Roles for the Learner

In order to fulfil the goal of the IMG training programme, the medical graduate must be able to function in the following roles appropriately and effectively:-

Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.

Leader and member of the health care team and system with capabilities to collect analyze, synthesize and communicate health data appropriately.

Communicator with patients, families, colleagues and community.

Lifelong learner committed to continuous improvement of skills and knowledge.

Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

PROGRAM OUTCOMES (POs) AND PROGRAMS SPECIFIC OUTCOMES (PSOs)

Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on

the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the

Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion

- Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioural and social perspective.
- Demonstrate knowledge of abnormal human structure, function and developmentfrom a molecular cellular, biological, clinical, behavioural and social perspective.
- Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.
- Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential

diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.

- Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frame works.
- Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:
- Disease prevention,
- Health promotion and cure,
- Pain and distress alleviation, and
- Rehabilitation.
- Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.
- Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.
- Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.
- ***Leader and member of the health care team and system***
- Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.
- Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.
- Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.

- Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancers, in collaboration with other members of the health care team.
- ***Communicator with patients, families, colleagues and community***
- Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.
- Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.
- ***Lifelong learner committed to continuous improvement of skills and knowledge***
- Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.
- Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.
- Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.
- Demonstrate ability to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient.
- Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.
- ***Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession***
- Practice selflessness, integrity, responsibility, accountability and respect.
- Respect and maintain professional boundaries between patients, colleagues and society.
- Demonstrate ability to recognize and manage ethical and professional conflicts.
- Abide by prescribed ethical and legal codes of conduct and practice.

- Demonstrate a commitment to the growth of the medical profession as a whole.
- **Broad Outline on training format**
- In order to ensure that training is in alignment with the goals and competencies listed in sub-clause 2 and 3 above:
- There shall be a "Foundation Course" to orient medical learners to MBBS programme, and provide them with requisite knowledge, communication (including electronic), technical and language skills.
- The curricular contents shall be vertically and horizontally aligned and integrated to the maximum extent possible in order to enhance learner's interest and eliminate redundancy and overlap.
- Teaching-learning methods shall be learner centric and shall predominantly include small group learning, interactive teaching methods and case based learning.
- Clinical training shall emphasize early clinical exposure, skill acquisition, certification in essential skills; community/primary/secondary care-based learning experiences and emergencies.
- Training shall primarily focus on preventive and community based approaches to health and disease, with specific emphasis on national health priorities such as family welfare, communicable and noncommunicable diseases including cancer, epidemics and disaster management.
- Acquisition and certification of skills shall be through experiences in patient care, diagnostic and skill laboratories.
- The development of ethical values and overall professional growth as integral part of curriculum shall be emphasized through a structured longitudinal and dedicated programme on professional development including attitude, ethics and communication.
- Progress of the medical learner shall be documented through structured periodic assessment that includes formative and summative assessments. Logs of skill-based training shall be also maintained.
- Appropriate Faculty Development Programmes shall be conducted regularly by institutions to facilitate medical teachers at all levels to continuously update their professional and teaching skills, and align their teaching skills to curricular objectives.

MBBS Degree Course– CBME Curriculum Structure

Table1:TimedistributionofMBBSProgramme&Examinationschedule.

<table>
<tr><td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td><td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Foundation Course</td><td colspan="5">IMBBS</td></tr>
<tr><td colspan="8">IMBBS</td><td>ExamI MBBS</td><td colspan="3">IIMBBS</td></tr>
<tr><td colspan="8">IIMBBS</td><td>Exam II MBBS</td><td colspan="3">IIIMBBS</td></tr>
<tr><td colspan="9">IIIMBBSPartI</td><td>Exam III MBBS Part I</td><td colspan="2">Electives & Skills</td></tr>
<tr><td colspan="12">IIIMBBSPartII</td></tr>
<tr><td>Exam IIIMBBS Part II</td><td></td><td colspan="10">Internship</td></tr>
<tr><td colspan="2">Internship</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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Table10: Marksdistributionforvarioussubject

PhaseofCourse	Written/ Theory Total	Practicals/ Orals/Clinicals	PassCriteria
First Professional			**InternalAssessment:** 50%combinedintheoryandpractical(not less than 40% ineach)foreligibilityforappearingforUniversityExaminations **UniversityExamination** Mandatory50%marksseparatelyintheorya
HumanAnatomy -2papers	200	100	
Physiology-2papers	200	100	
Biochemistry-2papers	200	100	
SecondProfessional			
Pharmacology-2Papers	200	100	
Pathology - 2papers	200	100	
Microbiology-2papers	200	100	
ThirdProfessionalPart–I			
ForensicMedicine&Toxicology-1paper	100	100	
Ophthalmology–1paper	100	100	
Otorhinolaryngology–1paper	100	100	
CommunityMedicine-2papers	200	100	
ThirdProfessionalPart–II			

GeneralMedicine-2papers	200	200	ndpractical(practical =practical/clinical+viva)
GeneralSurgery-2papers	200	200	
Pediatrics–1paper	100	100	
Obstetrics&Gynaecology-2papers	200	200	

Note: At least one question in each paper of the clinical specialties should test knowledge - competencies acquired during the professional development programme (AETCOM module); Skills competencies acquired during the Professional Development programme (AETCOM module) must be tested during clinical, practical and viva.

In subjects that have two papers, the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass in the said subject.

Criteria for passing in a subject: A candidate shall obtain 50% marks in University conducted examination separately in Theory and Practical (practical includes: practical/ clinical and viva voce) in order to be declared as passed in that subject.

Appointment of Examiners

(a) Person appointed as an examiner in the particular subject must have at least four years of total teaching experience as assistant professor after obtaining postgraduate degree in the subject in a college affiliated to a recognized/approved/permitted medical college.

(b) For the Practical/ Clinical examinations, there shall be at least four examiners for 100 learners, out of whom not less than 50% must be external examiners. Of the four examiners, the senior-most internal examiner will act as the Chairman and coordinator of the whole examination programme so that uniformity in the matter of assessment of candidates is maintained. Where candidates appearing are more than 100, two additional examiners (one external & one internal) for every additional 50 or part there of candidates appearing, be appointed.

(c) In case of non-availability of medical teachers, approved teachers without a medical degree (engaged in the teaching of MBBS students as whole-time teachers in a recognized medical college), may be appointed examiners in their concerned subjects provided they possess requisite doctorate qualifications and four years teaching experience (as assistantprofessors) of MBBS students. Provided further that the 50% of the examiners (Internal & External) are from the medical qualification stream.

(d) External examiners may not be from the same University.

(e) The internal examiner in a subject shall not accept external examinership for a college from which external examiner is appointed in his/her subject.

(f) A University having more than one college shall have separate sets of examiners for each college, with internal examiners from the concerned college.

(g) External examiners shall rotate at an interval of 2 years.

(h) There shall be a Chairman of the Board of paper-setters who shall be an internal examiner andshall moderate the questions.

(i) All eligible examiners with requisite qualifications and experience can be appointed internal examiners by rotation in their subjects.

(j) All theory paper assessment should be done as central assessment program (CAP) of concerned university.

(k) Internal examiners should be appointed from same institution for unitary examination in sameinstitution. For pooled examinations at one centre approved internal examiners from same university may be appointed.

(l) The grace marks up to a maximum of five marks may be awarded at the discretion of the University to a learner for clearing the examination as a whole but not for clearing a subject resulting in exemption.

Complete syllabus

- https://www.nmc.org.in/wp-content/uploads/2020/08/FOUNDATION-COURSE-MBBS-17.07.2019.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/01/UG-Curriculum-Vol-I.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/01/UG-Curriculum-Vol-II.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/01/UG-Curriculum-Vol-III.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/01/AETCOM_book.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/08/Early_Clinical_Exposure-MBBS-07.08.2019.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/08/Logbook-Guidelines_17.01.2020.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/08/Alignment-and-Integration_03.10.2019.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/08/Skill-Module_23.12.2019.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/09/Pandemic-MGT-Module-UG.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/11/Module-8-Online-learning-and-assessment-17-11-20-version-final-for-uploading-converted.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/08/Electives-Module-20-05-2020.pdf
- https://www.nmc.org.in/wp-content/uploads/2020/08/Module_Competence_based_02.09.2019.pdf

FIRST PROFESSIONAL

DEPARTMENT OF ANATOMY
AS PER MCI GUIDELINES, 240 WORKING DAYS OF 1ST PROFESSIONAL YEAR MBBS CURRICULUM ANTOMY IS COVERED IN 675 Hours

HUMAN ANATOMY

(i) Goal :

The broad goal of teaching anatomy to undergraduate students aims at providing comprehensive knowledge of the gross and microscopic structure and developmentof human body to provide basis for understanding the clinical correlation of organs orstructures involved and the anatomical basis for the disease presentations.

(ii) Objectives:

A. Knowledge:

At the end of the course the student shall be able toa) Comprehend the normal disposition, clinically relevant interrelationships,functional and cross sectional anatomy of the various structures in the body;

b) Identify the microscopic structure and correlate elementary ultrastructure ofvarious organs and tissues and correlate the structure with the functions as a prerequisite for understanding the altered state in various disease processes;

c) Comprehend the basic structure and connections of the central nervous systemto analyse the integrative and regulative functions of the organs and systems.

Locate the site of gross lesions according to the defects encountered;

d) Demonstrate knowledge of the basic principles and sequential development ofthe organs and systems, recognise the critical stages of the development andthe effects of common teratogens, genetic mutations and environmental

hazards. Understand the developmental basis of the major variations andabnormalities.

B. Skills :

At the end of the course the student shall be able to :

a) Identify and locate all the structures of the body and mark the topography of the living anatomy;

b) Identify the organs and tissues under the microscope;

c) Understand the principles of karyotyping and identify the gross congenital anomalies;

d) Understand principles of newer imaging techniques and interpretation of Computerised Tomography (CT) Scan, sonogram etc.

e) Understand clinical basis of some common clinical procedures i.e. intramuscular and intravenous injection, lumbar puncture, kidney biopsy etc.

C. Integration:

Integrated teaching of basis sciences with reference to clinical medicine helps the student to acquire knowledge of

Structure of organ its function and applied aspects

Syllabus of Anatomy

1 Introduction

2 Descriptive Anatomy

3 General Anatomy

4 Embryology

a) General Embryology

b) Systemic Embryology

I. Muscle, bone, skin, appendages and development of mammary gland
II. Cardio-Vascular system including heart
III. Lymphatic system
IV. Brachial Arches and Pouches
V. Gastro intestinal system and associated glands
VI. Development of face, palate & teeth
VII. Respiratory System
VIII. Genito Urinary system

5.Histology

c) General Histology
d) Systemic Histology

6 Neuro Anatomy

7 Human Genetics

a) Introduction.
b) Mitosis and Meiosis
c) Normal Chromosomal pattern
d) Mutation
e) Culture of Chromosomes (Karyotyping)
f) Abnormalities of Chromosomes (Numerical & structure)
g) Linkage
h.genetic counseling
i.prenatal diagnosis

LECTURE DEMONSTRATIONS / GROUP DISCUSSIONS / TUTORIALS / SEMINARS

1. Introduction
2. General anatomy
3. Upper Extremity
4. Lower Extremity
5. Head & Neck
6 Abdomen & Pelvis
7. Thorax
8. Embroyology
9. Neuroanatomy
10. Histology
11. Genetics

Practicals

Practical should aim at familiarising student with Introduction of gross Anatomy of the whole body with more stress on location, position, surface anatomy and important relations of the various organs Each student has to dissect whole human body stressing more on its clinical aspect.

Distribution of Anatomy- Practicals

Regionwise

1 Upper Extremity
2 Lower Extremity
3 Thorax
4 Head & Neck
5 Abdomen & Pelvis
6 Brain and spinal cord

Histology
General Histology
Systemic Histology
Genetics

List of Histology Slides- General

1 Squamous Epithelium
2 Cuboidal Epithelium
3 Columnar Epithelium
4 Pseudo stratified Epithelium
5 Ciliated Columnar Epithelium
6 Ureter (Compound Epithelium)
7 Oesophagus (Compound Epithelium)
8 Skin (Compound Epithelium)
9 areolar connective tissue
10 Adipose tissue
11 Hyaline Cartilage
12 White fibro cartilage
13 Elastic Cartilage
14 Bone –TS
15 Bone -LS
16 Plain Muscles
17 Skeletal Muscles
18 Cardiac Muscles
19 Lymph gland
20 Thymus
21 Tonsil
22 Spleen
23 Artery-Medium size
24 Aorta
25 Vein-inferior vena cava
26 Neuron - Multipolar
27 Peripheral nerve

List of Histology Slides – Systemic

1 Trachea	16 Liver	31 Thyroid
2 Lung	17 Pancreas	32 Hypophysis cerebri
3 Serous Salivary Gland	18 Gall bladder	33 Supra-renal Gland
4 Mucous Salivary GlaND	19 Kidney	34 Cerebrum
5 Mixed Salivary Gland	20 Ureter	35 Cerebellum
6 Tongue	21 Urinary bladder	36 Spinal cord
7 Tooth	22 Ovary	37 Cornea
8 Esophagus	23 Fallopian tube	38 Retina
9 Stomach – Fundus	24 Uterus	39 Skin
10 Stomach – Pylorus	25 Placenta,umbilical cord,cervix	
11 Duodenum	26 Mammary gland	
12 Jejunum	27 Testis	
13 Ileum	28 Epididymis	
14 Colon– Large Intestine	29 Vas deference	
15 Vermiform Appendix	30 Prostate	

Genetics

(Karyotyping of normal male & female and some genetic disorders and photographs)

1 Male Karyo typing
2 Female Karyo typing
3 Down's Syndrome – 21 Trisomy
4 Turner's Syndrome 45 – XO
5 Klinefelter's Syndrome 47 – XXY
6 Super Female 47 – XXX
7 Sex-Chromatin (Barr Body)

ANATOMY DISTRIBUTION OF THEORY AND PRACTICAL HOURS

THEORY – 220 HRS

PRACTICAL - 415HRS

SDL- 40 HRS

ECE- 30 HRS

ANATOMY

Distribution of syllabus for University Examination:

Paper-1

General anatomy, Gross anatomy (above diaphragm & diaphragm) - Upperlimb, Thorax, Head &Neck & applied aspects, Neuroanatomy.

Paper -2

Gross Anatomy (below diaphragm)-Abdomen and Pelvis , Lower limb - applied aspects, Embryology, Histology & Genetics

Distribution of Marks:

Paper 1& Paper 2 (Each 100Marks for 3hrs)

2 Structured essays -2x10=20

8 short notes -8x5 =40

10 ultrashortnotes -10x3=30

10 MCQ'S or fillup -10x1=10

Total 100Marks

Practicals & VIVA 100Marks

MODEL PAPER

PAPER - I

GITAM INSTITUTE OF MEDICAL AND SCIENCES& REASEARCH- GITAM UNIVERSITY

1st MBBS TOTAL MARKS-100M Sub: ANATOMY TIME-3 hrs

Answers all questions, Draw diagrams wherever necessary

Essay Questions : (2x 10 =20)

1) A 14 year old boy presented with a complaint of rapidly growing painful swelling on face in front of the ear on the right side . He also told that the pain increases while taking meals but subsides to some extent after finishing the meal. On examination the physician found that the ear lobule is lifted on the affected side . The examination of oral cavity revealed congestion in mucous membrane of vestibule of mouth opposite second upper molar tooth on the right side.

Describe the morphology, relations ,structures passing through it and nerve supply of the gland involved .Add a note on its applied aspect. (2+2+2+2+2)

2) Describe the formation ,branches of brachial plexus. Write in detail about ulnar nerve and its applied aspects.(2+3+3+2)

Short notes : (8 x5 = 40)

3) Pleural recesses
4) Clavipectoral fascia
5) Thoracic duct
6) Section of medulla at sensory decussation
7) Sphenopalatine ganglion
8) Carpal tunnel syndrome
9) Floor of fourth ventricle
10) Types of epiphysis

Ultra short notes : (10x 3= 30)

11) Filum terminale
12) Anatomical snuff box
13) Sesamoid bone
14) Hilum of right lung
15) Little's area
16) Cerebellar nuclei
17) Corpora quadrigemina
18) Pterion
19) 1st rib
20) cartilages of larynx

Objective / Fill in the blanks (10x1 =10)

21) Corpous callosum is an example for_____fibres

22) Most of the superolateral surface of cerebral hemisphere is supplied by _____

23) The Y – shaped sheet of white matter that divides thalamus into 3 parts is called_____

24) The dangerous layer of scalp is _____

25) The axillary sheath is derived from :

a) Investing layer of deep cervical fascia
b) Pre tracheal fascia
c) Pre vertebral fascia
d) Deep fascia of axilla

26) Commonly injured nerve in inferior dislocation of shoulder joint is _____

27) Most commonly used vein for IV injections is _____

28) Apex beat in adults is normally felt in _____

29) Anterior intercostal membrane is the continuation of
a) External intercostal muscle
b) Internal intercostal muscle
c) Intercostalisintimus
d) Sub costalis

30) Ape thumb deformity occurs due to lesion of _____

MODEL PAPER

PAPER - II

GITAM INSTITUTE OF MEDICAL AND SCIENCES& REASEARCH- GITAM UNIVERSITY

1st MBBS TOTAL MARKS-100M Sub: ANATOMY TIME-3 hrs

Answers all questions,Draw diagrams wherever necessary

Essay questions 2X10=20m

1. A 54-year-old man with a long history of alcohol abuse presents to the emergency department with rapidly increasing abdominal distention most likely resulting from an alteration in portal systemic blood flow. In this particular case where did the portosystemic obstruction has occurred. Describe portal vein and its tributaries, and sites of portocaval anastomosis. Add a note on development of portal vein?(2+ 3+3+2)

2. Describe the knee joint in its a) type & formation b) ligaments c) movements and muscle responsible for movements d) blood supply e) nerve supply (2+2+2+2+2)

Short questions 8x5=40m

3. Intraembryonic mesoderm and it derivatives

4.Microscopic structure of Suprarenal gland

5. Appendix

6. Structural chromosomal abnormalities

7. Foot drop

8. Internal iliac artery and its branches

9. Microscopic structure of Hyaline cartilage

10. Development of Inferior vena cava

Ultra short questions: 10X3=30m

11. Traube's space

12.Porta pedis

13. Internal trigone

14. Ring chromosome

15. Pouch of Douglas

16. Mention connective tissue cells and fibres

17.Femoral hernia

18. Ventral branches of abdominal aorta

19. Somite

20.Plantar arch

Fill in the blanks 10X1=10m

21. The mucosal folds of small intestines are ----------

22. Ligamentum arteiosum is a remnant of ----------

23. The anterior wall of the inguinal canal is formed by the:

a. Linea alba b. Rectus abdominis muscle c. Transversus abdominis muscle d. d. Aponeurosis of external oblique

24. The ligament of treitz represents:

a. Mesentery of the duodenum b. Retroduodenopancreatic fascia c. Suspensory ligament of the duodenum d.The connection between duodenum and pancreas

25.---------- muscle is known as tailor's muscle

26. karyotype of Down syndrome -------

27 ---------- nerve supplies the cleft between great toes and second toe

28. Name the foetal membranes----------

29. Sustentaculum tali is a part of which tarsal bone?

a. calcaneum. B.talus c.navicular d.cuboid

30. Lymphatics from lower end of anal canal drains into ------

DEPARTMENT OF BIOCHEMISTRY

As per MCI guidelines, 240 working days for Ist Professional MBBS Curriculum, Biochemistry is covered in 250 hrs.
Syllabus of BiochemistryTotal hours 250

Theory

Sl. No. Name of the Unit **No. of Hours 80**

1. **Introduction to biochemistry 1**
2. **Cell- Molecular & functional organization 2- BI 1.1**
3. **Chemistry of Carbohydrates: 2 – BI 3.1**

a) Classification of Carbohydrates:
b) Structural and functional aspects of Mono-saccharides, Disaccharides, Homo and Hetero Polysaccharides

4. Chemistry of Lipids: 4 -BI 4.1

a) Classification
b)Structural and functional aspects of simple compound and derived lipids including saturated, unsaturated and Essential Fatty acids.

5. Chemistry of Proteins: 2 – BI 5.1, BI 5.2

a) Classification & functional aspects.
b) Classification and Properties of amino aids
c) Outlines of Structural organisation of Proteins.

6. Nucleic Acids: 1 – BI 7.1

a) Bases, nucleotides, Nucleic acids,(structural and functional aspects)
b)synthetic nucleotides

7. Enzymes:5 – BI 2.1 to BI 2.7

a) Classification
b) Mechanism of Enzyme action
c) Enzyme kinetics
d) Factors affecting enzyme activity
e) Isoenzymes
f) Coenzymes
g) Enzyme Inhibition
h) Cellular & Plasma enzymes
i) Diagnostic importance of Enzymes
j) Regulation of Enzyme activity

8. Biological Oxidation: 3 – BI 6.6

a) Bioenergetics
b) Exergonic & Endergonic reaction
c) Oxidases
d) Electron Transport Chain
e) Oxidative Phosphorylation
f) High energy Compounds
g)Low Energy Compounds

9. Vitamins: 6 – BI 6.5

a) Classification
b) Structure, Sources, Daily requirement, Physiological role and deficiency disorders of Fat soluble vitamins – A,D,E,& K and water soluble vitamins-B complex group and Vit. C.

10. Carbohydrate Metabolism: 5 - BI3.2 to BI 3.10

a) Digestion b) Absorption

c) Metabolism of Glucose

i) Entry of Glucose into Cells

ii) Glycolysis

iii) Rapaport – Leubering Cycle

iv) Pyruvate Dehydrogenase Complex

v) Citric Acid Cycle

vi) Gluconeogenesis

vii) Glycogenesis

viii) Glycogenolysis

ix) Glycogen Storage Diseases

x) Hexose Mono Phosphate Shunt Pathway

xi) Blood Glucose Homeostasis, Glucose Tolerance Test, Diabetes mellitus and Hypoglycemia

11. Metabolism of Proteins: **5- BI 5.3 to 5.5**

a) Protein Digestion & Absorption

b) General Pathways of metabolism including

c) Urea Cycle

e) Metabolism of individual amino acids &Disorders associated with protein Metabolism

12. **Metabolism of Nucleic Acids:** 9

a) Outlines of Metabolism of Purines &Pyrimidines& Metabolic disorders**3 – BI 6.2, BI 6.3, BI 6.4**

b) DNA replication and transcription

c) Protein Biosynthesis(Translation)

d) Regulation of Gene Expression } **6 – BI 7.2 to BI 7.4**

e) PCR, Recombinant DNA Technology

13. Lipid Metabolism: **5 – BI 4.2 to BI 4.7**

a) Digestion & Absorption

b) Plasma Lipids

c) Mobilisation of Fats from adipose tissue

d) Metabolism of Ketone bodies

e) Lipo Proteins – Metabolism and Disorders

f) Lipotropic factors

g) Chemistry and metabolism of Prostaglandins

h) Lab analytes and disorders of Lipid Metabolism

14. Hemoglobin structure, Functions and Metabolism4 – BI 6.11, BI 6.12

Porphyrias and Hemoglobinopathies, Catabolism of heme

15. Mineral Metabolism **5 – BI 6.9, BI 6.10**

Sodium, Potassium, Calcium, Phosphorus, Magnesium, Manganese, Sulphur, Iron, Copper, Zinc, Iodine, Cobalt, Fluorine, Selenium and chromium.

16. Nutrition: **4 – BI 8.1 to BI 8.5**

a) Calorific Value

b) Specific Dynamic Action

c) Energy Requirements

d) Balance Diet, Nitrogen balance, Dietary fiber

e) Foodfads

f) Nutritional disorders kwashiorkor and marasmus

17. **Detoxification:**1 – BI 7.5

18. Functional Tests: **4 – BI 6.13**

a) Renal b) Hepatic c) Adrenal d) Thyroid

19. Fluid- Electrolyte and Acid - Base Balance4 – BI 6.7, BI 6.8
20. Plasma Proteins 1 – BI 5.2
21. Immunoglobulins 2 – BI 10.3 to BI 10.5
22. Carcinogenesis Malignancy and cell cycle 2 – BI 10.1, BI 10.2

PRACTICALS IN BIOCHEMISTRY:
150 hrs – Practical + SGD(Small group discussion) + Tutorials
20 hrs – SDL (Self directed learning)

DOAP Sessions

A. Qualitative : **No.ofPracticals**
1. Normal Constituents of Urine 4hrs
2. Abnormal Constituents of Urineand Identification of Abnormal Constituents of urine 10 hrs

B. Quantitative:
1. Blood glucose 1hr
2. Blood Urea1hr
3. S. Proteins 1hr 4. Serum Creatinine1hr

C. Demonstrations:10x2 = 20 hrs
1. Lab Safety
2. pH and buffers
3. Chromatography
4. Colorimetry and Spectrophotometry
5. Demo on Estimation of S. Albumin, A/G ratio
6. Demo on Estimation of S. Cholesterol, HDL cholesterol, Triglycerides
7. Demo on Estimation of Calcium and phosphorus
8. Demo on Estimation of S. Total Bilirubin and Direct Bilirubin
9. Demo on Estimation of SGOT, SGPT, ALP
10. CSF Analysis

D. Lab diagnosis of 7x2=14 hrs
1. Dyslipidemia and Myocardial Infarction
2. Renal failure and Gout
3. Proteinuria and Nephrotic syndrome
4. Jaundice and Liver diseases
5. Diabetes Mellitus and Pancreatitis
6. Acid base disorders
7. Thyroid disorders

F. Early Clinical Exposure (ECE) 10x3=30hrs
1. Rickets
2. Obesity
3. Albinism
4. Acute Myocardial Infarction
5. Gout
6. Acid Base Disorders
7. Diabetes Mellitus
8. Chronic Kidney Disease

9. Jaundice
10. Thyroid Disorders.

G. Aligned and Integrated Topics (AITO) **6x2=12 hrs**

1. Malnutrition
2. Diabetes
3. Ischaemic Heart diseases
4. Stroke
5. Thyroid disorders
6. Jaundice

MODEL PAPER

FIRST MBBS DEGREE EXAMINATION

BIOCHEMISTRY

Paper – I

Time: 2 ½ Hours **Max.Marks: 100M**

Instructions: Answer all questions

Draw well labeled diagrams wherever necessary

Essay Questions: **(2x10=20)**

1. What is glycolysis? Describe the reactions. Add a note on the energetic of glycolysis. (1+6+3)
2. Describe catabolism of heme in the body. Add a note on different types of Jaundice. (4+6)

Short Notes: **(8x5=40)**

3. Competetive Inhibition
4. Functions of Vitamin A
5. Specific dynamic action
6. Structure and functions of lipoproteins
7. Sickle cell anaemia
8. Detoxification by conjugation
9. Diagnostic importance of enzymes
10. Describe the organization of ETC

Very short notes **(10x3=30)**

11. Isoenzymes of lactate dehydrogenase
12. High energy compounds
13. Functions of biotin
14. Ketogenesis
15. Rapport Leubering Cycle
16. Fluid mosaic model of Plasma membrane
17. Significance of Body mass Index
18. Secondary active Transport

19. Respiratory Quotient
20. Von Gierge's disease

Objective: (Fill in the blanks) (10x1=10)

21. Coenzyme forms of Niacin are _____
22. The lipotropic factors are _____
23. The key enzyme in the pathway of Chalesterre synthesis is _____
24. The enzyme present in the complex IV of ETC is _____
25. The essential fatty acids are _____
26. The important adipokins are _____
27. Key Gluconeogenic enzymes are _____
28. Pyridoxine deficiency produce which type of Anemia
29. All are features if acute intermittent porphyria, except:
    a) Abdominal calic b) Hypertension
    c) Anemia d) Psychatic behavior
30. Which of the following is not synthesized in the endoplasmic reticulum?
    a) Lipoproteins b) Glycoproteins
    c) RNA d) Ganglioside

MODEL PAPER

FIRST MBBS DEGREE EXAMINATION

BIOCHEMISTRY

Paper – II

Time: 3 Hours **Max.Marks: 100M**

Instructions: Answer all questions

Draw well labeled diagrams wherever necessary

Essay Questions: **(2x10=20)**

30. A 13 year old boy, the first child of an unrelated couple was born following normal gestation and delivery. At term, birth weight was 3450 gms and length was 53cm. there was total depigmentation of skin, hair and iris. The family history was unremarkable. The patient had white hair, white eyebrows, white eyelashes and depigmented skin. Ophthalmologic examination revealed characteristic iris depigmentation and translucency, retinal depigmentation, foveal hypoplasia, reduced visual acuity, prominent photophobia and nystagmus. He had normal mental development. The boy was examined carefully to exclude other congenital deformities. He did not have any abnormalities of internal organs.
    a) What is the probable diagnosis"
    b) Which amino acid metabolism is affected in this disorder?
    c) Describe the synthesis of biologically important products formed from tyroxine. (1+1+8)

31. Enumerate the different renal function tests. What is creatinine clearance test and e-GFR?
    (4+4+2)

Short Notes: **(8x5=40)**

32. Transamination
33. Post transcriptional modification
34. Transport proteins
35. Role of glycogens in glycogen metabolism
36. Immunoglobulin G
37. Genetic code
38. Gout
39. Describe the RDA, functions of Iron

Very short notes
(10x3=30)

40. Proto oncogens
41. Laboratory diagnosis of obstructive jaundice
42. Metabolic alkalosis
43. Dehydration
44. Anion gap
45. Functions of copper
46. Orotic aciduria
47. Mutations
48. Homocystinurias
49. Tumor markers

Objective: (Fill in the blanks)
(10x1=10)

50. Glutathione is a tripeptide made up of amino acids _____ _____ _____
51. Serotonin is derived from the amino acid _____
52. The most effective buffer in blood is _____
53. The major intracellular cation is _____
54. The enzyme protecting DNA from ageing is _____
55. Sigma factor is a subunit of _____
56. The enzyme used for preparing a recombinant DNA molecule is _____
57. The primary response immunoglobulin is _____
58. Steroid hormones are produced from :
    b) Purine b) Pyrimidine
    d) Cholesterol d) Steccobilibogen
31. Which substance is not normally present in urine
    b) Creatinine b) Glucose
    d) Uric acid d) Urobilinogen

DEPARTMENT OF PHYSIOLOGY

As per MCI guidelines, 240 working days for I Professional Year MBBS Curriculum, Physiology is covered in 470 hrs.

Physiology Syllabus - Total hours 470

THEORY

Sl. No. Name of the Unit **No. of Hours 160**

4. **General Physiology:**
   a) Mammalian cell
   b) Homeostasis
   c) Intracellular communication
   d) Transport mechanisms across cell membranes
   e) Fluid compartments of the body
   f) Ph and buffer systems of the body
   g) Resting membrane potential and action potential

5. **Hematology (Blood):**
   a) Blood components
   b) Plasma proteins
   c) Hemoglobin, its breakdown; variants of hemoglobin
   d) RBC formation and functions
   e) Anemia and Jaundice
   f) WBC formation, functions and its regulation
   g) Platelets, functions and variation
   h) Hemostasis and anti coagulants, bleeding and clotting disorders
   i) Blood groups, blood banking and transfusion
   j) Immunity and its regulation

3. Nerve and Muscle Physiology:
   a) Neuron and Neuroglia; Nerve growth factors/cytokines
   b) Nerve fibers
   c) Degeneration and regeneration in peripheral nerves
   d) Neuromuscular junction and transmission of impulse
   e) Neuromuscular blocking agents
   f) Myasthenia gravis
   g) Muscle fibers and their structure
   i) Action potential and its properties in different muscle types
   j) Molecular basis of muscle contraction
   k) Mode of muscle contraction
   l) Energy source and muscle metabolism
   m) Gradation of muscular activity
   n) Muscular dystrophy: Myopathies

4. Gastro-intestinal Physiology:

a) Structure and functions of digestive system
b) Composition, mechanism of secretion, functions and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretions
c) GIT movements, regulation and functions, defecation reflex, role of dietary fibers
d) Digestion and absorption of nutrients
e) GIT hormones, their regulation and functions
f) Gut-brain axis
g) Liver and gall bladder
h) Gastric function tests, Pancreatic exocrine function tests and Liver function tests
i) Peptic ulcer, Gastro-oesophageal reflux disease, Vomiting, Diarrhoea, Constipation, Adynamic ileus, Hirschsprung's disease

5. Cardiovascular Physiology:

a) Functional anatomy of heart including chambers, heart sounds, pacemaker tissue and conducting system
b) Cardiac muscle
c) Cardiac cycle
d) Cardiac impulse
e) Electrocardiogram (ECG) and Cardiac axis
f) Abnormal ECG, arrhythmias, heart block and myocardial infraction
g) Circulatory system
h) Cardiovascular regulatory mechanisms
i) Heart rate, Cardiac output and Blood pressure
j) Regional circulation including microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, fetal, pulmonary and splanchnic circulation
k) Shock, Syncope and Heart failure

6. Respiratory Physiology:

a) Describe the functional anatomy of respiratory tract
b) Mechanics of respiration.
c) Transport of respiratory gases: Oxygen and Carbon dioxide
d) Physiology of high altitude and deep sea diving
e) Artificial respiration, Oxygen therapy, Acclimatization and Decompression sickness
f) Dyspnoea, hypoxia, cyanosis asphyxia; drowning, periodic breathing
g) Lung function tests & their clinical Significance

7. Renal physiology:

a) Describe structure and function of kidney
b) Juxta glomerular apparatus and Renin-angiotensin system
c) Urine formation
d) Renal clearance
e) Renal regulation of fluid and electrolytes & acid-base balance
f) Innervations of urinary bladder, physiology of micturition and its abnormalities
g) Artificial kidney, dialysis and renal transplantation
h) Renal Function Tests
i) Cystometry and discuss Cystometrogram

8. Endocrine physiology:

a) Physiology of bone and calcium metabolism

b) Pituitary gland
c) Thyroid gland
d) Parathyroid gland
e) Adrenal gland,
f) Pancreas and
h) Hypothalamus
i)Thymus & Pineal Gland

10. Reproductive physiology:
a) Male reproductive system
b) Female reproductive system
c) Contraception

11. Neuro physiology and Special senses:
a) Organization of nervous system
b) Synapse
c) Receptors
d) Somatic sensations & sensory tracts
e) Motor tracts, mechanism of maintenance of tone and posture.
f) Vestibular apparatus
g) Reticular activating system
h) Autonomic nervous system (ANS)
i) Spinal cord, its functions, lesion & sensory disturbances.
j) Functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities.
k) EEG characteristics during sleep and mechanism responsible for its production
l) Smell and taste sensation
m) Ear
n) Vision

DEPARTMENT OF PHYSIOLOGY

As per MCI guidelines, 240 working days for I Professional Year
MBBS Curriculum, Physiology is covered in 470 hrs
PHYSIOLOGY SYLLABUS - Total hours 470

PRACTICALS IN PHYSIOLOGY:

310 hrs – Practical + SGD(Small group discussion) + Tutorials
25 hrs – SDL (Self directed learning)
Early clinical exposure-30hrs

HEMATOLOGY

DOAP Sessions

1. Microscope
2. RBC count
3. WBC count
4. Differential leucocyte count
5. Reticulocyte and platelet count

DEMONSTRATIONS

1. ABO & Rh blood groups
2. Estimation of Hemoglobin
3. Absolute Eosinophil count
4. Bleeding time and Clotting time
5. ESR
6. PCV
7. Osmotic fragility

HUMAN EXPERIMENTS
DEMONSTRATIONS

1. Ergography
2. Harvard Step test
3. Perform & interpret Spirometry
4. Perform measurement of peak expiratory flow rate
5. Pulmonary function test
6. Record blood pressure & pulse at rest and in different grades of exercise and postures
7. Record and interpret normal ECG
8. Cardiovascular autonomic function tests
9. Arterial pulse tracing using finger plethysmography
10. Testing of visual acuity, colour and field of vision and
11. Hearing
12. Testing for smell and taste sensation
13. EEG
14. Autonomic function tests
15. Mosso's Ergograph and Hand grip Dynamometer
16. Basic Life Support
17. External features of Pons
18. The management of an unconscious patient
19. Basic setup process of a ventilator

CLINICAL EXAMINATION

1. General Examination
2. Clinical examination of respiratory system
3. Clinical examination of cardiovascular system
4. Effect of exercise on cardio respiratory parameters
5. Clinical examination of the abdomen
6. Clinical Examination of Central Nervous System

AMPHIBIAN

1. Amphibian nerve - muscle experiments
2. Amphibian cardiac experiments
3. Amphibian charts

Early clinical Exposure (ECE) **10x3=30hrs**

Aligned and Integrated Topics (AITO) **6x2=12 hrs**

1. Malnutrition
2. Diabetes
3. Ischemic Heart diseases
4. Stroke
5. Thyroid disorders
6. Jaundice

DEPARTMENT OF PHYSIOLOGY

DIVISION OF TOPICS FOR UNIVERSITY EXAMINATION

PAPER-I

1. Hematology
2. Cardiovascular system
3. Respiratory system
4. Renal physiology
5. Gastrointestinal system

PAPER-II

1. General physiology
2. Muscle nerve physiology
3. Neurophysiology
4. Special senses
5. Autonomic nervous system
6. Endocrine physiology
7. Reproductive system

DEPARTMENT OF PHYSIOLOGY
MODEL QUESTION PAPER
I YEAR MBBS

PAPER-I

ESSAYS QUESTIONS: **2X10=20M**

1. Describe the process of coagulation of blood. Mention two anticoagulates. **(8+2)**
2. Define arterial blood pressure. Explain the long term regulation of blood pressure. **(2+8)**

SHORT NOTES: **8X5=40M**

1. Juxtaglomerular apparatus
2. Functions of saliva

3. Oxygen haemoglobin dissociation curve
4. Counter current mechanism
5. Classification of anaemias
6. Conduction system of heart
7. Mechanism of HCL secretions
8. Hypoxia

VERY SHORT NOTES: **10X3=30M**

1. ECG
2. Erythroblastosis fetalis
3. Surfactant
4. Cystometrogram
5. Migrating motor complex
6. Plasma proteins
7. Decompression sickness
8. Achalasia cardia
9. Micturition reflex
10. Marey's law

OBJECTIVE: (MCQ/FILL IN THE BLANKS) **10X1=10M**

1. All are Vitamin-K dependent clotting factors except
   a) II b) VII c) VIII d)X

2. Dietary fibre contains
   a) Collagen b) Starch c) Pectin d) Proteoglycan

3. In GIT longest transit time is seen in
   a) Stomach b) Jejunum c) Ileum d) Colon

4. Type of Hb with least affinity for 2, 3 – DPG is
   a) HbA b) HbA2 c) HbF d) HbS

5. Ventilation perfusion ratio is maximum at
   a) Apex of the Lung b) Base of the Lung
   c) Middle of the Lung d) Posterior lobe of the lung

6. Seen in high altitude climbers
   a) Hyperventilation b) Decreased $PaCo_2$
   c) Pulmonary edema d) Hypertension

7. Normal GFR in adult human is _____

8. Renal threshold for glucose is _____

9. Refractive period of ventricular muscle fibre is _____

10. Laminar flow becomes turbulent when Reynolds number is above _____

Note:

1. Key should be attached for objective type questions
2. Reference text book should be Guyton& Hall 2nd South Asian edition

DEPARTMENT OF PHYSIOLOGY
MODEL QUESTION PAPER
I YEAR MBBS

PAPER - II

ESSAYS QUESTIONS: **2X10=20M**

3. What are the nuclei of Hypothalamus? Describe their connections and functions of Hypothalamus. **(2+5+3)**
4. Classify the hormones secreted by adrenal cortex. Explain the actions and regulation of secretion of Cortisol. **(2+6+2)**

SHORT NOTES: **8X5=40M**

9. Transport across cell membrane
10. Structure of skeletal muscle
11. Classification of nerve fibres
12. Taste pathway
13. Male secondary sexual characters
14. Papez circuit
15. Fetoplacental unit
16. Resting membrane potential

VERY SHORT NOTES: **10X3=30M**

11. Oral contraceptive pills
12. Kluver Bucy Syndrome
13. Brown's sequard syndrome
14. Adrenal genital syndrome
15. Dwarf
16. Tetany
17. Myopia
18. Tinnitus
19. Prolactinemia
20. Bells palsy

OBJECTIVE: (MCQ/FILL IN THE BLANKS) **10X1=10M**

11. Plasma membrane is mainly formed by
    b) Cholesterol b) Phospholipid
    c) Carbohydrate d) Protein

12. Intrafusal fibres of striated skeletal muscle are innervated mainly by following types of motor neurons
    b) Alpha b) Beta c) Gamma d) Delta

13. TRH stimulates TSH and
    b) Oxytocin b) GH c) Prolactin d) Gonadotrophin

14. Angiotensinogen is produced in
    b) Liver b) Atrium c) Kidney d) Hypothalamus

15. The excitatory cell in Cerebellum is
    b) Basket cell b) Granule cells c) Stellate cells d) Purkinje cells

16. Hypothalamus controls
    a) Swallowing b) Vomiting c) Circadian rhythm d) Respiration

17. Hormone that helps in parturition process is _____

18. Calcitonin is secreted by _____endocrine gland

19. Normal CSF volume in adults is _____

20. Myasthenia gravis is a _____disease

Note:

3. Key should be attached for objective type questions
4. Reference text book should be Guyton& Hall 2nd South Asian edition

SECOND PROFESSIONAL

Competency Based Medical Education (CBME) Curriculum for Phase II MBBS Pharmacology 2020-2021

Competencies in "knowledge" domain

Sl no	Topic	Competency
1	General Pharmacology Clinical Pharmacology and rational use of medicines	PH 1.1 to PH 1.12
2	Autonomic Nervous System	PH 1.13 to PH 1.14
3	Skeletal muscle Relaxants	PH1.15
4	Autacoids	PH 1.16
5	Central Nervous System	PH 1.17 to PH 1.23
6	Diuretics	PH 1.24
7	Drugs acting on Blood	PH 1.25, PH 1.35
8	Cardiovascular System	PH 1.26 to PH 1.31
9	Respiratory System	PH 1.32 to PH 1.33
10	Gastrointestinal System	PH 1.34
11	Endocrine System	PH 1.36 to PH 1.41
12	Chemotherapy	PH 1.42 to PH 1.49
13	Miscellaneous	PH 1.50 to PH 1.64

Competencies in “Skills” domain:

There are 21 competencies in this domain. These include clinical pharmacy (04), Clinical Pharmacology (8), Experimental Pharmacology (2) and Communication (7) as given below.

Topic	Competency	Description
Clinical Pharmacy	PH 2.1	Demonstrate understanding of the use of various dosage forms **(oral/local/parenteral; solid/liquid)**
	PH 2.2	Prepare oral rehydration solution from ORS packet and explain its use
	PH 2.3	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment.
	PH 2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special populations
Clinical Pharmacology	PH 3.1-C	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient
	PH 3.2-C	Perform and interpret a critical appraisal (audit) of a given prescription
	PH 3.3-C	Perform a critical evaluation of the drug promotional literature
	PH 3.4- L	To recognise and report an adverse drug reaction
	PH 3.5-C	To prepare and explain a list of P-drugs for a given case/condition
	PH 3.6-L	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs
	PH 3.7-L	Prepare a list of essential medicines for a healthcare facility
	PH 3.8	Communicate effectively with a patient on the proper use of prescribed medication
Experimental Pharmacology	PH 4.1	Administer drugs through various routes in a simulated environment using mannequins
	PH4.2	Demonstrate the effects of drugs on blood pressure (vasopressor and vaso-depressors with appropriate blockers) using CAL
	PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use

Communication	PH5.2	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines
	PH5.3	Motivate patients with chronic diseases to adhere to the prescribed management by the health care provider
	PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance
	H5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management
	PH5.6	Demonstrate the ability to educate patients about various aspects of drug use including drug dependence and OTC drugs
	PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs

C- Needs certification: L Needs Maintenance of a log book

Certifiable skills

Certifiable skill- 1
Skill: PH 3.1 Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient. Student has to perform this activity 5 times to be certified

Certifiable skill- 2
Skill: PH 3.2 Perform and interpret a critical appraisal (audit) of a given prescription. Student has to perform this activity 3 times to be certified

Certifiable skill- 3
Skill: PH 3.3 Perform a critical evaluation of the drug promotional literature. Student has to perform this activity 3 times to be certified

Certifiable skill- 4
Skill: PH 3.5 To prepare and explain a list of P-drugs for a given case/condition. Student has to perform this activity 3 times to be certified

Course layout and Examination schedule:

<table>
<tr><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Foundation Course</td><td colspan="4">I MBBS</td></tr>
<tr><td colspan="8">I MBBS</td><td>Exam I MBBS</td><td colspan="3">II MBBS</td></tr>
<tr><td colspan="8">II MBBS</td><td>Exam II MBBS</td><td colspan="3">III MBBS</td></tr>
<tr><td colspan="9">III MBBS Part I</td><td>Exam III MBBS Part I</td><td colspan="2">Electives & Skills</td></tr>
<tr><td colspan="12">III MBBS Part II</td></tr>
<tr><td>Exam III MBBS Part II</td><td></td><td colspan="10">Internship</td></tr>
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Teaching hours in Pharmacology

Lectures: 80hrs
Small group learning (tutorials/seminars, Practicals, small group discussion, integrated teaching): 138 hours
Self directed learning: 12 hours
Total: 230 hours

Time distribution for competencies

Sl no	Topic	Competency	Theory	SGD	SDL	Practicals	Practical competencies
1	General Pharmacology	PH 1.1 to PH 1.12				15	PH 2.1 to 2.4
	Toxicology						
	Clinical Pharmacology and rational drug use		10	6	0		
2	Autonomic Nervous System	PH 1.13 to PH 1.14	8	4	0		
3	Skeletal muscle relaxants	PH1.15	1	1	0	15	PH 3.3 to 3.7
4	Autacoids	PH 1.16	3	2	1		
5	Central Nervous System	PH 1.17 to PH 1.23	12	7	1		
	Term I		34	20	2	30	
6	Diuretics	PH 1.24	2	0	1	2	PH 3.1,3.2
7	Drugs affecting blood and blood formation	PH 1.25, PH 1.35	3	3	1	4	PH 3.8
8	Cardiovascular System	PH 1.26 to PH 1.31	9	5	2	12	PH 4.1,4.2
9	Respiratory System:	PH 1.32 to PH 1.33	2	1	1		
10	Gastrointestinal System	PH 1.34	2	3	1	10	PH 5.1
11	Endocrine System	PH 1.36 to PH 1.41	8	8	1		
	Term II		26	20	7	28	
12	Chemotherapy	PH 1.42 to PH 1.49	17	10	2	22	PH 5.2 to 5.7
13	Miscellaneous	PH 1.50 to PH 1.64	3	8	1		
	Term III		20	18	3	22	
	Total as per CBME = 230		80	58	12	80	

GIMSR, GITAM (Deemed to be University)
Competency Based Medical Education (CBME) Curriculum for Undergraduate (Phase II MBBS) course
For the year 2020-2021 (October 2020 to September 2021)
Specific Learning Objectives in Pharmacology (Competencies No-1.1 to 1.64)

NO	COMPETENCY The student should be able to	Specific Learning Objective SLO	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Time Duration in Hours	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration
PH 1.1	Define and describe the principles of pharmacology and pharmacotherapeutics	At the end of this session, the student should be able to : **1. Define a drug** **2. Explain the terms Pharmacology, clinical pharmacology & therapeutics** **3. Enumerate and explain various branches of Pharmacology like pharmacokinetics, pharmacodynamics etc…** **4. Enumerate nature and sources of drugs with examples** **5. Enumerate and explain sources of drug information like pharmacopoeia…**	K	K	Y	Lecture With a Visit to department museum	1	Written / Viva voce			

		6. Explain the evolution of medicine with special reference to Pharmacology from medieval to present times **7. Understand the concept of rational use of medicines**									
PH 1.2	Describe the basis of Evidence based medicine and Therapeutic drug monitoring	**At the end of this session, the student should be able to :** **1. Understand the concept of Evidence Based Medicine** **2. Ascertain strength of evidence based treatments and understand guidelines in different therapeutic areas**	K	KH	Y	Lecture/ Small group discussion	1	Written / Viva voce			
		At the end of this session, the student should be able to **1. Understand the concept of TDM** **2. Enlist the drugs that require TDM** **3. Analytical methods used in therapeutic drug monitoring** *** TDM to be covered after PK/PD**				Lecture	1				
PH 1.3	Enumerate and identify drug formulations and drug delivery systems	At the end of the session, the students should be able to: **1. Define dosage form, formulation and excipient** **2. enumerate different dosage forms with an example of each.** **3. Choose appropriate**	K/S	SH	Y	Practical/ Small group discussion	8	Written / Viva voce			

		formulation based on clinical need **4. Describe the new/novel drug delivery systems**									
PH 1.4	Describe absorption, distribution, metabolism & excretion of drugs	At the end of the session the student should be able to: **1. Explain the term Pharmacokinetics (PK)** **2. Explain the four phases of PK with clinical relevance** **rug Absorption** **1. Explain various biotransportation methods involved in absorption** **2. Explain the concept of bioavailability and describe the factors affecting bioavailability** **3. Describe the importance of bioequivalence** **Drug Distribution** **1. Explain the distribution of drugs across body compartments, barriers of distribution** **2. Explain apparent volume of distribution and its clinical significance** **3. Explain the clinical significance of plasma protein binding of drugs** **4. Describe redistribution of drugs with clinical relevance**	K	KH	Y	Lecture	1	Written / Viva voce			

		Drug Metabolism/Biotransformation (Elimination) **1. Define biotransformation** **2. Describe first pass metabolism and its importance** **3. Explain various phase 1 and phase 2 reactions** **4. Explain factors that affect biotransformation** **5. Explain the clinical significance of enzyme induction and inhibition**	K	KH	Y	Lecture	1				
		Drug Excretion: (Elimination) **1. Explain plasma half life and its clinical significance** **2. Explain steady state concentration and its significance** **3. Explain the different kinetics of elimination and their clinical significance** **4. Understand the concepts of clearance, loading dose and maintenance dose** **5. Describe the various routes of excretion of drugs** **6. Explain factors affecting renal excretion**	K	KH	Y	Lecture	1				

PH 1.5	Describe general principles of mechanism of drug action	At the end of the session the student should be able to: Describe the concepts of Pharmacodynamics **1. Explain different mechanisms by which a drug acts giving an example of each** **2. Enumerate different types of receptors with examples of endogenous ligands and drugs acting through them** **3. Describe various post receptor signal transduction mechanisms** **4. Explain the terms –affinity, efficacy/ intrinsic activity & potency** **5. Define the terms –agonist, antagonist, partial agonist & inverse agonist. Give examples of drugs for each** **6. Explain the terms –'up regulation' and 'down regulation' of receptors with clinical significance**	K	KH	Y	Lecture /Small group discussion	2	Written / Viva voce			

		At the end of the session the student should be able to: **1. Describe dose-response relationship and interpret dose- response curves** **2. Explain drug synergism with examples** **3. Describe the different types of drug antagonism with examples** **4. Describe factors modifying drug action and their clinical implications** **5. Explain therapeutic index and certain safety factor with clinical significance**	K	KH	Y	Lecture / Small group discussion	1				
PH 1.6	Describe principles of Pharmacovigilance & ADR reporting systems	At the end of the session the student should be able to **1. Explain the history, need and principles of pharmacovigilance** **2. Discuss various methods/systems of ADR reporting** **3. Discuss Pharmacovigilance program of India** **4. Filling a suspected ADR reporting form**	K	KH	Y	Practical	3	Written / Viva voce			
PH 1.7	Define, identify and describe the Management of adverse drug reactions (ADR)	At the end of the session the student should be able to **1. Define an ADR, AE and toxicity** **2. Explain the frequency of ADRs and their impact on**	K/S	KH	Y	Lecture	1	Written / Viva voce			

		public health **3. Describe the common classification of ADRs with examples** **4. Describe the general management of ADRs.** **5. Describe the important risk factors that predict susceptibility to ADRs.** **6. Explain the importance of monitoring in prevention of ADRs.**									
PH 1.8	Identify and describe the management t of drug interactions	**t the end of the session, student should be able to** **1. Define Drug interactions.** **2. Describe the types of Drug interactions as In vivo, In vitro & PK and PD with suitable examples** **3. Describe Drug–drug; drug-food; and other interactions with examples** **4. Management of Drug interactions.** **5. Identify the sources of information about DI to inform prescribing**	K/S	KH	Y	Lecture/ Small Group Discussion	1	Written / Viva voce			
PH 1.9	Describe nomenclature of drugs i.e. generic, branded drugs	At the end of the session, student should be able to **1. Describe the chemical name, non proprietary and Proprietary name of a drug** **2. Discuss the importance of using non proprietary name in prescribing.**	K/S	KH	Y	Lecture/ Small Group Discussion	1	Written / Viva voce			

PH 1.10	Describe parts of a correct, complete and legible generic prescription. Identify errors in prescription and correct appropriately	At the end of the session, student should be able to **1. Define a prescription and understand the importance of each part of prescription** **2. Write an unambiguous, legible, complete and legally valid prescription** **3. Identify and correct prescription writing errors** **4. Understand the importance of maintaining records of prescriptions.**	K/S	KH	Y	Practical/ Small Group Discussion	2	Written / Viva voce			
PH 1.11	Describe various routes of drug administration, eg., oral, SC, IV, IM, SL	At the end of the session, student should be able to **1. Enumerate various routes of drug administration-oral, parenteral and topical with examples** **2. Describe the merits and de-merits of each route** **3. Choose the correct route of drug administration in a given clinical condition**	K/S	KH	Y	Lecture, Small group discussion	2	Written / Viva voce			
PH 1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with	At the end of the session, student should be able to. 1. Calculate appropriate doses for individual patients based on age, body weight, and surface area. **2. Calculate the dose of drug using appropriate formulae for a given**	K/S	KH	Y	Practical	2	Written / Viva voce		Pediatrics, General Medicine	

	renal dysfunction	**clinical condition in children, and elderly.** **3. Calculate the dose of drug using appropriate formulae for a given clinical condition in patients with renal dysfunction and other pathological conditions like CCF, Liver disease.**									
PH 1.13	Describe mechanism of action, types, doses, side effects, indications and contraindications of adrenergic and anti-adrenergic drugs	**t the end of the session, student should be able to** **1. Describe the organization of autonomic nervous system and neurotransmission** **2. Describe the synthesis, storage, release and fate of adrenergic transmitters** **3. Classify adrenergic receptors with respect to their structure, localization and post receptor signal transduction mechanisms**	K/S	KH	Y	Small group discussion	1	Written / Viva voce			
		1. Classify adrenergic agonists based on their receptor selectivity. 2. Describe the pharmacological actions of adrenaline and correlate with therapeutic uses and adverse effects				Lecture	1				

		1. Differentiate between adrenaline, nor-adrenaline, isoprenaline and dopamine etc.. with respect to receptor selectivity, pharmacological effects, adverse effects and therapeutic uses.				Small group discussion	2				
		1. Classify sympatholytics based on site of action **2. Classify alpha-adrenergic receptor antagonists, and compare and contrast selective alpha1 antagonists with non- selective alpha antagonists** **3. Describe the pharmacological effects and, ADRs, precautions and therapeutic uses of them** **4. State the advantages of other selective alpha1 antagonists over prazosin, co-relating the same with their therapeutic uses**				Lecture	1				
		1. Classify beta-adrenergic receptor antagonists with examples and describe the pharmacological actions pharmacokinetics, ADRs, precautions and contra-indications of them **2. State the therapeutic uses of beta- blockers giving**				Lecture	1				

		pharmacological basis for their use									
		1. State the advantages of selective beta1 antagonists over non selective beta antagonists corelating the same with their therapeutic uses and ADRs **2. Mention the beta blockers with (ISA) intrinsic sympathomimetic activity giving their advantages and indications** **3. Explain the preferred beta blockers with rationale for their use in Glaucoma, CHF, Angina, Hypertension, Thyrotoxicosis , Pheochromocytoma, Arrhythmias etc..**				Lecture/ Small group discussion	1				
PH 1.14	Describe mechanism of action, types, doses, side effects, indications and contraindications of cholinergic and anticholinergic drugs	At the end of the session, student should be able to **1. Describe the synthesis, storage, release and fate of acetyl choline** **2. List the sites where acetylcholine is released** **3. Classify cholinergic receptors with their structure, localization and post receptor signal transduction mechanisms**	K	KH	Y	Lecture/ Small group discussion	1	Written / Viva voce			

		4. Classify cholinomimetic drugs based on receptor selectivity and actions **5. Describe the pharmacological actions of direct acting cholinomimetic drugs** **6. Compare the effects of muscarinic agonists on the basis of selectivity and therapeutic uses, adverse effects and contraindications**				Lecture	1				
		7. Describe the metabolism of acetylcholine **8. Classify anti-cholinesterase agents** **9. Compare the various reversible anti-cholinesterases with respect to their pharmacological properties and therapeutic uses** **10. Outline the management of myasthenia gravis**				Lecture	1				
		11. Describe the signs and symptoms of organophosphate poisoning and its management with pharmacological basis				Small group discussion	1				
		12. Classify cholinergic receptor antagonists giving examples of muscarinic and nicotinic				Lecture	1				

		(Nn: ganglion, Nm: Neuromuscular) blockers **13. Describe pharmacological actions, therapeutic uses adverse effects, contraindications of atropine**									
		14. State the advantages of atropine substitutes over atropine and state their clinical uses giving suitable examples				Small group discussion	1				
PH 1.15	Describe mechanism(s) of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	At the end of this session student should be able to **1. Classify skeletal muscle relaxants.** **2. Explain mechanisms of action of skeletal muscle relaxants** **3. Compare and contrast (competitive) non-depolarizing blockers and persistent depolarizing blockers..** **4. List out the clinical uses of skeletal muscle relaxants.** **5. Describe the important drug interactions and adverse effects that occur with skeletal muscle relaxants.** **6. Discuss the advantages of newer neuromuscular**	K	KH	Y	Lecture	1	Written / Viva voce		Anaesthesiology, Physiology	

		blockers over the older ones. **7. Compare centrally, peripherally and directly acting skeletal muscle relaxants.**									
PH 1.16	Describe mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti-histaminics, 5-HT modulating drugs, NSAIDs, drugs for gout , anti-rheumatoid drugs, drugs for migraine	At the end of this session student should be able to 1. Understand the role of histamine and bradykinin in different physiological and pathophysiological processes.. 2. Classification, therapeutic uses and adverse effects of H1-receptor antagonists. Advantages of second generation over first	K	KH	Y	Lecture	1	Written / Viva voce		General Medicine	
		At the end of this session student should be able to **1. Describe the synthesis, storage and metabolism of 5-Hydoxytryptamine.** **2. Name and describe the salient features of important 5-HT receptor sub types.**				Lecture	1			General Medicine	

		3. **Describe the physiological and pathophysiological role of 5-Hydroxytryptamine** 4. **Describe drugs affecting 5HT system.** 5. **Understand the pathophysiology of migraine.** 6. Describe the mechanism of action, adverse effects, contraindications and important drug interactions of anti-migraine drugs									
		At the end of this session student should be able to 1. **Classify Non-steroidal Anti inflammatory drugs** 2. **Explain mechanisms of action of NSAIDs.** 3. **Compare and contrast features of non-selective COX inhibitors and selective COX -2 inhibitors** 4. **Describe the therapeutic uses of NSAIDs and enumerate doses of most commonly used NSAIDs.** 5. **List out the adverse effects, drug interactions and contraindications of NSAIDs.** 6. **Outline the management of Salicylate poisoning and Paracetamol poisoning.**				Lecture	2			General Medicine	

		At the end of this session student should be able to **1. Explain pathophysiology of rheumatoid arthritis and understand the goals of drug therapy in rheumatoid arthritis.** **2. Classify drugs (DMARDs) used in rheumatoid arthritis.** **3. Describe the mechanism of action and adverse effects of anti-rheumatoid drugs.** **4. Explain the pathophysiology of Gout.** **5. Classify drugs used for Gout.** **6. Describe mechanism of action and pharmacological actions adverse effects of drugs used for Gout.**									
PH 1.17	Describe the mechanism(s) of action, types, doses, side effects, indications and contraindications of local anesthetics	At the end of this session student should be able to **1. Define anesthesia, types of anesthesia.** **2. Classify local anaesthetics.** **3. Distinguish between the salient features of general and local anesthesia.** **4. Describe mechanism of action, pharmacokinetics of commonly used local anaesthetics.** **5. Describe the adverse effects, precautions and drug**	K	KH	Y	Lecture	1	Written / Viva voce		Anaesthesiology	

		interactions with local anaesthetics. **6. Describe the techniques of administration of local anaesthetics and their relevance in clinical practice.** **7. Explain the complications of spinal anaesthesia.** **8. Explain rationale of combining local anaesthetics with adrenaline**									
PH 1.18	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of general anesthetics, and pre- anesthetic medications	At the end of this session student should be able to **1. Define general anaesthesia and explain stages of General Anaesthesia.** **2. Describe the concepts of partial pressure, solubility, MAC, partition coefficients (blood: gas, oil: gas)** **3. Describe the mechanisms of action of general anaesthetics.** **4. Enumerate the properties of ideal general anaesthetics** **5. Classify general anaesthetics and explain the pharmacokinetics of general anaesthetics.** **6. Describe the pharmacological actions and adverse effects of**	K	KH	Y	Lecture	2	Written / Viva voce		Anaesthesiology	

		general anaesthetics. **7. Enumerate the complications and the important drug interactions with general anaesthetics.** **8. Uses and adverse effects of IV anesthetics including dissociative anesthesthetic ketamine** **9. Define preanaesthetic medication , objectives of pre-anaesthetic medication and rationality of use of drugs**									
PH 1.19	Describe the mechanism(s) of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti-psychotic, anti-depressant drugs, anti-maniacs, opioid agonists and	At the end of this session student should be able to **1. Define Sedatives and Hypnotics, anxiolytics** **2. Describe the different phases of Sleep.** **3. Classify Sedative and Hypnotics.** **4. Describe the mechanism of action, uses, adverse effects and precautions with long term use and important drug interactions .** **5. Advantages of benzodiazepines over barbiturates.**	K	KH	Y	Lecture	2	Written / Viva voce		Psychiatry, Physiology	
		At the end of this session student should be able to **1. Define Psychosis and enumerate different types of**				Lecture	1				

	antagonists, drugs used for neurodegenerative disorders, anti- epileptics drugs)	**psychoses.** **2. Explain the pathophysiology of Psychoses.** **3. Classify Psychotropic drugs.** **and Antipsychotic drugs.** **4. Describe the pharmacokinetics, mechanism of action, uses and adverse effects of Antipsychotic drugs.** **5. Explain the advantages of atypical (second generation) Antipsychotics over typical (classical) drugs.**									
		At the end of this session student should be able to **1. Define Depression.** **2. Explain the pathophysiology of Depression.** **3. Classify Antidepressant drugs.** **4. Describe the mechanism of action, pharmacological actions, adverse effects and drug interactions of Antidepressants.** **5. Outline the management of acute poisoning with tricyclic antidepressants.** **6. Define Mania.** **7. Explain the pathophysiology of Mania.**				Lecture	2				

		8. Classify Antimaniac drugs. **9. Describe mechanisms of action of Lithium.** **10. Describe pharmacological actions, adverse effects and drug interactions of Lithium.** **11.** Describe the therapeutic uses of Lithium and newer drugs used for mania with their status in management of mania **12. Describe Psychotomimetic drugs.**									
		At the end of this session student should be able to **1. Define Algesia (Pain). Classify pain, Explain the pain pathway.** **2. Enumerate endogenous Opioid peptides.** **3. Describe types of Opioid receptors.** **4. Differentiate opioids and NSAIDs** **5. Classify Opioid agonists, antagonists and partial agonists** **6. Describe mechanism of action, uses, adverse effects, precautions and contraindications of Opiod analgesics.** **7. Describe pure Opioid**				Lecture	2				

		antagonists and their therapeutics uses. **8. Explain treatment of morphine poisoning** **9. Opioid deaddiction**									
		At the end of the session student should be able to **1. Understand precisely seizure, epilepsy, convulsions and the types of Epilepsy.** **2. Explain the pathophysiology of Epilepsy.** **3. Classify Antiepileptic drugs.** **4. Describe mechanism of action , uses and adverse effects and drug interactions of Antiepileptic drugs.** **5. Explain the management of Status Epilepticus.**				Lecture	1				
		At the end of the session the student should be able to 1. Enumerate various neurodegenerative diseases **2. Describe Parkinsonism and its pathophysiology.** **3. Classify Antiparkinsonian drugs.** **4. Describe mechanism of action and adverse effects of**				Lecture	2				

		of Antiparkinsonian drugs. 5. **Drugs used in Alzheimer's disease**									
PH 1.20	Describe the effects of acute and chronic ethanol intake	**At the end of the session student should be able to** **1. Describe effects of acute and chronic ethanol intake.** **2. Describe the pharmacokinetics of ethanol.** **3. Describe the important drug interactions with ethanol principles of alcohol de addiction.** **4. Describe drugs used in alcohol de addiction**	K	KH	Y	Lecture, Small group discussion	1	Written / Viva voce		Psychiatry	
PH 1.21	Describe the symptoms and management of methanol and ethanol poisonings	**At the end of this session the student should be able to** **1. Describe the symptoms of methanol poisoning.** **2. Describe the management of methanol poisoning.**	K	KH	Y	Lecture, Small group discussion	1	Written / Viva voce		General Medicine	
PH 1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	At the end of the session the student should be able to **1. Define drug addiction and drug dependence.** **2. List the pharmacological classes of drugs of abuse.** **3. Classify the drugs of abuse based on the CNS effects (stimulants, depressants, hallucinogens)with examples.** **4. Give examples of**	K	KH	Y	Lecture	1	Written / Viva voce		Psychiatry	

		hallucinogens. **5. Describe the source, pharmacological effects. withdrawal symptoms and the management of drugs of addiction**									
PH 1.23	Describe the process and mechanism of drug deaddiction	At the end of the session the student must be able to **1. Outline the general principles and steps in the management of drug deaddiction** **2. Explain the mechanism of action of the drugs used in drug deaddiction**	K/S	KH	Y	Small group discussion / SDL	2	Written / Viva voce		Psychiatry	
PH 1.24	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs affecting renal systems including diuretics, antidiuretics-vasopressin and analogues	At the end of the session, the student must be able to **1. Explain the transport of water, electrolytes at different parts of nephron** **2. Classify diuretics based on their efficacy and site of action with examples** **3. Explain the mechanism of action, adverse effects indications and contraindications of diuretics and antidiuretics-vasopressin and analogs**	K	KH	Y	Lecture	2	Written / Viva voce			

PH 1.25	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	(Coagulants and anti-coagulants) At the end of the session the student must be able to **1. Describe the coagulation cascade** **2. Define the role of coagulants with examples** **3. Enumerate the coagulants used clinically** **4. Explain the mechanism of action, adverse effects, drug interactions, uses and contraindications of anticoagulants: indirect thrombin inhibitors, direct thrombin inhibitors, factor Xa inhibitors, Vitamin K antagonists,** **5. Describe the advantages and disadvantages of low molecular weight heparin** **6. Describe the treatment of Heparin overdose** **7. Explain the dose regulation and monitoring of patients while on anti-coagulants with reference to parameters such as INR and aPTT.**	K	KH	Y	Lecture	2	Written / Viva voce		Physiology General medicine	
		At the end of the session,the students must be able to **1. Explain fibrinolysis** **2. Enumerate fibrinolytics, describe the mechanism of action, uses, adverse and**									

		contraindications of fibrinolytics **3. Describe antifibrinolytics and their uses**									
		At the end of the session the student must be able to **1. Explain the role of platelets in hemostasis** **2. Classify anti-platelet drugs based on their mechanisms of action with examples** **3. Explain Uses, adverse effects, and contraindications of antiplatelet drugs**									
		At the end of the session the student must be able to **1. Classify plasma expanders with examples** **2. Compare crystalloids and colloids** **3. Describe the adverse effects and precautions while using plasma expanders** **4. Describe the therapeutic uses of plasma expanders**									
PH 1.26	Describe mechanism of action, types, doses, side effects, indications and contraindications of the drugs	At the end of the session, the student must be able to **1. Explain the role of rennin - angiotensin- aldosterone system (RAAS) in cardiovascular diseases** **2. Enumerate the drugs that modulate RAAS**	K	KH	Y	Lecture/ SDL	1	Written / Viva voce		Physiology, General medicine	

	modulating the renin-angiotensin and aldosterone system	**3. Describe the mechanism of action uses, adverse effects, and contraindications of ACE Inhibitors and ARAs** **4. Describe the advantages of ARAs over ACEIs**									
PH 1.27	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	At the end of the session the student must be able to **1. Categorize hypertension as per current JNC** **2. Describe the pathophysiology of hypertension** **3. Classify anti-hypertensives based on their site and mechanism of action with examples** **4. Describe the adverse effects, contraindications drug interactions of antihypertensives** **5. Discuss which drugs are used in combination** **6. Describe which drugs are most effective in treating individual hypertensive patients with specific comorbidities, including diabetes mellitus, congestive heart failure, and renal disease.** **7. Explain the management of hypertensive crisis**	K	KH	Y	Lecture and Small group discussion On clinical case scenario sll group discussion	1	Written / Viva voce		General medicine	
		At the end of the session, the student must be able to				Small group	1	Written /			

		1. Define shock **2. Enumerate the types of shock** **3. Explain the pathophysiology of shock** **4. Describe the pharmacological management of hypovolemic, anaphylactic, cardiogenic, neurogenic and septicemic shock explaining the rationale for the use of drugs**				discussion / SDL		Viva voce			
PH 1.28	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	At the end of the session the student should be able to **1. Define angina pectoris** **2. Explain the various types of angina pectoris describing their underlying pathology** **3. Classify anti-anginal drugs** **4. Describe the mechanism of action, pharmacological actions , adverse effects and therapeutic uses, routes of administration ,doses and preparations of Nitrates** **5. Classify Calcium channel blockers.** **6. Describe the mechanism of action, pharmacological actions, adverse effects and therapeutic uses of calcium channel blockers** **7. Mention the unique features of Felodipine, Nitrendipine,**	K	KH	Y	Lecture	2	Written / Viva voce		General Medicine	

		Cilnidipine, Nicardipine and Nimodipine **8. Compare Dihydropyridines with Phenylalkylamines** **9. Describe the role of beta blockers in angina** **10. Describe the mechanism of action, anti-anginal actions,adverse effects ,and the indication for the use of potassium channel openers(nicorandil) in angina pectoris** **11. Describe the of Trimetazidine, ranolazine, ivabradine, allopurinol in angina pectoris**									
		At the end of the session the student must be able to **1. Explain the pathophysiology of myocardial infarction** **2. Explain the steps in the use of drugs in myocardial infarction with the rationale for using them** **3. Understand how to prevent re-infarction**				SDL followed by small group discussion	1	Written / Viva voce			
		At the end of the session the student must be able to **1. Describe the pathophysiology of peripheral vascular disease(PVD)** **2. Classify the drugs used in PVD**				Small group discussion	1	Written / Viva voce			

		Describe the mechanism of action, pharmacological actions, adverse effects, dose and uses of Pentoxyphilline, cilostazol.									
PH 1.29	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	At the end of the session, the student should be able to 1. Describe various types of heart failure and pathophysiology of heart failure. 2. Describe the rationale for the use of drugs that prevent and slow the progression of heart failure 3. Describe the mechanism of action of inotropic drugs and how they are used to maintain left ventricular function. 4. Identify the major side effects and adverse drug reactions of the drugs used to treat heart failure. 5. Describe the Management of Digitalis Toxicity 6. Treatment of acute decompensated heart failure	K	KH	Y	Lecture	1	Written / Viva voce		General Medicine	

PH 1.30	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the antiarrhythmics NON CORE	At the end of the session, student should be able to 1. Describe the principles of cardiac electrophysiology, pathophysoiology of arrhythmias. 2. Classify antiarrhythmic drugs (Vaughan-Williams) 3. Mechanism of action, uses, adverse effects and contraindications of antiarrhythmic drugs	K	KH	Y	Lecture	1	Written / Viva voce		General Medicine	
PH 1.31	Describe the mechanism s of action, types, doses, side effects, indications and contraindications of the drugs used in the management t of dyslipidemias	At the end of the session, student should be able to **1. Describe lipid metabolism, different classes of lipoproteins and their formation** **2. Describe the pathophysiology of primary and secondary hyperlipoproteinemias** **3. Mention the classification of hypolipidemic drugs based on mechanism of action** **4. Describe the mechanism of action, pleiotropic effects, indications adverse effects, drug interactions of statins** **5. Compare the features of all statins**	K	KH	Y	Lecture/ small group discussion	1	Written / Viva voce		General Medicine	

		6. Describe the mechanism of action, indications adverse effects, drug interactions of Resins, ezetimibe, niacin, fibric acid derivatives **7. Enumerate newer drugs used in dyslipidemias**									
PH 1.32	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	**At the end of the session, student should be able to** **1. Describe the patho-physiology of Bronchial Asthma and COPD** **2. Classification of anti-asthmatic drugs** **3. Discuss the mechanism of action, Adverse effects of beta2 agonists, methyl xanthines, corticosteroids, anti-cholinergics, mast cell stabilizers, leukotriene antagonists, anti IgE antibodies in asthma.** **4. Discuss inhaled medication in bronchial asthma** **5. Management of severe acute asthma**	K	KH	Y	Lecture	1	Written / Viva voce		Respiratory Medicine	
		1. Describe the step wise management of Bronchial asthma (GINA guidelines) **2. Describe the management of acute severe asthma with the help of a case scenario** **3. Enumerate the various inhalational devices available in India,**				Small group discussion	1				

		4. Describe the advantages and disadvantages of MDI, rotahaler, use of spacer, nebulizer									
PH 1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	At the end of the session, student should be able to **1. Explain the cough pathway.** **2. Enumerate various causes of cough** **3. Classify the drugs used in cough** **4. Explain the mechanism of action, indications and adverse effects of pharyngeal demulcents, expectorants, mucolytics and anti-tussives with examples**	K	KH	Y	SDL	1	Written / Viva voce		Respiratory Medicine	
PH 1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid- peptic disease and GERD 2. Antiemetics	At the end of the session, student should be able to **1. Explain the physiology of vomiting and role of various neurotransmitters** **2. Classification of anti-emetics** **3. Describe the mechanism of action, adverse effects and indications of D_2 blockers, antihistaminics, anticholinergics, $5HT_3$ antagonists, NK_1 antagonists, cannabinoid**	K	KH	Y	Small Group Discussion/ SDL	1	Written / Viva voce		General Medicine	

	and prokinetics 3. Antidiarrhoeals 4 . Laxatives 5. Inflammatory Bowel Disease 6. Irritable Bowel Disorders, biliary and pancreatic diseases	**receptor antagonists...** **4. Enumerate the drug of choice antiemetic in post-operative vomiting, cancer chemotherapy induced vomiting, pregnancy...**									
		5. Explain the role of gastric parietal cell in acid secretion and the its sites targeted by drugs **6. Classify the drugs used for APD, their mechanism of action, therapeutic uses and adverse effects of them.** **7. Identify potential drug interactions with proton pump inhibitors and H_2 receptor antagonists.** **8. Role of H. pylori in peptic ulcer and anti H. pylori regimens**				Lecture	1				
		9. Explain the pathophysiology of constipation **10. Classify laxatives/purgatives** **11. Explain the mechanism of action, indications, contra-indications and adverse effects of bulk laxatives, stool softener, stimulant purgative, osmotic purgative and $5HT_4$ agonists**				Small Group Discussion	1				

		12. Classify antidiarrheal agents. **13. Enumerate the principles of management of Diarrhea** **14. Discuss the advantages of new formula (reduced) WHO-ORS versus the older composition.** **15. Explain the role of Zinc in pediatric diarrhoea** **16. Explain the mechanism of action, indications, contra-indications and adverse effects of opioids, anticholinergics, PG inhibitors, chloride channel inhibitor, racecadrotril and probiotics**				Practical	1				
		17. Explain the pathophysiology and pharmacotherapy of Irritable bowel syndrome, Inflammatory bowel disease and Acute pancreatitis				SDL	1				
PH 1.35	Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of drugs used in hematological	At the end of the session, student should be able to **1. Enumerate different types and causes of anaemias** **2. Explain iron metabolism** **3. List the oral and parenteral iron preparations with merits and demerits and specific indications** **4. Define megaloblastic**	K	KH	Y	Small Group Discussion/ SDL	2	Written / Viva voce		General Medicine, Physiology	

	disorders like: 1. Drugs used in anemias 2. Colony Stimulating factors	**anaemia** **5. State the role of vitamin B_{12}, Folic acid, along with sources and daily requirements** **6. State the vitamin B_{12} preparations** **7. Enumerate various hematopoietic growth factors and their uses**									
PH 1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	1. Explain blood glucose homeostasis 2. Pathophysiology and Types of Diabetes mellitus 3. Enumerate insulin preparations, describe the mechanisms of action of insulin and the other (oral) antidiabetic drugs.. 4. Describe the adverse effects of insulin and other (oral) antidiabetic drugs. 5. Describe the treatment of hypoglycemia. 6. Discuss the management of diabetic ketoacidosis and hyperosmolar (nonketotic) coma	K	KH	Y	Lecture-	1	Written /Viva voce			

		1. Discuss the principles of thyroid hormone regulation. 2. Describe the diagnosis and treatment of hypothyroidism and hyperthyroidism, including during pregnancy				Lecture-	1	Written /Viva voce			
		• Describe bone mineral homeostasis. • Describe the roles of PTH, calcitonin, and vitamin D • Describe the mechanism of action and untoward effects of bisphosphonates. • Describe the role of bisphosphonates in the prevention and treatment of osteoporosis. • Describe the pharmacological management of hypocalcemia and hypercalcemia.				Lecture-	1	Written / Viva voce			
PH 1.37	Describe the mechanism s of action, types,	1. Describe the functioning of the hypothalamic-pituitary- target				Lecture-	1	Written / Viva		Obstetrics	

	doses, side effects, indications and contraindications of the drugs used as sex hormones, their analogues and anterior Pituitary hormones	endocrine gland axis. 2. Describe the pharmacotherapy of GH excess and GH deficiency. 3. Explain clinical uses of gonadotropin-releasing hormone (GnRH) and its analogs and antagonists.						voce		and Gynaecology	
		1. Describe physiological secretion and regulation of androgens **2. Describe mechanism of action, uses and adverse effects of different preparations of testosterone** **3. Explain mechanism of action, uses and adverse effects of anabolic steroids and anti-androgens** **4. Describe drug therapy of erectile dysfunction**				Lecture-	1				

		1. Describe physiological secretion and regulation of estrogen and progesterone **2. Describe the therapeutic uses and ADRs of postmenopausal hormonal replacement therapy** **3. Describe mechanism of action,, uses and adverse effects of selective estrogen receptor modulators, antiestrogens and aromatase inhibitors** **4. Describe mechanism of action,, uses, adverse effects and contraindications of anti progestins** **5. Explain various drugs used In treatment of infertility** **6. Enumerate various oral contraceptives, mechanism of action of oral contraceptives, adverse effects, contraindications and non contraceptive uses of combined OCPs** **7. Enumerate Implantable contraceptives**				Lecture-	1				
PH 1.38	Describe the mechanism of action, types, doses, side effects, indications and	**1. Explain physiology of biosynthesis, actions, hypo and hyper secretion of corticosteroids** **2. Classify corticosteroid preparations**	K	KH	Y	Lecture-	1	Written / Viva voce		General Medicine	

	contraindications of corticosteroids	**3. Describe distinctive features, uses, adverse effects and contraindications of various corticosteroid preparations** **4. Understand the effect of abrupt cessation of glucocorticoid therapy after longterm treatment**									
PH 1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception	**1. Classify female contraceptives preparations** **2. Explain all types with mechanism of action,, uses adverse effects, contraindications, and practical considerations of female contraceptives.**	K	KH	Y	Lecture	2	Written / Viva voce		Obstetrics and Gynaecology	
PH 1.40	Describe mechanism of action, types, doses, side effects ,indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	At the end of this theory session the student should be able to **1. Describe the causes of infertility** **2. Enumerate drugs used in the treatment of infertility** **3. Describe the mechanism of action of drugs used in the treatment of infertility** **4. Describe the precautions and contraindications and adverse effects of drugs used in the treatment of infertility** **5. Describe the causes of erectile dysfunction**	K	KH	Y	Lecture-	1	SDL/ small group Discussion		Obstetrics&gynaecology	

		6. Enumerate drugs used in erectile dysfunction **7. Describe the mechanism of action of drugs used in erectile dysfunction**									
PH 1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	At the end of the session the student must be able to **a. Classify uterine stimulants** **b. Explain mechanism of action, uses, adverse effects and contraindications of each group** **c. .Classify uterine relaxants.** **d. Explain mechanism of action, uses, adverse effects and contraindications of each group**	K	KH	Y	SDL/small group Discussion	1	Written / Viva voce		Obstetrics and Gynaecology	
PH 1.42	Describe general principles of chemotherapy	At the end of the session the student must be able to 1. State general principles of chemotherapy **2. Classify the chemotherapeutic agents based on chemical structure, mechanism of action, source** **3. Describe common problems encountered with use of chemotherapeutic agents** **4. Describe anti-microbial resistance and discuss monitoring of antimicrobial**	K	KH	Y	Lecture	1	Written / Viva voce			

		therapy **5. Enumerate the factors to be considered for choosing an antimicrobial agent** **6. Mention the advantages and disadvantages of antimicrobial combination with examples Sulfonamides & Quinolones** 1. Explain the mechanism of action of sulfonamide drugs.uses . 2. Explain the therapeutic uses and untoward effects of sulfonamide drugs including trimethoprim-sulfamethoxazole. 3. Describe the therapeutic uses, mechanisms of action, and adverse effectsof fluoroquinolones Beta lactams 1. Numerate beta lactam antibiotics 2. Explain the mechanisms of action of the penicillins, cephalosporins, and other β-lactam antibiotics. 3. Explain the mechanisms									

		of resistance of the penicillins, cephalosporins, and other β-lactam antibiotics. 4. Describe the therapeutic effects of the penicillins, cephalosporins, and other β-lactam antibiotics. 5. Describe the untoward effects and contraindications of the penicillins, cephalosporins, and other β-lactam antibiotics 6. Describe pharmacological basis of combining beta-lactamse inhibitors with beta lactam antibiotics and various combinations Aminoglycosides 1. Enumerate aminoglycosides 2. Explain mechanisms of action and resistance. 3. Describe the advantages of once daily administration of									

		total daily dose 4. Describe the rationale and the methods of plasma concentration monitoring of aminoglycoside therapy. 5. Describe the causes and clinical signs of aminoglycoside ototoxicity and nephrotoxicity and the best means of monitoring therapy to avoid these serious toxicities. Other Protein Synthesis Inhibitors and Miscellaneous Antibacterial Agents 1. Describe the mechanisms of action and resistance of tetracyclines, macrolides, vancomycin, linezolid, daptomycin, and streptogramins 2. Describe the uses and untoward reactions of									

		vancomycin 3. Explain the drug–drug interactions that occur with some of these antibiotics 4. Explain how linezolid, daptomycin, and quinupristin/dalfopristin are used to treat methicillin-resistant and vancomycin-resistant organisms									
PH 1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	At the end of the session the student must be able to **1. Enumerate the factors influencing the antimicrobial selection, duration and dose** **2. Define appropriate empiric antimicrobial prescribing** **3. Highlight mechanisms by which microorganisms develop antimicrobial resistance** **4. Understand the principles of antimicrobial selection for a specific infection** **5. Enumerate basic steps of prevention of antimicrobial resistance**	K	KH	Y	Lecture	1	Written / Viva voce		General Medicine, Pediatrics	
PH 1.44	Describe the first line	At the end of the session the student must be able to	K	KH	Y	Lecture	1	Written /		Respirato	

	antitubercular dugs, their mechanisms of action, side effects and doses	**1. Enumerate various anti-tubercular drugs.** **2. Describe the mechanism of action and resistance to antitubercular drugs.** **3. Describe the adverse effects and drug interactions commonly associated with anti-TB drugs.** **4. Understand the rationale for combination drug therapy in the treatment of tuberculosis** **5. Describe and discuss the salient features, diagnostic criteria and guidelines for treatment of tuberculosis under NTEP**						Viva voce		ry Medicine	
PH 1.45	Describe the drugs used in MDR and XDR Tuberculosis	At the end of the session the student must be able to **1. Define MDR and XDR TB** **2. List drugs, mechanism of action, indications, contraindications and adverse effects of drugs used in MDR and XDR Tuberculosis.** **3. Explain the regimen for MDR and XDR tuberculosis**	K	KH	Y	Lecture/ small group discussion	1	Written / Viva voce		Respiratory Medicine	
PH 1.46	Describe the mechanisms of action, types, doses, side effects,	At the end of this theory session MBBS student should be able to **1. Describe the principles of antileprosy therapy.** **2. Describe the mechanism of action, ADR of antileprotic**	K	KH	Y	Lecture	1	Written / Viva voce		Dermatology, Venereol	

	indications and contraindications of antileprotic drugs	**drugs** **3. Discuss the management of leprosy and treatment of Lepra reactions.**								ogy & Leprosy	
PH 1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	At the end of this theory session student should be able to: 1. Describe the life cycle of malarial parasite 2. Classify antimalarial drugs based on the stage of life cycle targeted by drugs. 3. Explain the use of antimalarial drugs in clinical context, particularly with regard to their mechanism of action, therapeutic uses, and toxicities. 4. Describe the principles and guidelines for the chemoprophylaxis and treatment of malaria. At the end of this theory session student should be able to 1. Discuss pathophysiology of KALA-AZAR 2. Enumerate drugs used in KALA-AZAR 3. Describe the mechanism of action, adverse effects of drugs used in KALA-AZAR	K	KH	Y	Lecture	2	Written / Viva voce		General Medicine	

		At the end of this theory session MBBS student should be able to: **1. Discuss pathophysiology and types of amoebiasis** **2. Enumerate drugs used for amoebiasis** **3. Describe the mechanism of action and adverse effects of drugs used for amoebiasis** At the end of this theory session student should be able to: 1. Describe the common helminth infections, the clinical symptoms, and the mainstays of therapy. 2. Describe the therapeutic uses of antihelmintic drugs. 3. Explain the mechanisms of actions of antihelmintic drugs. 4. Describe the toxicities and contraindications of antihelminthic drugs.									

PH 1.48	Describe the mechanisms of action, side effects, other indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV & Antifungal drugs	At the end of this theory session student should be able to: **1. Discuss pathophysiology of UTI** **2. Enumerate drugs used for UTI** **3. Describe the mechanism of action of drugs used for UTI** **4. Describe the adverse effects of drugs used for UTI .** **5. Describe the management of UTI** At the end of this theory session student should be able to: **1. Enumerate common STDs** **2. Enumerate drugs used in STDs.** **3. Describe the mechanism of action of drugs used in STD** **4. Describe the ADR, precautions and contraindications of drugs used in STD** Antifungal drugs 1. Describe the mechanisms of action, therapeutic uses and ADR of antifungal agents 2. Explain the drug–drug interactions that can occur with the use of azole antifungal agents. At the end of this theory session student should be able to	K	KH	Y	Lecture	1	Written / Viva voce			

		1. Explain the treatment of herpes virus infections and the use of antiherpes drugs. 2. Discuss the treatment strategies for chronic hepatitis B and C infections. 3. Explain the mechanisms of action and resistance, and the therapeutic use of the anti-influenza agents. 4. Discuss the principles of HIV chemotherapy as per National guidelines including HAART regimen 5. Describe the mechanisms of action and resistance, the untoward effects, and the therapeutic uses of the drugs used to treat HIV infections									
PH 1.49	Describe mechanism of action, classes, side effects, indications and contraindications of anticancer drug.	At the end of the session the student must be able to 1. Describe cell cycle kinetics, Pathophysiology of cancer **2. Discuss the general principles in chemotherapy of Cancer** **3. Classify anticancer drugs** **4. Describe the mechanism of action of Anticancer drugs** **5. Describe the mechanisms**	K	KH	Y	Lecture	1	Written / Viva voce			

		of toxicity of cytotoxic antineoplastic agents on normal cells and strategies for reducing toxic effects. **6. Enumerate the classes of agents are typically used in treating specific cancers.** **7. Various antineoplastic regimens**									
PH 1.50	Describe mechanisms of action, types, doses, side effects, indications and contraindications of immunomodulators and management of organ transplant rejection	At the end of the session the student must be able to **1. Differentiate between Immuno-suppressants and immuno-stimulants.** **2. Define immunosuppressants & Classify immuno-suppressants** **3. Describe the mechanisms of action of Calcineurin inhibitors,.** **4. Enlist m-Tor inhibitors and antiproliferative agents used as immunosuppressants** **5. Enlist Biological agents used as immunosuppressants** **6. Enumerate the adverse effects of immunosuppressants** **7. Enlist clinical uses of immunosuppressants**	K	KH	Y	Lecture	1	Written / Viva voce			
PH 1.51	Describe occupational and	At the end of the session the student must be able to **1. Define the various**	K	KH	Y	Lecture	1	Written / Viva			

	environmental pesticides, food adulterants, pollutants and insect repellents	**toxicology terms** **2. Define occupational pesticides and enlist them** **3. Explain environmental pesticide and its management** **4. Enlist food adulterants** **5. Enlist insect repellents**						voce			
PH 1.52	Describe management of common poisoning, insecticides, common sting and bites	At the end of the session the student must be able to **1. Explain the general management of common poisoning** **2. Enlist the specific antidotes used in treatment of common poisons** **3. Explain the method of enhancing elimination of toxin using examples** **4. Explain the management of Bee sting bite, Scorpion bite and Snake bite.**	K	KH	Y	Lecture	1	Written / Viva voce		General Medicine	
PH 1.53	Describe heavy metal poisoning and chelating agents	At the end of the session the student must be able to **1. Define Chelating agents and enlist Chelating agents used in Heavy metal poisoning** **2. Describe the mechanism of action of Chelating agents** **3. Name the Chelating**	K	KH	N	Lecture/ SGD	1	Written / Viva voce			

		agents used in the management of Iron, Lead, Copper, and Arsenic intoxication **4. Enlist the clinical uses of penicillamine.**									
PH 1.54	Describe vaccines and their uses	At the end of the session the student must be able to **1. Define Vaccines and classify vaccines** **2. Enlist the bacterial vaccines** **3. Enlist the viral vaccines** **4. Enlist Toxoids and Mixed Toxoids** **5. Enlist antisera and immunoglobulins** **6. Discuss the routine immunization schedule for infants and children as per IAP guidelines**	K	KH	Y	Lecture/ SDL	1	Written / Viva voce			
PH 1.55	Describe and discuss the following National Health Programmes including Immunization, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases,	At the end of the session the student must be able to **1. Explain the universal immunization programme in India** **2. Explain Revised National Tuberculosis Elimination Programme** **3. Explain National Leprosy Eradication Programme** **4. Enlist National Vector Borne Disease Control Programmes** **5. Explain National AIDS**	K	KH	Y	Lecture/ SGD	1	Written / Viva voce			

	Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency	**Control Programme** **6. Describe National programme for prevention and control of cancer, diabetes, cardiovascular diseases and stroke** **7. Describe National Programme For Control Of Blindness & Visual Impairment** **8. Describe National Programme For Prevention And Control Of cancer** **9. Discuss about the Diarrhoeal Disease Control Programme** 9. Describe iodine deficiency disorders control programme									
PH 1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	At the end of this theory session student should be able to 1. Describe physiological changes in Children and Elderly patients that influence the pharmacokinetic and Pharmacodynamic parameters of medications. 2. Discuss the common drugs to which children/elderly are likely to respond differently	K	KH	Y	Lecture	1	Written / Viva voce		Pediatrics	

		3. Explain the principles that underlie the prescribing in children/elderly									
PH 1.57	Describe drugs used in skin disorders	At the end of this theory session student should be able to 1. Discuss how drugs are absorbed through the skin. 2. Define demulcents, emollients, adsorbants & protectants, astringents, irritants and counter irritants and keratolytics, Melanizing agents with examples, their uses and adverse reactions. 3. Describe the mechanism of action, therapeutic uses, and toxicities of topical and systemic drugs used to treat common dermatological disorders like seborrheic dermatitis, Vitiligo, Psoriasis and Acne vulgaris. 4. Discuss the science behind use of sunscreen agents. 5. List the topical glucocorticoids, explain the rationale for use of glucocorticoids in skin disorders and their adverse effects.	K	KH	Y	Lecture	1	Written / Viva voce		Dermatology, Venereology & Leprosy	

PH 1.58	Describe drugs used in Ocular disorders	At the end of this theory session student should be able to 1. Understand the principles of using drugs to treat ophthalmic disorders. 2. Describe the ocular toxicities of systemic drugs. 3. Explain the mechanisms of action, clinical uses, and toxicities of ophthalmic drugs. 4. Describe how ophthalmic drugs administered topically can cause systemic side effects. 5. Understand the pathophysiology of glaucoma and the role of pharmacotherapy in its management.	K	KH	Y	Lecture	1	Written / Viva voce		Ophthalmology	
PH 1.59	Describe and discuss the following: Essential medicines, Fixed dose combinations, Over the counter drugs, Herbal medicines	At the end of this theory session student should be able to 1. Define Essential medicines concept. 2. Discuss the criteria to prepare list of essential medicines for your community PHC. 3. Define fixed dose combination, advantages and disadvantages of FDC.	K	KH	Y	Lecture/ SGD	1	Written / Viva voce			

		4. Describe the pharmacokinetic and pharmacodynamics parameters to be considered to combine two drugs in a FDC. 5. Discuss Rational and irrational prescribing drugs with examples. 6. Define over the counter medicines and prescription medicines. 7. Enumerate the similarities and differences between OTC medicines and prescription medicines. 8. Summarize how to responsibly use OTC medicines and prevent misuse. 9. List 10 Herbal medicines used in allopathic practice. 10. Enumerate advantages and disadvantages of Herbal medicines									
PH 1.60	Describe and discuss Pharmacogenomics and Pharmacoeconomics	At the end of this theory session student should be able to 1. Define Pharmacogenomics, Pharrmacogenetics with examples 2. Describe different types of	K	KH	N	Lecture	1	Written / Viva voce			

		pharmacoeconomic models with examples 3. Discuss the role of Pharmacogenomics and Pharmacoeconomics in modern therapeutics.									
PH 1.61	Describe and discuss dietary supplements and nutraceuticals	At the end of this theory session student should be able to 1. Describe the role of common vitamins and minerals in normal physiology and diseases. 2. Identify the potential toxic effects of vitamins and minerals. 3. Discuss the relevant pharmacology of vitamins 4. Describe how B vitamins assist with energy metabolism 5. Analyze the importance of vitamin supplements in a) women in childbearing age b) Pregnant and lactating women c) AIDS or other wasting illness d) addicted to drugs or alcohol e) strict vegetarians f) recovering from surgery, burns and injury etc..	K	KH	n	Lecture	1	Written / Viva voce			

PH 1.62	Describe and discuss antiseptics and disinfectants	At the end of this theory session student should be able to 1. Describe antiseptics and their use in wound care with examples 2. Describe disinfectants and their use in infection control with examples 3. Describe Ectoparasiticides with examples, use and adverse effects 4. Discuss hand hygiene using soap as per WHO guidelines **5. Information on hand sanitizers**	K	KH	Y	Lecture	1	Written / Viva voce			
PH 1.63	Describe Drug Regulations, acts and other legal aspects	At the end of this theory session student should be able to **1. Explain why drugs needs to be regulated** **2. Identify the major regulatory authorities in India** **3. Describe the approval process for New Drugs in simple terms.** **4. Discuss the major legislation pertaining to drugs**	K	KH	Y	Lecture	1	Written / Viva voce			
PH 1.64	Describe overview of drug development, Phases of	At the end of this theory session student should be able to **1. Enlist the stages in new drug development** **2. Explain the approaches to**	K	KH	Y	Lecture-	1	Written / Viva voce			

	clinical trials and Good Clinical Practice	**drug discovery /invention** **3. Discuss about the preclinical studies** **4. Describe the phases of clinical trials** **5. Describe the Principles Good Clinical Practice**									

Specific Learning Objectives in Pharmacology (Skills and communication: Competency No-2.1 to 5.7)

No	COMPETENCY The student should be able to	Specific Learning Objectives SLO	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method by MCI	No of Hours	Suggested Assessment method by MCI	Number required to certify P	Vertical Integration	Horizontal Integration
PH2.1	Demonstrate understanding of the use of various dosage forms (oral/local/parenteral; solid/liquid)	At the end of the session, the student should be able to 2.1.1 Identify various dosage forms – solid, liquid, topical dosage forms 2.1.2 Describe the various types of solid dosage form in the given samples with merits and demerits of each	S/C	SH	Y	DOAP sessions	10	Skills assessments			

		2.1.3 Describe the various types of liquid dosage form in the given samples with merits and demerits of each 2.1.4 Describe the various types of topical dosage form in the given samples with merits and demerits of each 2.1.5 Describe all the components of commercial labels of the given dosage form and its importance									
PH 2.2	Prepare oral rehydration solution from ORS packet and explain its use	The student should be able to: **1. Define and enumerate causes of dehydration** **2. Describe the clinical assessment of dehydration** **3. Enumerate the different types of ORS along with their composition with actions of each ingredient** **4. Choose the appropriate type of ORS for a given condition/patient** **5. Calculate the quantity**	S/C	SH	Y	DOAP sessions	2	Skills assessment			

		of ORS required to correct / prevent dehydration **6. Demonstrate preparation of ORS from sachet** **7. Enumerate non-diarrheal uses of ORS**									
PH 2.3	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment	In a simulated environment, the student should be able to **1. Open the infusion set following aseptic technique** **2. Appropriately position the patient and select a vein.** **3. Prepare the overlying skin with aseptic care.** **4. Demonstrate correct IV injection technique and strap the cannula in place.** **5. Identify any visible impurities if present in the IV fluids.** **6. Adjust the flow rate according to the requirement** **7. Routinely check patient's ID, drug name, date of expiry etc before injecting.** **8. Monitor a patient on**	S	SH	Y	DOAP sessions	2	Skills assessment			

		an IV drip and identify any reactions to its contents or contaminants Checklist to be used for assessment									
PH 2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	At the end of this practical session student should be able to: **1. Calculate appropriate doses for individual patients based on age, body weight, and surface area** **2. Demonstrate the correct method of calculation of drug dosage in paediatric patients** **3. Demonstrate the iv drip rate calculation & infusion time** **4. Demonstrate the correct method of calculation of drug dosage in patient suffering from renal disease** **5. Demonstrate the correct method of calculation of drug dosage in patient**	S	SH	Y	DOAP sessions	4	Skills assessment			

		suffering from hepatic disease									
PH 3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	At the end of the session, student should be able to 1. **Establish therapeutic goal/s, based on a diagnosis following standard tre atment guidelines (STG)** **2. Choose the appropriate drug/s for the given clinical condition** **3. Choose the appropriate dose, route, frequency and duration of therap y for the chosen drug/s** **4. Write a legible prescription as per MCI format** **5. Provide appropriate information to the patient regarding the prescription** **6. Review/alter prescription in the light of further investigation** **7. Explain the legality (legal implications) of prescriptions.**	S/C	P	Y	Skill station	4	Skill statio n	5 Exercis es 1. Iron deficiency anemia due to h worm infestatio 2. Acute attack of Migraine 3. Newly diagnose obese type 2 D with Hypertens 4. UTI in pregnan 5. Typhoid fever i child		G e n e r a l M e d i c i n e , p e d i a t r i c s
PH	Perform and	At the end of the session,	S	P	Y	Skill lab	4	Maint	3		

3.2	interpret a critical appraisal (audit) of a given prescription	student should be able to **1. Demonstrate the understanding of importance of completeness of prescription** **2. Demonstrate the understanding of clinical diagnosis for which drugs are prescribed** **3. Demonstrate the understanding of MCI format of prescription** **4. Identify and comment on any discrepancies in the completeness and legibility of the prescription** **5. Identify and comment on any discrepancies in the selection of drug, drug form, dose, frequency, duration of the treatment, instructions according to STG** **6. Re-Write the**						enanc e of Log book			

		prescription correcting all the discrepancies identified									
PH 3.3	Perform a critical evaluation of the drug promotional Literature	At the end of this session student should be able to : **1. Discuss the various types of sources of drug information** **2. Demonstrate understanding of importance of critical evaluation of drug promotional literature** **3. Critically evaluate the given drug promotional literature based on WHO criteria** ▫ Appropriateness of illustration ▫ Relevance of references cited ▫ Content of scientific information	S	P	Y	Skill lab Brainstorming followed by demonstration	2	Maintenance of Log book/ Skill station	3	General Medicine	
PH 3.4	To recognise and report an adverse	At the end of the session the student should be able to	S	SH	Y	Skill station	2	Maintenanc	3 cases 1.Warfarin		

	drug reaction	1. Recognise an adverse drug reaction (ADR) in the given case 2. Perform causality assessment of the identified ADR using WHO & Naranjo's Scale 3. Fill the ADR reporting form (CDSCO from) 4. Explain the management of the ADR 5. Explain the methods to prevent the occurrence of the ADR 6. Report the ADR to the pharmacovigilance centre 7. Describe the Importance of reporting ADRs 8. Describe the various levels of reporting ADRs national and international centres						e of Log book/ Skill statio n	induced bleeding 2. Aspirin (NSAID) induced peptic ulcer 3.Carbamazepi ne induced Stevens Johnson Syndrome		
PH 3.5	To prepare and explain a list of P-drugs for a given case/condition	At the end of the session the s 1. Define the diagnosis 2. Specify the therapeuti 3. Make an inventory of 4. Choose an effective g efficacy, safety and su	tudentSshoul c objective effective gro oup of drug itability crite	be aPble t ups of dru according t ria	Y	Skill station	4	Maint enanc e of Log book	3 Exercises 1. Angina Pectoris 2. Amoebi dysentry 3. Bronchi l asthma	G e n e r al M e d	

		5. Choose the P-Drug for the given clinical condition								ic i n e	
PH 3.6	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs	At the end of the session the student should be able to 1. Enumerate the key elements in the WHO guidelines on Ethical criteria for medicinal drug promotion. 2. Direct the discussion with pharmaceutical representative so as to get the information he needs about the drug effectively. 3. Collect a copy of data sheet of the product under discussion. 4. Compare the verbal statements with those in the official text during presentation effectively. 5. Perform a prior literature search and check quality of research methodology of the drug under discussion	S	SH	N	Skill station	2	Maint enanc e of Log book			

		including cost comparison. 6. Decide effectively whether to include the drug in personal formulary with regard to efficacy, safety and cost-effectiveness of medicines									
PH 3.7	Prepare a list of essential medicine for a health care facility	At the end of the session the student should be able to 1. Understand the concept of Essential Medicines List for the nation/state/ health care facility 2. Identify the factors that determine the choice of drugs in an Essential Medicines List. 3. Prepare a list of essential medicines for a healthcare facility, with justification in a given scenario	S	SH	Y	Skill station	2	Maintenance of Log book			
PH 3.8	Communicate effectively with a patient on proper use of prescribe medication Insulins, oral	At the end of the session the student should be able to 1. Communicate about the eff drug with regards to the follo a. Why the drug is neede b. Which symptoms will	C/A	SH	Y	Skill lab	4	Skill station			

	antidiabetics, Proton pump inhibitors bisphosphonates, Thyroxine, Tetracyclines statins, ferrous sulfate tablets	not c. When the effect is expected to start d. What will happen if the drug is taken incorrectly or not at all 2. Communicate about the adverse effects of the prescribed drug with regards to the following: a. Which side effects may occur b. How to recognize them c. How long they will continue d. How serious they are e. What action to be taken 3. Communicate about the instructions of drug use as following: a. How the drug should be taken b. When it should be taken c. How long the treatment should continue d. How the drug should be stored e. What to do with left-over drugs 4. Communicate about the warnings of the prescribed drug with regards to the following: a. When the drug should not be taken b. What is the maximum dose c. Why the full treatment course should be taken									

		5. Communicate about the future consultations with regards to the following: a. When to come back (or not) b. In what circumstances to come earlier c. What information the doctor will need at the next appointment 6. Conclude the consultation by asking the following questions: a. Ask the patient whether everything is understood b. Ask the patient to repeat the most important information c. Ask whether the patient has any more questions									
PH 4.1	Administer drugs through various routes in a simulated environment using mannequins	At the end of the session the student should be able to USE CHECKLIST FOR ASSESSMENT (refer WHO prescribing book) Enteral **Specific Learning Objectives** I. Oral route 1. Identify the different dosage forms administered through the Oral route and instructions given to the patient for administering it.	S	SH	Y	DOAP sessions	10	Skills assessment			

		2. Present the merits and demerits of Oral route of drug administration. 3. Demonstrate the administration of the drugs through oral route. 4. Identify the different equipment required for Nasogastric tube (NGT) insertion 5. Demonstrate the Nasogastric tube insertion and present the purpose. 6. Demonstrate the positioning of the patient during NGT insertion. 7. Demonstrate the preparation of the feeds for NG feeding. II. Sublingual/ Buccal 1. Demonstrate the administration of the drugs through Sublingual and Buccal route. 2. Present the instructions for administering the same and how to terminate the action of the drug.									

		3. Present the different examples with dosage forms for the same. III. Transrectal 1. Identify the devices used to administer dosage forms through transrectal route. 2. Present the instructions to the patient before administering dosage forms through transcutaneous route. 3. Demonstrate the administration of suppositories by rectal route. 4. Demonstrate the administration of enema (Evacuant/ Retention) by rectal route. IV. Transvaginal 1. Identify the devices used to administer dosage forms through transvaginal route. 2. Present the instructions									

		to the patient before administering dosage forms through transvaginal route. 3. Demonstrate the administration of pessary, creams and foams by vaginal route. 4. Demonstrate the administration of douche by vaginal route. 5. Identify different types of Intrauterine contraception 6. Present the instructions/counseling to the patients on intrauterine contraception. 7. Demonstrate the placement of intrauterine contraception using the stimulation setting <u>PARENTERAL</u> <u>Specific learning Objective for parenteral injections on mannequins</u>									

		I. Intra Muscular injection 1. Identify the devices required for IM injection 2. Demonstrate the prerequisite preparations for injection along with aseptic precautions. 3. Present instructions to the patient about the injection procedure. 4. Identify the sites of IM injection on mannequin and present merits and demerits of each site. 5. Demonstrate the proper technique for IM injection. II. Intravenous injection 1. Identify the devices required forIV injection 2. Demonstrate the prerequisite preparations for injection along with aseptic precautions 3. Present instructions to the patient about the									

		injection procedure. 4. Identify the sites of IV injection on mannequin 5. Demonstrate the proper technique for IV injection. III. Subcutaneous injection 1. Identify the devices required for SC injection. 2. Demonstrate the prerequisite preparations for injection along with aseptic precautions. 3. Present instructions to the patient about the injection procedure. 4. Identify the sites of SC injection on mannequin. 5. Demonstrate the proper technique for SC injection. IV. Intradermal injection 1. Identify the devices required for Intradermal injection. 2. Demonstrate the prerequisite preparations for									

		injection along with aseptic precautions. 3. Present instructions to the patient about the injection procedure. 4. Demonstrate the proper technique for Intradermal injection. Local / Topical application Specific Learning Objectives. I. Transcutaneous – Jet Injection, Transdermal delivery system 1. Identify the devices used to administer dosage forms through transcutaneous route. 2. Explain the instructions to the patient before administering dosage forms through transcutaneous route. 3. Demonstrate the administration of Transdermal patches.									

		II. Transmucosal/ Inhalational 1. Document the inhalational devices used to administer inhalational dosage forms. 2. Present the merits and demerits of inhalational devices over one another 3. Explain the instructions to the patient before using inhalational devices. 4. Demonstrate the administration of inhalational dosage forms. 5. Identify the different types of airway masks and intubation tubes. Present a method for selection of intubation tubes. 6. Demonstrate the administration of anesthetic/ therapeutic gases through airway masks and intubation tubes.									

		III. Transnasal 1. Identify dosage forms administered transnasally. 2. Identify the devices used for administering dosage forms transnasally. 3. Present the merits and demerits of Transnasal route of drug administration. 4. Explain the instructions to the patient before administering dosage forms by transnasal route. IV. Administration of drugs in to eye andear 1. Identify dosage forms administered by ophthalmic/ ear route. 2. Explain the instructions to the patient before administering dosage forms by ophthalmic/ ear route.									

PH 4.2	Demonstrate the effects of drugs on blood pressure (vasopressor and vasodepressors with appropriate blockers) using computer aided learning	At the end of the session the student should be able to 1. Choose the appropriate animal experiment to study the effects of drugs on blood pressure 2. Explain the differences in actions of different vasopressor (adrenaline, noradrenaline) 3. Explain the differences in actions of different vasodepressors (ACh, alphablockers, histamine) 4. Analyse and interpret the graph obtained accurately on application of various drugs 5. Enumerate the therapeutic uses of vasopressors and vasodepressors	S	SH	Y	Skill lab	6	Skill station			
PH 5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	At the end of the session the student should be able to: 1. Describe what information should be given to patients to allow them to make informed decisions 2. Communicate treatment plan and instructions to patient, at a suitable level of information 3. Engage in shared decision making where appropriate	A/C	SH	Y	Small group discussion	2	Skill station		General Medicine	

PH 5.2	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines	At the end of this session, the student should be able to <u>a) Drug Therapy</u> 1.Communicate about the effects of the prescribed drug with regards to the following: e. Why the drug is needed f. Which symptoms will disappear, and which will not g. When the effect is expected to start h. What will happen if the drug is taken incorrectly or not at all 2. Communicate about the adverse effects of the prescribed drug with regards to the following: f. Which side effects may occur g. How to recognize them h. How long they will continue i. How serious they are j. What action to take	A/C	SH	Y	Small group discussion	4	Skill station			

		3. Communicate about the instructions of drug use as following: f. How the drug should be taken g. When it should be taken h. How long the treatment should continue i. How the drug should be stored j. What to do with left-over drugs 4. Communicate about the warnings of the prescribed drug with regards to the following: d. When the drug should not be taken e. What is the maximum dose f. Why the full treatment course should be taken 5. Communicate about the future consultations with regards to the following: d. When to come back (or not) e. In what circumstances to									

		come earlier f. What information the doctor will need at the next appointment 6. Conclude the consultation by asking the following questions: d. Ask the patient whether everything is understood e. Ask the patient to repeat the most important information Ask whether the patient has any more questions <u>b) Devices</u> The student should be able to communicate i) Step wise points or instructions on use of device ii) Communicate list of do's and don'ts on the device iii) Demonstrate the proper use of device and ask the patient to									

		show the same. iv) Methods on handling, cleaning and storage of device v) Dangers of use of device on other persons, without the prescription of doctor vi) Importance of keeping the device away from reach of the children vii) Contact number of manufacturer to be communicated on trouble shooting <u>c) Storage of Medicines :</u> The student should be able to communicate to patients on i) Ideal storage condition of a pharmaceutical product as per product label ii) Effect of storage condition on									

		potency and efficacy of the drug iii) ill effects of improper storage condition on human consumption iv) Importance of expiry date of the drug v) Factors to be taken in to consideration for drug storage like sanitation, temperature, light, moisture, ventilation and segregation. vi) Importance of storage of medicines away from reach of the children vii) Disposal of expired drugs									
PH 5.3	Motivate patients with chronic diseases to adhere to the prescribed	At the end of the session the student should be able to: 1. Explain the term	A/C	SH	Y	Small group discussion	4	Skill station/ short			

	management by health care provider	medication adherence 2. Explain the consequences of non-adherence in chronic diseases 3. Explain the methods to measure the medication adherence 4. Elicit the barriers affecting medication adherence 5. Explains the measures to be taken to motivate the patient to adhere to medications in chronic diseases						note			
PH 5.4	Explain to the patient the relationship between cost of treatment and patient compliance	At the end of this session, the student should be able to: 1. Assess the cost of the treatment 2. Enumerate various factors influencing patient compliance (patient related, disease condition related, therapy related and health system related factors). 3. Communicate clearly to the patient about relationship between cost of treatment and non-compliance	A/C	SH	Y	Small group discussion	2	Short note/ Viva voce		General Medicine	

PH 5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	At the end of the session the student should be able to 1. Describe the term drug dependence 2. Enumerate the drugs that produce dependence 3. Describe the Legality involved in prescribing drugs likely to produce dependence (Drugs and Cosmetics Act, 1940; Pharmacy Act, 1948; Narcotic Drugs and Psychotropic substances Act, 1985) 4. Describe the clinical including psychosocial assessment of the patient before prescribing 5. Describe the importance of documentation of prescribing process 6. Describe the importance of periodic review of prescriptions 7. Describe the basic treatment regimens for various addictions and withdrawal states along with psycho-social rehabilitation	K	KH	Y	Small group discussion	4	Short note/ Viva voce		P s y c h ia tr y	
PH	Demonstrate ability	At the end of this session, the		SH	Y	Small group	4	Skill		P	

5.6	to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	student should be able to educate the patients and public regarding: **1. The importance of complying with the doctor's instructions** **2. The demerits of self-prescription** **3. The importance of identifying and reporting ADRs to concerned authorities** **4. Caution be taken while using drugs causing dependence** **5. Safe use of OTC**	A/C			discussion		statio n		s y c h ia tr y	
PH 5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	At the end of this session, the student should be able to : <u>Legal aspects</u> 1. Explain who is entitled to prescribe medicines and the legal requirements involved 2. Describe the legal requirements associated with prescribing controlled drugs 3. Describe the legal implications of irrational prescription that could endanger the life of patients <u>Ethical aspects</u> 1. Describe the importance	K	SH	Y	Small group discussion	2	Short note/ Viva voce			Foren sic Medic ine

		of rational prescription 2. Explain the responsibilities of prescribing in a resource limited setting 3. Describe what information should be given to patients to allow them to make informed decisions 4. Explain why it is important to recognize limits of competence and to ask for help when needed 5. Explain the responsibility of all prescribers to update knowledge 6. Describe the importance of following clinical guidelines, protocols and formularies are appropriate									

TOPICS FOR INTEGRATION IN PHARMACOLOGY

	COMPETENCY	Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Number	The student should be able to						P		
PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology	
PH1.16	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti-histaminics, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.17	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of local anesthetics	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	
PH1.18	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre- anesthetic medications	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology	

PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti-psychotic, anti-depressant drugs, anti-maniacs, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti-epileptics drugs)	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology	
PH1.20	Describe the effects of acute and chronic ethanol intake	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	
PH1.21	Describe the symptoms and management of methanol and ethanol poisonings	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	Forensic Medicine
PH1.23	Describe the process and mechanism of drug deaddiction	K/S	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry	

PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin- angiotensin and aldosterone system	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine	
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the antiarrhythmics	K	KH	N	Lecture	Written/ Viva voce		General Medicine	
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemias	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

PH1.32	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine	
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below:	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		General Medicine	
	1. Acid-peptic disease and GERD								
	2. Antiemetics and prokinetics								
	3. Antidiarrhoeals 4 . Laxatives								
	5. Inflammatory Bowel Disease								
	6. Irritable Bowel Disorders, biliary and pancreatic diseases								
PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like:	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology	pathology
	1. D rugs used in anemias								
	2. Colony Stimulating factors								
PH1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	

PH1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.40	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology	
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Microbiology
PH1.44	Describe the first line antitubercular dugs, their mechanisms of action, side effects and doses.	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	
PH1.45	Describe the dugs used in MDR and XDR Tuberculosis	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine	Microbiology
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy	Microbiology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Microbiology

PH1.48	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV	K	KH	Y	Lecture	Written/Viva voce			Microbiology
PH1.52	Describe management of common poisoning, insecticides, common sting and bites	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
PH1.55	Describe and discuss the following National Health Programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency	K	KH	Y	Lecture	Written/ Viva voce			Community Medicine
PH1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics	
PH1.57	Describe drugs used in skin disorders	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venerelogy & Leprology	
PH1.58	Describe drugs used in Ocular disorders	K	KH	Y	Lecture	Written/ Viva voce		Ophthalmology	
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	S	SH	Y	DOAP sessions	Skills assessment		Pediatrics, General Medicine	
PH3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	S/C	P	Y	Skill station	Skill station	5	General Medicine	

PH3.3	Perform a critical evaluation of the drug promotional literature	S	P	Y	Skill Lab	Maintenance of log book/ Skill station	3	General Medicine	
PH3.5	To prepare and explain a list of P-drugs for a given case/condition	S	P	Y	Skill station	Maintenance of log book	3	General Medicine	
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	A/C	SH	Y	Small group discussion	skill station		General Medicine	
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	A/C	SH	Y	Small group discussion	short note/ viva voce		General Medicine	
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	K	KH	Y	Small group discussion	short note/ Viva voce		Psychiatry	
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	A/C	SH	Y	Small group discussion	Skill station		Psychiatry	
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	K	KH	Y	Small group discussion	short note/ Viva voce			Forensic Medicine

GUIDELINES FOR SECOND PROFESSIONAL MBBS (PHASE II) as per CBME

PHARMACOLOGY

1. ATTENDANCE :

75% attendance in theory and 80% in practical separately is mandatory for a student to be eligible for University Examinations.

2. INTERNAL EXAMINATION:

a) Three internal Exams will be conducted consisting of theory and practical including orals

b) 50% marks combined in theory and practical (not less than 40% in each) is mandatory for obtaining eligibility to appear for University Examinations.

c) One Short Answer Question (SAQ) from AETCOM should be reflected in the internal Examination.

2. UNIVERSITY EXAMINATIONS:

a) 50% of the marks should be secured separately in theory and practical to be declared as qualified in the examination

b) If a subject has two papers in theory, the student should secure 40% minimum in each paper, but the aggregate of two papers should be 50%.

b) Internal marks are not added to the marks of university examination, but mentioned separately on the grade card.

c) Viva Marks are included in practical.

d) The grace marks up to a maximum of five may be awarded at the discretion of the university to a learner for clearing the examination as a whole but not for clearing a subject resulting in exemption.

e) Chairman of board of Paper-setters in the concerned subject who shall be an internal examiner and shall moderate the question paper.

GIMSR, GITAM (Deemed to be University)

Marks distribution for Pharmacology University examination as per CBME
Theory:
Paper- I: 100M
Paper II:100M
Practicals
(including orals):100M (70+30)
Total marks:300

PHARMACOLOGY THEORY EXAMINATION-BLUE PRINT

2 PAPERS OF 100 MARKS EACH

Type of questions	Marks per question	Number of questions	Total marks
Long Answer (Essay) questions (Structured including clinical case scenario)	10	2	20
Short answer questions	5	8	40
Brief answer questions	3	10	30
MCQs	1	10	10

Long answer questions (LAQ):

The question should present a clinical problem to the students and make them to apply higher cognitive skills. Avoid giving one liners as questions. The questionshould be structured and marksbreakup should be provided.

Short answer questions(SAQ):

These structuredquestions provide opportunity to answerin specific within in a short time and the questions are task oriented

Brief answer questions (BAQ):

These questionsare based on applied aspects and require answer to given very precisely.

Multiple choice questions (MCQs):

Analytical

Pharmacology

Distribution of marks for paper 1 and 2 (theory) for university examinations

Guidelines for setting pharmacology question paper:

1. Blueprinting with respect to allocation of marks to each topic must be followed in paper 1 and paper 2.
2. Each paper should have at least 30 to 40% of the marks allocated to reasoning/ clinical application type of questions to assess the higher order thinking skills. Ex: Rationale for the use of a specific drug, reason for a drug causing an adverse drug reaction, clinical application of pharmacological facts etc.
3. Each paper should have at least one case scenario-based question. Up to 10 marks (minimum 5 marks) should be allocated to case-based questions in each paper.
4. Long essay and short essay questions should be structured. It is preferable to allocate marks to individual parts of the question.

Example: Structured Long answer question (LAQ)/(essay):

1. A 40 year old farmer is brought to casualty with restlessness, vomiting, abdominal pain, diarrhea, urinary incontinence, difficulty in breathing, increased salivation and lacrimation. On examination BP-90/60 mmHg, PR-58 bpm, bilateral wheeze present and pupils constricted to pin point.

a. What is the diagnosis ?

b. Explain the drug treatment of above clinical condition with pharmacological basis

c. What is the role of nicotinic blockers in this case? (2+6+2= 10 marks)

2. Classify anti hypertensive drugs. Describe the mechanism of action, therapeutic uses and adverse effects of Enalapril (4+2+2+2= 10 marks)

Example: Short answer question: (SAQ)

- Methotrexate – Mechanism of action, adverse effects and therapeutic uses

Brief Answer Question:
Example:Explain the pharmacological basis for combining levodopa with carbidopa

5. The systems assigned to the different papers are generally evaluated under those sections. However, a strict division of the subject may not be possible and some overlapping of systems is inevitable. Students should be prepared to answer overlapping systems.

6. Maximum marks allocated to each topic in the blueprint may vary by $\pm$ 2 marks in the question paper to accommodate 5 and 3 markers and making the total of 100 marks.

7. Core competencies should be evaluated mainly in the university examinations

8. All the aspects of drugs like mechanism of action, adverse effects, therapeutic uses, contraindications, important pharmacokinetic properties, and drug interaction etc. should be covered

Blueprinting for Paper 1

Maximum marks: 100

Sl No.	Topic	Weightage	Marks	Nature of questions
1	General Pharmacology	20%	20	LAQ, SAQ, BAQ,MCQ
3	Autonomic nervous system	20%	20	LAQ, SAQ, BAQ,MCQ
4	Central nervous system	25%	25	LAQ, SAQ, BAQ,MCQ
5	Peripheral nervous system (Local anaesthetics, skeletal muscle relaxants)			LAQ, SAQ, BAQ,MCQ
6	Autacoids (Prostaglandins, histamine and antihistamines, vasoactive peptides, Treatment of migraine)	10%	10	SAQ, BAQ,MCQ

7	NSAIDS, Drugs used in the treatment of gout and rheumatoid arthritis			LAQ, SAQ, BAQ,MCQ
8	Cardiovascular system including Diuretics and antidiuretics, shock	25%	25	LAQ, SAQ, BAQ,MCQ
	Total	100%	100	

Long Answer Question (LAQ) can be from the following topics:

- General pharmacology
- Central nervous system
- Autonomic nervous system
- Cardiovascular system

Blueprinting for Paper 2

Maximum marks: 100

Sl No.	Topic	Weightage	Marks	Nature of questions
1	Endocrines	20%	20	LAQ, SAQ, BAQ,MCQS
2	Gastrointestinal system	10%	10	LAQ, SAQ, BAQ,MCQ
3	Respiratory system	10%	10	LAQ, SAQ, BAQ,MCQ
4	Blood (drugs and coagulation, anemias, dyslipidemias)	15%	15	LAQ, SAQ, BAQ,MCQ
5	Chemotherapy including Anti cancer agents, immunomodulators	35%	35	LAQ, SAQ, BAQ,MCQ
6	Drugs acting on uterus: oxytocics and tocolytics	5%	5	SAQ, BAQ,MCQ
7	Antiseptics and disinfectants, Drugs to treat skin disorders			SAQ, BAQ,MCQ
8	Drugs to treat ocular diseases			SAQ, BAQ,MCQ

9	Vitamins, vaccines&sera	5%	5	SAQ, BAQ,MCQ
10	Heavy metal poisoning, Chelating agents			SAQ, BAQ,MCQ
11	Occupational and environmental pollutants, food adulterants, nutraceuticals			SAQ, BAQ,MCQ

Long Answer Question (LAQ) can be from the following topics:

- Endocrines
- Gastrointestinal system
- Respiratory system
- Blood
- Chemotherapy

Pharmacology Paper - I

Duration: 3 hours **Max. Marks: 100**

Answer all the questions

Long answer questions: **2 x 10 = 20 Marks**

1. A 40 year old farmer is brought to causalty with the complaints of difficulty in breathing, weakness of muscles, profuse sweating, salivation, vomiting, diarrhea and abdominal pain. The patient is disoriented, pupils are constricted to pinpoint, BP 90/60 mmHg, pulse rate 60 bpm and on auscultation bilateral wheeze present. (2 + 4 + 4 = 10)

a) What is the diagnosis?

b) How do you treat the above clinical condition and explain the pharmacological basis of treatment?

c) Classify Anti-muscarinic drugs

2. Classify Anti-hypertensive agents. Write the therapeutic uses & Adverse effects of ACE Inhibitors.(4 + 3 + 3 = 10)

Short answer questions: **8x 5 = 40Marks**

3. Define drug Antagonism, explain different types with examples

4.Enumerate the drugs used for the acute attack and prophylaxis of migraine separately

5. Elimination kinetics- different types with examples and their clinical significance

6. Pre-anesthetic medication

7. Mechanism of action and uses of loop diuretics

8. Enumerate typical antipsychotics, write their mechanism of action and adverse affects

9. Potassium channel openers

10. Enumerate second generation antihistaminics, mention their advantages over first generation ones

Brief Answer questions: **10 x 3 = 30Marks**

11.Tachyphylaxis

12. Hoffman's elimination

13. Name three drugs that selectively inhibit serotonin transporter

14. Explain the pharmacological basis of using amiloride for treatment of lithium toxicity

15. What is a hit and run drug? Give two examples

16. Rationale of combining levodopa along with carbidopa for the treatment of parkinsonism

17. Justify the use of ethyl alcohol in methyl alcohol poisoning

18. Write three contra indications for the use of morphine

19. Explain the pharmacological basis for the use of adrenaline in anaphylactic shock

20. Neuroleptanalgesia

MCQs **10X1 = 10 Marks**

1. The biotransformation reaction that is carried out by non microsomal enzymes:
   - **a.** Hydrolysis
   - **b.** Glucuronide conjugation
   - **c.** Oxidation
   - **d.** Reduction
2. The common adverse effect between loop diuretics and thiazide diuretics:
   - **a.** Hypocalcemia

b. Metabolic acidosis
c. Ototoxicity
d. Hyperuricemia

3. Calcium reabsorption is increased by:
a. Furosemide
b. Acetazolamide
c. Mannitol
d. Hydrochlorothiazide

4. Muscle rigidity can be a side effect of which intravenous anesthetic?
a. fentanyl
b. midazolam
c. ketamine
d. propofol

5. Which agent listed below is an antipsychotic that can improve both positive and negative symptoms of schizophrenia?
a. chlorpromazine
b. haloperidol
c. thiothixene
d. risperidone

6. The mydriatic that preserves light reflex
a. Atropine
b. Cyclopentolate
c. Tropicamide
d. Phenylephrine

7. The drug used for treatment of hypertension, angina , CHF and arrhythmias
a. atenolol
b. sodium nitroprusside
c. Digoxin
d. glyceryl trinitrate

8. Vasodilator action of nitrates is potentiated by
a. Propranolol
b. Phenylephrine
c. Atenolol
d. Sildenafil

9. Toxic dose of atropine is expected to cause all except
- **a.** Bronchospasm
- **b.** Hyperthermia
- **c.** Urinary retention
- **d.** Blurred vision

10. The correct statement among the following
- **a.** Levosimendan- Heart failure- phosphodiesterase inhibitor
- **b.** Inamrinone- Heart failure-Blocks Na^+ K^+ ATPase
- **c.** Spironolactone –Heart failure -Blocks renal epithelial sodium channels
- **d.** Triamterene- heart failure-blocks mineralocorticoid receptors

Pharmacology Paper - I I **Max. Marks: 100**

Duration: 3 hours

Answer all the questions

Long answer questions: **2 x 10 = 20 Marks**

1.A 50 year old male, obese patient came to medical OPD with the chief complaints of general weakness, excessive thirst, increased hunger and increased frequency of urination.

Investigations: Fasting blood glucose 250 mg/dl, Post prandial blood glucose 350mg/dl, and HbA_1C: 8%

(2 + 5+ 3 = 10)

a) What is your diagnosis

b) Classify the orally used drugs used for this clinical condition.

c) Outline the management of Diabetic keto acidosis (DKA)

2. Classify Anti retroviral drugs. Describe the Mechanism of action and Adverse effects of Lopinavir. Add a note on Pharmacokinetic enhancement**.** (4+ 2 + 2 + 2 = 10)

Short answer questions: **8 x 5 = 40 Marks**

3. Mechanism of action, uses and adverse effects of Rifampicin

4. Mechanism of action and therapeutic uses of Chloroquine

5. Indications for the use of Low molecular weight heparins (LMWH) and advantages of them over unfractionated heparin.

6. Mechanism of action of Cotrimoxazole and its therapeutic uses.

7. Indications and contraindications of combined OCPs

8. Enumerate bronchodilators, write mechanism of action and adverse effects of salbutamol

9. Write adverse effects and contraindications of glucocorticoids

10. Mechanism of action and uses of cyclosporine

Brief Answer questions: **10 x 3 = 30 Marks**

11. Name three Inhalational glucocorticoids

12. Mechanism of action of albendazole

13. Pharmacological basis for the use of cisapride as a prokinetic

14. Rationale of combining Amoxicillin with clavulanic acid

15. Mention three drugs used for filarial infection

16. Name three heavy metal antagonists

17. Why folinic acid is preferred over folic acid in methotrexate toxicity

18. Name three formulations of amphotericin B

19. Name two antiseptics and one disinfectant

20. Rationale of combining aluminum hydroxide with magnesium trisilicate as antacids

MCQs **10X1 = 10 Marks**

1. Generally statins are administered in the evening as the cholesterol synthesis occurs predominantly at night. But which of the following is not necessarily administered in the evening?
   - **a.** Lovastatin
   - **b.** Simvastatin
   - **c.** Fluvastatin
   - **d.** Rosuastatin

2. One of the following drugs potentiates the anticoagulant effect of warfarin by Pharmacodynamic interaction:
   a. Cefoperazone
   b. Amiodarone
   c. Rifampicin
   d. Vitamin K
3. A man being treated for severe asthma experiences an episode of life-threatening tachycardia requiring emergency treatment. Which drug is most likely responsible for this adverse effect?

a. Budesonide
b. Ipratropium
c. Formoterol
d. Cromolyn

4. The insulin preparation having lowest variability of absorption:
   a. Insulin lispro
   b. Regular humulin
   c. NPH insulin
   d. Insulin glargine

5. The preferred anti thyroid drug in first trimester of pregnancy

a. Methimazole
b. Propythiouracil
c. Radioactive Iodine
d. Carbimazole

6. The long term administration of large doses of Prednisolone will cause least reduction in the secretion of which hormone

a. Cortisol
b. Corticotropin
c. Corticotropin Releasing hormone
d. Aldosterone

7. Drug used for hepatic encephalopathy:
   a. Rifampin
   b. Rifabutin

c. Rifapentine.
d. Rifaximin

8. Cephalosporin that does not require dose reduction in patient with any degree of renal impairment is
a. Cefuroxime
b. Cefixime
c. Ceftriaxone
d. Cefotaxime

9. The only anti retroviral drug that targets host cell proteins :
a. Efavirenz
b. Enfuvirtide
c. Raltegravir
d. Maraviroc

10. The drug used for the treatment of clostridium difficile enterocolitis
a. Clindamycin
b. Ceftriaxone
c. Ampicillin
d. Fidaxomicin

New practical pattern as per CBME
Total Marks= 100
(Practicals 60+ Record 10+ Log Book 10 +Orals 20)

1. OSPE: (Only correction)
1. Spotters 10 X 2 = 20 Marks
2. Dosage calculation = 5M
3. Prescription = 5 M
4. Flow chart = 5M
5. *Essential medicines for a given clinical condition = 5M*

Total = 30

2. Interactive session:
- Clinical problems 2X5 =10M
- CCR/PK/PD/ Expt. Pharmacology chart (Except Rabbit eye) 5M

6. *Routes of drug administration on manikins / CAL (Rabbit eye) 10 M*

7. *Select a suitable route of drug administration and justify its selection for the given clinical case scenario/ ADR reporting-Pharmacovigilance/ critical appraisal of drug promotional literature/ Effective patient communication/ P-drug 5M*

Total = 30

3. Record = 10
4. Logbook= 10
5. Orals/Grand Viva = 20 M

Grand total = 100 Marks

Microbiology Theory / Practical

Based on Medical Council of India, Competency based Undergraduate curriculum for the Indian Medical Graduate, 2018. (Vol. 1; page nos. 205-227)

Sections in Microbiology

Sl no	Topic	Competency
1	General Bacteriology and Immunology	MI 1.1 to 1.11
2	CVS and Blood stream infections	MI 2.1 to 2.7
3	Gastrointestinal and Hepatobiliary infections	MI 3.1 to 3.8
4	Skin, soft tissue and Musculo skeletal infections	MI 4.1 to 4.3
5	CNS Infections	MI 5.1 to 5.3
6	Respiratory Tract Infections	MI 6.1 to 6.3
7	Genitourinary and STD infections	MI 7.1 to 7.3
8	Zoonoses and Other infections , HIC	MI 8.1 to 8.16

Course layout and Examination schedule:

<table>
<tr><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Foundation Course</td><td colspan="4">I MBBS</td></tr>
<tr><td colspan="8">I MBBS</td><td>Exam I MBBS</td><td colspan="3">II MBBS</td></tr>
<tr><td colspan="8">II MBBS</td><td>Exam II MBBS</td><td colspan="3">III MBBS</td></tr>
<tr><td colspan="9">III MBBS Part I</td><td>Exam III MBBS Part I</td><td colspan="2">Electives & Skills</td></tr>
<tr><td colspan="11">III MBBS Part II</td></tr>
<tr><td>Exam III MBBS Part II</td><td></td><td colspan="9">Internship</td></tr>
<tr><td colspan="2">Internship</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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1. Total Teaching hours : **190**
2. A. Lectures(hours): **70**

B. Self-directed learning (hours):- **10**

C. SGD (Small Group Discussion) – 42 hours

D. Practical : 45 hours

E. AETCOM : 3 hours

F. Activities : quiz, role play at the end of the year :

Competency Nos.	Topics and Subtopics
MI1.1	Introduction to Microbiology and historical aspects. Introduction to bacteria, viruses & Bacteriophages, fungi, parasites, host parasite relationship, normal flora.
MI1.2	Morphology of bacteria, microscopy, Gram staining, Z-N staining, stool examination- routine microscopy
MI1.3	Types of infection, source/ reservoir of infection, modes of transmission, pathogenicity, definition of prevalence, incidence, types of infectious diseases (endemic, epidemic, pandemic, sporadic)
MI1.4	Methods of sterilization and disinfection, their application in the laboratory, clinical and surgical practice, demonstration of working of autoclave
MI1.5	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice
MI1.6	Mechanism of drug resistance, methods of antibiotic susceptibility testing, definition of MIC, MBC, break points, interpretation of antibiotic susceptibility test report, antimicrobial audit/use, antibiotic policy, antimicrobial stewardship.
MI1.7	Immunity
MI1.8	Antigen, antibodies, immune response and complement, antigen antibody reactions
MI1.9	Vaccines, universal vaccination program, immunoprophylaxis, immunotherapy
MI1.10	Hypersensitivity, autoimmune disorders and immunodeficiency states, laboratory methods used in their detection
MI1.11	Immunological mechanisms of transplantation and tumor immunity

No	COMPETENCY The student should be able to	SLO	Domain K/S/A/C	Level K/KH/SH / P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MICROBIOLOGY										
Topic: General Microbiology and Immunity		Number of competencies: (11)				Number of procedures that require certification : (01)				
MI1.1	Describe the different causative agents of Infectious diseases+A208, the methods used in their detection, and discuss the role of microbes in health and disease	At the end of the session, the student should be able to 1. Enumerate the various microorganisms causing infections 2. Enumerate and explain the sources of infection 3. Clearly outline the laboratory diag the same 4. Enumerate the micoorganisms which play a role in the health 5. Understand the role of microbes in health and diseases	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
MI1.2	Perform and identify the different causative agents of Infectious diseases by Gram Stain, ZN stain and stool routine	At the end of the session, the student should be able to 1. Explain the principle, methods of staining, observation and inference along with relevant examples 2. Able to perform the staining technique 3. Identify the observation and report 4. Describe the various morphological forms of bacteria	S	P	Y	DOAP session	Skill assessment	5		

	microscopy	**5. Differentiate between gram positive and gram negative bacteria 6. Differentiate between acid fast and non acid fast bacteria 7. Differentiate between bile stained and non bile stained eggs 8. Differentiate between eggs ova and cysts 9. Explain the various modifications to the present staining techniques**								
MI1.3	**Describe the epidemiological basis of common infectious diseases**	**At the end of the session, the student should be able to 1. Describe the common infections prevalence and incidence in the community 2. Define endemic, epidemic and pandemic 3. Describe the epidemiology based on various factors like age, sex, seasonal factors, comorbities, lifestyle etc**	**K**	**KH**	**Y**	**Lecture**	**Written/ Viva voce**			**Community Medicine**
MI1.4	**Classify and describe the different methods of sterilization and disinfection. Discuss the application of the different methods in the laboratory, in clinical and surgical practice**	**At the end of the session, the student should be able to 1. Define sterilisation and disinfection 2. Differentiate between sterilisation, disinfection and antisepsis 3. Enumerate and discuss in detail the different methods of sterilisation 4. Enumerate and discuss in detail the different methods of disinfection 5. Describe the methods used for sterilising various instruments and fumigation in the hospital environment 6. Describe the various controls used for checking the competency of the sterilisation and disinfection methods**	**K**	**KH**	**Y**	**Lecture, Small group discussion**	**Written/ Viva voce**		**General Surgery**	

MI1.5	**Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice**	**At the end of the session, the student should be able to** **1. Select the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice**	**K**	**KH**	**Y**	**Small group discussion, Case discussion**	**Written /Viva voce/ OSPE**		**General Surgery**	
MI1.6	**Describe the mechanisms of drug resistance, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy**	**At the end of the session, the student should be able to** **1. Enumerate and describe in detail the various mechanisms of drug resistance along with relevant diagrams** **2. Enumerate and describe in details the various methods of antimicrobial susceptibility testing(AST)** **3. Define Mininum inhibitory concentration(MIC) and minimum Bactericidal concention(MBC)** **4. Read the result of the AST and interpret to the clinician** **5. Select the appropriate antibiotic for the antimicrobial therapy appropriate for the patient** **6. Monitor the dosage of the antibiotic according to his clinical improvement**	**K**	**K**	**Y**	**Lecture, Small group discussion**	**Written/ Viva voce**			**Pharmacology**

MI1.7	**Describe the immunological mechanisms in health**	**At the end of the session, the student should be able to** **1. Define active and passive immunity** **2. Enumerate and describe the various mechanisms which play a role in the immunity, along with diagrams**	**K**	**KH**	**Y**	**Lecture**	**Written/ Viva voce**			**Pathology**
MI1.8	**Describe the mechanisms of immunity and response of the host immune system to infections**	**At the end of the session, the student should be able to** **1. Enumerate and describe the various mechanisms which play a role in the immunity, along with diagrams** **2. Define superantigens along with examples**	**K**	**KH**	**Y**	**Lecture**	**Written/ Viva voce**		**Pediatrics**	**Pathology**
MI1.9	**Discuss the immunologi cal basis of vaccines and describe the Universal Immunisati on schedule**	**At the end of the session, the student should be able to** **1. Define live and killed vaccines along with examples** **2. Describe the immunological basis of vaccines** **3. Enumerate all the vaccines that comes under the Universal Immunisation schedule** **4. Describe in detail about the age, dosage, route of administration and the booster doses about each vaccine**	**K**	**KH**	**Y**	**Lecture**	**Written/ Viva voce**		**Paediatrics**	
MI1.10	**Describe the immunological mechanisms in immunological disorder (hypersensitivity, autoimmune disorders and**	**At the end of the session, the student should be able to** **1. Define hypersensitivity** **2. Enumerate and describe the various types of hypersensitivity reactions along with examples** **3. Define autoimmunity** **4. Enumerate and describe the various types of autoimmunty**	**K**	**KH**	**Y**	**Lecture**	**Written/ Viva voce**		**Paediatrics**	

	immunodeficiency states) and discuss the laboratory methods used in detection.	**seen** **5. Describe the factors involved in the immunological mechanisms in autoimmunity** **6. Enumerate and discuss the various Immunodeficiency disorders**								
MI1.11	**Describe the immunological mechanisms of transplantation and tumor immunity**	**At the end of the session, the student should be able to** **1. Define the various grafts** **2. Describe the immunological mechanisms of transplantation** **3. Define and describe the mechanism of Graft versus host disease(GVHD)** **4. Describe the immunological mechanisms of tumor immunity**	**K**	**KH**	**Y**	**Lecture**	**Written/ Viva voce**			

Competency Nos.	**Topics and Subtopics**
MI2.1	Rheumatic Heart Disease-definition, etiological agent, pathogenesis, clinical features and laboratory diagnosis. Streptococci
MI2.2	Infective endocarditis- classification, etiological agents, pathogenesis, clinical features and laboratory diagnosis. Streptococcus viridans, Streptococcus mutans, HACEK
MI2.3	Blood collection for culture, throat swab collection, blood culture, ASO test, interpretation of the test
MI2.4	Anemia-definition, etiological agents, pathogenesis, clinical features and laboratory diagnosis. Hookworm, Trichuris trichiura,
MI2.5	Kala azar, malaria, filariasis and other common parasites prevalent in India - *Schistosomes, **Fasciolopsis buski,** Paragonimus westermani,*
MI2.6	Peripheral smear staining for malaria, Identify the slide for filarial
MI2.7	HIV- epidemiology, the etio- pathogenesis, evolution, complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV
MI3.1	Microbial agents causing diarrhea and dysentery- epidemiology, morphology, pathogenesis, clinical features and laboratory diagnosis of Shigella, Campylobacter, . Vibrio, salmonella, E. hystolytica, Giardia, B. coli, H. nana, Taenia , Intestinal nematodes, Norwalk virus and Rota virus, Coronavirus

MI3.2	Stool examination-routine microscopy, hanging drop preparation,
MI3.3	Septicemia, Enteric fever and Food poisoning Salmonella -Morphology, pathogenesis, clinical features, laboratory diagnosis.
MI3.4	Blood culture, Widal test, Stool culture, Clot culture, Interpretation of the reports
MI3.5	Food poisoning- etiological agents, pathogenesis, clinical features and laboratory diagnosis. Staphylococci, Cl. botulinum, Bacillus cereus
MI3.6	Acid peptic disease (APD)- etio-pathogenesis, clinical course laboratory diagnosis and management H. pylori
MI3.7	Viral hepatitis- etiological agents, pathogenesis, clinical features and laboratory diagnosis. Hepatitis A, B, C, D, E, Cytomegalovirus, Epstein-Barr virus, HSV, VZV, Measles, Rubella
MI3.8	Serological tests for the laboratory diagnosis of viral hepatitis, viral markers, interpretation of reports

No	COMPETENCY The student should be able to	SLO	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MICROBIOLOGY										
Topic: CVS and Blood		Number of competencies: (7)				Number of procedures that require certification : (NIL)				
MI 2.1	Describe the etiologic agents in rheumatic fever and their diagnosis	At the end of the session, the student should be able to 1. Identify the causative agent causing rheumatic fever 2. Describe the mechanisms causing rheumatic fever 3. Describe the modified Jones Criteria for the diagnosis of rheumatic fever 4. Discuss the laboratory diagnosis of rheumativc fever 5. Enumerate the suppurative and non suppurative complications of rheumatic fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI 2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	At the end of the session, the student should be able to 1. Enumerate the organisms causing infective endocarditis 2. Describe the etiopathogenesis of Infective endocarditis 3. Describe the clinical features of Infective endocarditis 4. Describe the laboratory diagnosis of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology

MI2.3	**Identify the microbial agents causing Rheumatic Heart Disease & infective Endocarditis**	**At the end of the session, the student should be able to** **1. Enumerate the organisms causing Rheumatic Heart Disease & infective Endocarditis** **2. Diferentiate betwen Rheumatic Heart Disease & infective Endocarditis**	**S**	**SH**	**Y**	**DOAP session**	**Skill assessment**		**General Medicine**	**Pathology**
MI2.4	**List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causingAnemia**	**At the end of the session, the student should be able to** **1. Enumerate the common microbial agents causing anemia** **2. Describe the morphology and mode of infection of anemia** **3. Discuss the pathogenesis behind anemia** **4. Describe the clinical features of different types of anemia** **5. Describe the various modalities used for the diagnosis of anemia** **6. Discuss the prevention methods of the common microbial agents causingAnemia** **7. Discuss the treatment options of the common microbial agents causingAnemia**	**K**	**KH**	**Y**	**Lecture, Small group discussion**	**Written/ Viva voce**		**General Medicine**	**Pathology**

MI2.5	**Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India**	**At the end of the session, the student should be able to** **1. Enumerate the common parasites prevalent in India** **2. Describe the vectors, Mode of infection and lifecycle of each common parasite prevalent in India** **3 Describe the etio-pathogenesis individually** **4. Discuss the clinical evolution of each parasite along with time and geographical distribution** **5. Describe the clinical features of each parasite individually** **6. Describe the laboratory diagnosis of each parasite individually**	**K**	**KH**	**Y**	**Lecture, Small group discussion**	**Written/ Viva voce**		**General Medicine**	**Pathology**
MI2.6	**Identify the causative agent of malaria and filariasis**	**At the end of the session, the student should be able to** **1. Name the parasite causing malaria along with the species** **2. Identify the vector responsible for spread of malaria** **3. Name the parasite causing filaria along with the various species** **4. Identify the vector responsible for spread of filaria**	**K/S**	**SH**	**Y**	**DOAP session**	**Skill assessment**		**General Medicine**	
MI2.1	**Describe the etiologic agents in rheumatic fever and their diagnosis**	**At the end of the session, the student should be able to** **1. Identify the causative agent causing rheumatic fever** **2. Describe the mechanisms**	**K**	**KH**	**Y**	**Lecture, Small group discussion**	**Written/ Viva voce**		**General Medicine**	**Pathology**

		causing rheumatic fever 3. Describe the modified Jones Criteria for the diagnosis of rheumatic fever 4. Discuss the laboratory diagnosis of rheumativc fever 5. Enumerate the suppurative and non suppurative complications of rheumatic fever								
MI2.2	Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of Infective endocarditis	At the end of the session, the student should be able to 1. Enumerate the organisms causing infective endocarditis 2. Describe the etiopathogenesis of Infective endocarditis 3. Describe the clinical features of Infective endocarditis 4. Describe the laboratory diagnosis of Infective endocarditis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.3	Identify the microbial agents causing Rheumatic Heart Disease & infective Endocarditis	At the end of the session, the student should be able to 1. Enumerate the organisms causing 2. Rheumatic Heart Disease & infective Endocarditis 3. 2. Diferentiate betwen Rheumatic Heart Disease & infective Endocarditis	S	SH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI2.4	List the common microbial agents causing anemia. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of	At the end of the session, the student should be able to 1. Enumerate the common microbial agents causing anemia 2. Describe the morphology and mode of infection of	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology

	the common microbial agents causingAnemia	anemia 3. Discuss the pathogenesis behind anemia 4. Describe the clinical features of different types of anemia 5. Describe the various modalities used for the diagnosis of anemia 6. Discuss the prevention methods of the common microbial agents causing Anemia 7. Discuss the treatment options of the common microbial agents causing Anemia								
MI2.5	Describe the etio-pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India	At the end of the session, the student should be able to 1. Enumerate the 2. common parasites prevalent in India 3. Describe the vectors, Mode of infection and lifecycle of each common parasite prevalent in India 4. 3 Describe the etio-pathogenesis individually 5. Discuss the clinical evolution of each parasite along with time and geographical distribution 6. Describe the clinical features of each parasite individually 7. Describe the laboratory diagnosis of each parasite individually	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI2.7	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections,	At the end of the session, the student should be able to 1. Describe the epidemiology of HIV infection	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology

	diagnosis, prevention and the principles of management of HIV	**2. Discuss the etio-pathogenesis of HIV infection 3. Discuss the evolution of HIV 4. Enumerate the complications of HIV 5. Enumerate the opportunistic infections of HIV 6. Describe the Laboratory diagnosis of HIV 7. Discuss the prevention of HIV 8. Describe the principles of management of HIV**								
MI 3.1	**Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents**	**At the end of the session, the student should be able to 1. Define diarrhoea and dysentery 2. Differentiate between diarrhoea and dysentery 3. Enumerate the microbial agents causing diarrhea and dysentery. 4. Describe the epidemiology of diarrhoea and dysentery 5. Describe the pathogenesis of diarrhoea and dysentery 6. Describe the clinical features of diarrhoea and dysentery 7. Describe the Laboratory diagnosis of diarrhoea and dysentery**	**K**	**KH**	**Y**	**Lecture, Small group discussion**	**Written/ Viva voce**		**General Medicine, Paediatrics**	**Pathology**
MI 3.2	**Identify the common etiologic agents of diarrhea and dysentery**	**At the end of the session, the student should be able to 1. Enumerate and identify the common etiologic agents of diarrhea and dysentery**	**S**	**SH**	**Y**	**DOAP session**	**Skill assessment**		**General Medicine, Paediatrics**	

MI 3.3	Describe the enteric fever pathogens and discuss the evolution of the clinical course and the laboratory diagnosis of the diseases caused by them	At the end of the session, the student should be able to 1. Enumerate the etiologic agents of enteric fever 2. Describe the clinical features of enteric fever 3. Describe the Laboratory diagnosis of enteric fever	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology
MI 3.4	Identify the different modalities for diagnosis of enteric fever. Choose the appropriate test related to the duration of illness	At the end of the session, the student should be able to 1. Describe the Laboratory diagnosis of enteric fever 2. Choose the appropriate test related to the duration of illness	S	KH	Y	DOAP session	Skill assessment		General Medicine	Pathology
MI 3.5	Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis	At the end of the session, the student should be able to 1. Enumerate the causative agents of food poisoning 2. Describe the pathogenesis of food poisoning 3. Describe the clinical features of food poisoning 4. Describe the laboratory diagnosis of food poisoning	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology
MI 3.6	Describe the etio-pathogenesis of Acid peptic disease (APD) and the clinical course. Discuss the diagnosis and management of the causative agent of APD	At the end of the session, the student should be able to 1. Describe the etio-pathogenesis of Acid peptic disease (APD) 2. Describe the clinical features of Acid peptic disease (APD) 3. Describe the laboratory	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pharmacology, Pathology

		diagnosis of Acid peptic disease (APD) 4. Describe the management of Acid peptic disease (APD)								
MI 3.7	Describe the epidemiology, the etio-pathogenesis and discuss the viral markers in the evolution of Viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis	At the end of the session, the student should be able to 1. Describe the epidemiology of Viral hepatitis 2. Describe the etio-pathogenesis of Viral hepatitis 3. Discuss the viral markers in the evolution of Viral hepatitis 4. Describe the laboratory diagnosis of Viral hepatitis 5. Describe the prevention measures of Viral hepatitis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Pathology
MI 3.8	Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers	At the end of the session, the student should be able to 1. Choose the appropriate laboratory test in the diagnosis of viral hepatitis with emphasis on viral markers depending upon the stage of he disease	K	KH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE		General Medicine	Pathology

Competency Nos.	Topics and Subtopics
MI4.1	Anaerobic infections- etiological agents, pathogenesis, clinical features and laboratory diagnosis. Spore bearing and non-spore bearing anaerobes, Clostridia
MI4.2	Bone and joint infections- etio-pathogenesis, clinical features and laboratory diagnosis. Prosthetic joint infections, Staphylococci, Acinetobacter
MI4.3	Skin and soft tissue infections- etiological agents, pathogenesis, clinical features and laboratory diagnosis. Superficial, cutaneous and sub-cutaneous fungal infections, Mycetoma, Leprosy, Herpes.
MI5.1	Meningitis- etiological agents, pathogenesis, clinical features and laboratory diagnosis. Meningococci, Leisteria, H. influenzae, Cryptococcus neoformans
MI5.2	Encephalitis- etiological agents, pathogenesis, clinical features and laboratory diagnosis. Primary amoebic meningo-encephalitis, viral encephalitis, Japanese encephalitis, Rabies, Aseptic meningitis -ECHO viruses
MI5.3	laboratory diagnosis of meningitis, interpretation of laboratory reports
MI6.1	Upper respiratory tract infections- etiological agents, pathogenesis, clinical features and laboratory diagnosis. Orthomyxo virus, Paramyxo virus, Adenovirus, Rhinovirus, Diphtheria, Bordetella and Lower respiratory tract infections-etiological agents, pathogenesis, clinical features and laboratory diagnosis Streptococcus pneumonia, Mycobaterium tuberculosis,
MI6.2	Gram staining- Interpretation of results
MI6.3	Z-N staining and Fluorescent staining- Interpretation of results
MI7.1	Genitourinary infections- etiological agents, pathogenesis, clinical features and laboratory diagnosis. Non-gonococcal urethritis, Trichomoniasis, . Bacterial vaginosis
MI7.2	Sexually transmitted infections- etiological agents, pathogenesis, clinical features and laboratory diagnosis. Syphilis, Gonorrhea, Herpes, Calymmatobacterium, HPV, Molluscum contagiosum
MI7.3	Urinary tract infections- etiological agents, pathogenesis, significant bacteruria , clinical features and laboratory diagnosis. E. coli, Klebsiella, Proteus
MI8.1	Zoonotic diseases- etiological agents, mode of transmission, pathogenesis, clinical features laboratory diagnosis and prevention-Brucella, Yesinia, Leptospira, Anthrax and Arbo viruses, Hydatid disease
MI8.2	Opportunistic infections- etio-pathogenesis, factors contributing to the occurrence of OI, laboratory diagnosis - Toxoplasma, Pneumocystis jiroveci, Cryptospora, Isospora,
MI8.3	Oncogenic viruses in the evolution of virus associated malignancy

Competency Nos.	Topics and Subtopics
MI8.5	Healthcare Associated Infections (HAI)- definition, types, factors that contribute to the development of HAI and the methods for prevention- Pseudomonas, MOTT, Antibiotic associated diarrhea
MI8.6	Hand hygiene, bio medical waste management, environmental hygiene, use of equipments, respiratory hygiene and cough etiquette, PEP, spill management, vaccination
MI8.7	Infection control practices and use of Personal Protective Equipments (PPE)
MI8.8	Microbiology of food, water and air
MI8.9	Methods of sample collection and transport
MI8.10	Collection and transport of specimens
MI8.11	Respect for patient samples sent to the laboratory for performance of laboratory tests
MI8.12	Confidentiality pertaining to patient identity in laboratory results
MI8.13	Appropriate laboratory test in the diagnosis of the infectious disease
MI8.14	Confidentiality pertaining to patient identity in laboratory results
MI8.15	Interpret the results of the laboratory tests used in diagnosis of the infectious disease
MI8.16	National Health Programs in the prevention of common infectious diseases- Vector borne diseases control program, Revised National Tuberculosis Control Program (RNTCP), National AIDS Control Program, National Leprosy Eradication Program, Pulse Polio Program- Poliovirus
Miscellaneous topics - may be covered in theory or SGT	Burkholderia, Mycoplasma, Borrelia, Actinomyses & Nocardia, Rickettsia, Bortonella, Ehrlichia, Chlamydiae, Ebola virus, Slow viruses

No	COMPETENCY The student should be able to	SLO	Domain K/S/A/C	Level K/KH/SH / P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MICROBIOLOGY										
Topic: Musculoskeletal system skin and soft tissue infections			**Number of competencies: (3)**				**Number of procedures that require certification : (NIL)**			
MI4.1	Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections	At the end of the session, the student must be able to: **1.** Classify anaerobes basing on Gram staining property. **2.** Enumerate different types of anaerobic infections and its causative agents. **3.** Understand the pathogenesis of anaerobic infections. **4.** Describe the clinical features of anaerobic infections. **5.** Describe the precautions taken at the time of sample collection for diagnosis of anaerobic infections. **6.** Discuss the different methods of achieving anaerobiasis. **7.** Explain different laboratory methods for diagnosis of anaerobic infections. **8.** Enlist various anti-microbial drugs active against anaerobes. **9.** Discuss the newer drugs available for treatment of anaerobic infections.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	
MI4.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections	At the end of the session, the student must be able to: 1. Enumerate the organisms causing bone and joint infections. 2. Describe the pathogenesis and associated virulence factors of the causative agents. 3. Mention the clinical features. 4. Describe the different samples, their collection methods and precautions to be followed at the time of sample collection .	K	KH	Y	Lecture	Written/ Viva voce		Orthopaedics	

		5. Discuss the laboratory methods for the diagnosis of bone and joint infections. 6. Describe the recent advancements in the laboratory diagnosis of bone and joint infections. 7. Enlist the commonly used anti-microbials in the treatment of bone and joint infections. 8. Explain the resistant mechanisms involved for failure of therapy. 9. Discuss the newer anti-microbial drugs used for the treatment of resistant organisms.								
MI4.3	Describe the etio-pathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis	At the end of the session, the student must be able to: 1. Categorize skin & soft tissue infections and the organisms associated with it. 2. Discuss the pathogenesis and various virulence factors facilitating the pathogen survival. 3. Describe the clinical features of skin & soft tissue infections. 4. Mention the different samples and their methods of collection. 5. Enumerate the laboratory methods for diagnosis of skin & soft tissue infections. 6. Discuss newer methods of diagnosis. 7. Outline the commonly used antimicrobials for the management of skin and soft tissue infections. 8. Mention the newer anti-microbial drugs used for the treatment of multi-drug resistant organisms.	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy, General Surgery	
Topic: Central Nervous System infections		**Number of competencies: (3)**			**Number of procedures that require certification : (NIL)**					
MI5.1	**Describe the aetiopathogenesis, clinical course and discuss the laboratory diagnosis of meningitis**	**At the end of the session, the student must be able to:** **1. Define meningitis.** **2. Enlist different types of meningitis and its causative agents.** **3. Explain the pathogenesis and clinical features of meningitis.** **4. Understand the significance of aseptic**	**K**	**KH**	**Y**	**Lecture**	**Written/ Viva voce**		**General Medicine, Pediatrics**	**Pathology**

		precautions at the time of CSF collection. 5. Outline the different laboratory methods in diagnosis of meningitis. 6. Discuss the recent advancements in the laboratory diagnosis. 7. Mention the commonly used antimicrobial drugs in the treatment of meningitis. 8. State the newer anti-microbial drugs available for its management. 9. Mention the vaccines available for prevention of meningitis.								
MI5.2	Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of encephalitis	At the end of the session, the student must be able to: 1. Define encephalitis. 2. Enumerate the causative agents of encephalitis. 3. Describe its pathogenesis and clinical features. 4. Understand the importance of sterile technique of CSF collection. 5. Discuss different laboratory methods and its significance in diagnosis of encephalitis. 6. Mention the antimicrobials used for the treatment of encephalitis. 7. Enlist the vaccines available for prevention of encephalitis.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics	Pathology
MI5.3	Identify the microbial agents causing meningitis	At the end of the session, the student must be able to: 1. Enlist different types of meningitis basing on the causative agents. 2. State the differences on CSF examination and on analysis between the different etiological agents of meningitis. 3. Identify the microbial agents causing meningitis basing on variouslaboratory techniques.	S	SH	Y	DOAP session	Skill assessment		General Medicine, Pediatrics	
Topic: Respiratory tract infections			Number of competencies: (3)				Number of procedures that require certification : (02)			

MI6.1	Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract	At the end of the session, the student should be able to: 1. Enlist the pathogens responsible for causing infections of the upper and lower respiratory tract. 2. Describe the pathogenesis and associated virulence factors of common pathogens. 3. Discuss different types of samples and methods of collection for the diagnosis of respiratory pathogens. 4. Understand the significance of taking precautions at the time of collection of respiratory specimens. 5. Enumerate various laboratory methods available for diagnosis of respiratory pathogens. 6. Mention the newer techniques available for diagnosis of respiratory pathogens in the laboratory. 7. Outline the drugs employed for the treatment of infections of upper and lower respiratory tract. 8. Discuss the methods of prevention of infections of upper and lower respiratory tract and mention the vaccines available.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	At the end of the session, the student must be able to: 1. Enlist the causative agents of upper respiratory tract infections. 2. Describe the commensal flora of upper respiratory tract. 3. Identify the causative agents of upper respiratory tractinfections basing on morphology in Gram's stain.	S	P	Y	DOAP session	Skill assessment	3	General Medicine	
MI6.3	Identify the common etiologic agents of lower respiratory tract	At the end of the session, the student must be able to: 1. Enlist the causative agents of lower respiratory tract infections. 2. Identify the causative agents of lower respiratory tract infections basing on morphology in Gram's stain. 3. Identify the causative agents of lower	S	P	Y	DOAP session	Skill assessment	3	General Medicine	

	infections (Gram Stain & Acid fast stain)	respiratory tract infections basing on morphology in acid fast stain.								
Topic: Genitourinary & Sexually transmitted infections			Number of competencies: (3)				Number of procedures that require certification : (NIL)			
MI7.1	Describe the etio-pathogenesis and discuss the laboratory diagnosis of infections of genitourinary system	At the end of the session, the student must be able to: 1. Enumeratethe causative agents of infections of the genitourinary system. 2. Discuss the pathogenesis and virulence factors associated with it. 3. Discuss various laboratory techniques employed for the detection of infections of the genitourinary system. 4. Describe the recent advancements in the laboratory diagnosis of it. 5. Mention the antimicrobial agents used in management of common infections of genitourinary tract. 6. Discuss the resistance mechanisms and antimicrobials used for the treatment of infections with resistant organisms. 7. Describe the methods of prevention of infections of genitourinary tract.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
MI7.2	Describe the etio-pathogenesis and discuss the laboratory diagnosis of sexually transmitted infections. Recommend preventive measures	At the end of the session, the student must be able to: 1. Enlist the various sexually transmitted infections and causative agents. 2. Explain the pathogenesis in association to the virulence factors. 3. Discuss various laboratory investigations for the detection of sexually transmitted infections. 4. Mention the newer diagnostic tests. 5. Describe the prevention methods for the same.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy, Obstetrics &	

									Gyna ecolo gy	
MI7.3	Describe the etio-pathogenesis, clinical features, the appropriate method for specimen collection, and discuss the laboratory diagnosis of Urinary tract infections	At the end of the session, the student must be able to: 1. Describe the various types of UTI and its causative agents. 2. Explain the pathogenesis of urinary tract infections and virulence of uropathogens. 3. Describe the clinical features of UTI. 4. Mention the aseptic precautions to be followed during sample collection in males and females. 5. Understand the significance of mid stream urine collection and Kass concept of significant bacteruria. 6. Discuss the laboratory techniques employed for detection of urinary pathogens. 7. Mention the commonly used antimicrobials for treatment of urinary tract infections. 8. List the newer drugs available for treatment of it.	K	KH	Y	Lecture, Small group discussio n	Written/ Viva voce		General Medicine	
Topic: Zoonotic diseases and miscellaneous			Number of competencies: (16)					Number of procedures that require certification : (01)		
MI8.1	Enumerate the microbial agents and their vectors causing Zoonotic diseases. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course, laboratory diagnosis and prevention	At the end of the session, the student must be able to: 1. Define zoonosis with examples. 2. Understand the difference between vector and causative agent. 3. Explain the association between microbial agent and vector in relation to zoonotic infections. 4. Describe the morphology & mode of transmission of the causative agents. 5. Explain the pathogenesis and clinical features of the zoonotic diseases. 6. Enumeratevarious laboratory methods available for the diagnosis of zoonotic diseases. 7. Describe the methods of	K	KH	Y	Lecture, Small group discussio n	Written/ Viva voce		General Medicine	

		prevention of zoonotic diseases.								
MI8.2	Describe the etio-pathogenesis of opportunistic infections (OI) and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis	At the end of the session, the student must be able to: 1. Define opportunistic infection. 2. Enlist various opportunistic infections with their causative agents. 3. Explain the pathogenesis of opportunistic infections. 4. State the factors predisposing to the occurrence of opportunistic infections. 5. Outline the methods in the laboratory diagnosis of opportunistic infections.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine	Pathology
MI8.3	Describe the role of oncogenic viruses in the evolution of virus associated malignancy	At the end of the session, the student must be able to: 1. Define oncogenic virus. 2. Mention the list of oncogenic viruses and their associated diseases. 3. Describe the pathogenesis behind oncogenesis. 4. Describe the association of oncogenic viruses and malignancy.	K	KH	Y	Lecture	Written		General Medicine	Pathology

Number	COMPETENCY The student should be able to	Specific learning objective (SLO)	Domain K/S/A/C	Level K/KH/SH / P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI8.4	Describe the etiologic agents of emerging Infectious diseases. Discuss the clinical course and	At the end of the session, the student should be able to: 1. Understand emerging and re emerging infection definitions 2. Enumerate and explain the causative agents of Emerging diseases. 3. Able to differentiate the clinical course of new diseases 4. Clearly outline the lab diagnosis of the same	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Community Medicine	

	diagnosis									
MI8.5	**Define Healthcare Associated Infections (HAI) and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention**	**At the end of the session, the student should be able to:** **1. Define HAI** **2. Enumerate different types of HAI and their surveillance (Mainly CAUTI, SSI, CLABSI, VAP etc)** **3. .Explain the factors affecting and source of HAI** **4. Enumerate the causative agents(especially ESCAPE pathogens)which causes HAI** **5. Explain Modes of Transmission** **6. Able to understand and perform in control practices to prevent HAI.**	**K**	**KH**	**Y**	**Lecture, Small group discussio n**	**Written/ Viva voce**		**General Medicine, Community Medicine**	
MI8.6	**Describe the basics of Infection control**	**At the end of the session, the student should be able to** **1. Identify main sources of HAI so that take measures to prevent them** **2. Understand Infection control committee and their surveillance activities** **3. Learn universal precautions/ Standard precautions** **4. Specific precautions in case of specific diseases.** **5. use of different disinfectants in different areas** **6. Know the steps of Spillage Cleaning** **7. Enumerate the different colour coding system in Biomedical Waste Management** **8. How to dispose different materials according to BMW rules.** **9. Able to know how to combat Needle stick injuries**	**K**	**KH**	**Y**	**Lecture, Small group discussio n**	**Written/ Viva voce**			**Community Medicine**

MI8.7	**Demonstrate Infection control practices and use of Personal Protective Equipments (PPE)**	**At the end of the session, the student should be able to** **1. Explain the 5 moments of Hand hygiene methods acc. To WHO** **2. Perform the steps of Hand rub and Hand washing** **3. Understand the indication of when to wear different PPE in different circumstances.** **4. Perform different steps in while wearing gloves and disposing them.** **5. To know how to wear a Mask (fit test) and dispose it.** **6. Sequence of Donning and Doffing of PPE**	**S**	**P**	**Y**	**DOAP session**	**Skill assessment**	**3 each in (Hand hygiene & PPE)**	**General Surgery**	**Community Medicine**
MI8.8	**Describe the methods used and significance of assessing the microbial contamination of food, water and air**	**At the end of the session, the student should be able to** **1. Describe the bacterial flora in water and air** **2. Able to differentiate between the normal microbial flora and the contamination** **3. Able to tell indicator organisms of fecal contamination of water.** **4. Collection and Transport of sample of water for bacteriological examination** **5. Understand method of analysis (Coliform count)** **6. Explain the bacteriology of Milk and methods of sterilizing the milk** **7. Enumerate different tests performed to know the effectiveness of Pasteurization.** **8. Describe the Bacteriology of air and method to count the bacteria in air** **9. Enumerate the agents of food poisoning and their common sources** **Laboratory diagnosis of Different Pathogens causing food poisioning.**	**K**	**KH**	**Y**	**Lecture, Small group discussion**	**Written/ Viva voce**			
MI8.9	**Discuss the appropriate method of collection of samples in the**	**At the end of the session, the student should be able to** **1. Enumerate different samples which can be collected for detection of Pathogens causing diseases.** **2. Different types of sterile containers to**	**K**	**KH**	**Y**	**Lecture, Small group discussion**	**Written/ Viva voce**			

	performance of laboratory tests in the detection of microbial agents causing infectious diseases	collect different types of samples 3. Different types of colours of vaccutainers to collect the blood/ serum for different tests for culture as well as for serology. 4. Collection of thin and thick films for malarial parasites 5. Understand what is Mid stream urine sample and how to collect, and other urine samples. 6. Timing to collect Sputum sample and how to instruct the Patient to collect the sample. 7. To know how many Stool samples have to collect and how to collect for diagnosis of parasites.								
MI8.10	Demonstrate the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing Infectious diseases	At the end of the session, the student should be able to: 1. Explain the precautions to be taken while collecting any patient samples for microbiological investigations. 2. Guide the usage of transport media for sample transportation to Microbiology laboratory. 3. Explain the technique of blood sample collection by venipuncture for blood culture and other serological tests. 4. State the purpose where serum and whole blood can be used in microbiological testing. 5. Explain the significance of mid stream urine specimen and urine sample for Mycobacterium species detection. 6. Guide collection of samples like pus, aspirates, wound swabs, body fluids,etc. for microbiological testing. 7. Describe how to collect stool samples for different methods of microbiological testing(Stool examination, NIH swab, Scotch tape etc). 8. Explain the method of collection of skin scrapings, nail clippings, hair plucking'setc. for fungal identification.	S	SH	Y	DOAP session	Skill assessment			

MI8.11	Demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases	At the end of the session, the student should be able to 1. Check sample labelling with patient related details like Name, age, sex, central lab ID etc. 2. Check for Microbiology lab ID on sample and in the register. 3. Understand the importance of taking the Consent and counseling of patient before taking the samples. 4. Guide the medical staff in mentioning other details like site of collection, provisional diagnosis and history of antibiotic usage by the patient. 5. Guide the processing of Precious samples like CSF and Paediatric samples.	A	SH	Y	DOAP session	Skill assessment			
MI8.12	Discuss confidentiality pertaining to patient identity in laboratory results	At the end of the session, the student should be able to: 1. Understand the social stigma for some diseases to reveal the results. 2. Check the abnormal results twice before releasing the results. 3. Discuss the results only with the treating doctor and the doctor should discuss with only patient and not with relatives 4. Understand coding system of samples.	A	KH	Y	Lecture, Small group discussion	Viva voce			
MI8.13	Choose the appropriate laboratory test in the diagnosis of the infectious disease	At the end of the session, the student should be able to 1. Choose the laboratory test depending on clinical course of disease and which sample is appropriate to collect 2. Explain the differential diagnosis based upon the clinical features and prescribe single test or multiple tests to identify the pathogens. 3. Able to explain whether the disease caused by bacteria, fungi or parasites and which culture has to be prescribed 4. If Microorganism not cultivable or can easily demonstrable by antigen/ antibody detection then can choose the serology. 5. Able to choose screening test is	K	KH	Y	Small group discussions, Case discussion	Written/ Viva voce/ OSPE			

		enough or confirmatory test is necessary.								

Number	COMPETENCY The student should be able to	Specific learning objectives (SLO)	Domain K/S/A/C	Level K/KH/SH/ P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical integration	Horizontal Integration
MI8.14	**Demonstrate confidentiality pertaining to patient identity in laboratory results**	**At the end of the session, the student should be able to:** **1. Understand and practice medical ethics related to laboratory medicine.** **2. Gain trust of the patient in maintaining the confidentiality pertaining to patient identity in laboratory results.** **3. Take precautions in not revealing the laboratory test results to others excepting the patient.**	A	SH	Y	DOAP session	Skill assessment		AETCOM	
MI 8.15	**Choose and Interpret the results of the laboratory tests used in diagnosis of the infectious diseases**	**At the end of the session, the student should be able to:** **1. Understand the clinical condition of the patient.** **2. Correlate the laboratory investigations ordered with the provisional diagnosis mentioned on the**	K/S	SH	Y	Small group discussion, Case discussion	Written/ Viva voce/ OSPE			

		laboratory requisition form of the patient. **3. Guide the clinician in choosing the right laboratory tests.** **4. Interpret the results of the laboratory investigations ordered for diagnosis of infectious diseases.**								
MI 8.16	**Describe the National Health Programs in the prevention of common infectious disease (for information purpose only as taught in CM)**	**At the end of the session, the student should be able to:** **1. Enlist the national health programs in the prevention of infectious diseases.** **2. Understand the significance and implementation of these health programs.** **3. Explain the universal immunization programme in India.** **4. Explain Revised National Tuberculosis Elimination Programme.** **5. Explain National Leprosy Eradication Programme.** **6. Enlist National Vector Borne Disease Control Programmes** **7. Explain National AIDS Control Programme** **8. Describe National Programme for Control of Blindness & Visual impairment**	K	K	Y	Lecture	Written/ Viva voce			Community Medicine

		9. Discuss about the Diarrheal Disease Control Programme								

*causative agents of Infectious diseases are inclusive of bacterial, viral, parasites and fungal agents causing various clinical conditions.

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform.
Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

AETCOM Module no.	Topics and Subtopics
2.5	Bioethics-patient autonomy and decision making
2.6	Bioethics-patient autonomy and decision making
2.7	Bioethics-patient autonomy and decision making

1. ATTENDANCE :
    a) 75% attendance in theory and 80% in practical separately is mandatory for a student to be eligible for University Examinations.
2. INTERNAL EXAMINATION:
    a) Three internal Exams will be conducted consisting of theory and practical including orals
    b) 50% marks combined in theory and practical (not less than 40% in each) is mandatory for obtaining eligibility to appear for University Examinations.
    c) One Short Answer Question (SAQ) from AETCOM should be reflected in the internal Examination.
3. UNIVERSITY EXAMINATIONS:
    a) 50% of the marks should be secured separately in theory and practical to be declared as qualified in the examination
    b) If a subject has two papers in theory, the student should secure 40% minimum in each paper, but the aggregate of two papers should be

50%.

c) Internal marks are not added to the marks of university examination, but mentioned separately on the grade card.

d) Viva Marks are included in practical.

e) The grace marks up to a maximum of five may be awarded at the discretion of the university to a learner for clearing the examination as a whole but not for clearing a subject resulting in exemption.

f) Chairman of board of Paper-setters in the concerned subject who shall be an internal examiner and shall moderate the question paper.

Paper wise distribution of topics for Prelim & GITAM Deemed to be University Annual Examination

Year: Second MBBS **Subject: MICROBIOLOGY**

Paper	Section	Topics
I		General Microbiology and Immunity
		CVS and Blood
		Gastrointestinal and hepatobiliary system
		AETCOM Module No- 2.5,2.6 and 2.7
II		Musculoskeletal system, skin and soft tissue infection
		Central nervous system infections
		Respiratory tract infections
		Genitourinary and sexually transmitted infections
		Zoonotic diseases and miscellaneous

2 PAPERS OF 100 MARKS EACH

Type of questions	Marks per question	Number of questions	Total marks
Long Answer questions (clinical case scenario)	10	2	20
Short answer questions	5	8	40
Brief answer questions	3	10	30
MCQs	1	10	10

Second MBBS
Internal Assessment
Subject: Microbiology

Applicable w.e.f October 2020 onwards examination for batches admitted from June 2019 onwards

Phase	I-Exam (After 3 months , Jan)			II-Exam (After 7 months, May)			Prelims (July)		
	Theory	Practical (Including 10 Marks for Journal & Log Book)	Total Marks	Theory	Practical Including 10 Marks for Journal & Log Book	Total Marks	Theory	Practical	Total Marks
Second MBBS	50	50	100	50	50	100	Paper 1 -100 Paper 2 -100	100	300

1. There will be 3 internal assessment examinations in Microbiology. The structure of the internal assessment theory examinations should be similar to the structure of University examinations.

2. It is mandatory for the students to appear for all the internal assessment examinations.
3. First internal assessment examination will be held in January, second internal assessment examination willbe held in May and third internal assessment examination will be held in July.
4. A student who has not taken minimum required number of tests for Internal Assessment each in theoryand practical will not be eligible for University examinations.
5. There will be only one additional examination for absent students (due to genuine reason) after approval bythe Institutional Grievances Committee. It should be taken after preliminary examination and before submission of internal assessment marks to the University.
6. Internal assessment marks for theory will be out of 300 and practical will be out of 200.

1. Reduce total theory internal assessment to 40 marks and total practical internal assessment to 40 marks. Students must secure at least 50% marks of the total marks (combined in theory and practical; not less than 40 % marks in theory and practical separately) to be eligible for appearing University examination
2. **Conversion Formula for calculation of marks in internal assessment examinations**

	First IA	Second IA	Third IA (Prelim)	Total	Internal assessment marks: Conversion formula (out of 40)	Eligibility to appear for final University examination (after conversion out of 40) (40% separately in Theory & Practical, 50% Combined)	
Theory	50	50	200	300	Total marks obtained 7.5	16 (Minimum)	Total of Theory + Practical Must be 40.
Practical	50	50	100	200	Total marks obtained 05	16 (Minimum)	

While preparing Final Marks of Internal Assessment, the rounding-off marks shall done as illustrated in following table

Internal Assessment Marks	Final rounded marks
15.01 to 15.49	15
15.50 to 15.99	16

3. Internal assessment marks will reflect as separate head of passing at the summative examination.
4. Internal assessment marks will not to be added to marks of the University examinations and will be shown separately in mark list.

Second MBBS Practical Mark's Structure Internal Assessment Examinations

(Applicable w.e.f October 2020 onwards examination for batches admitted from June 2019 onwards)

Subject : MICROBIOLOGY Practical										
Seat No.	I Term					II Term				
	Gram Stain	Rapid card tests for MP	Journal/Log book	Viva	Total	Z-N stain	Stool - Routine microscopy	Journal/Log book	Viva	Total
Max. Marks	10	10	10	20	50	10	10	10	20	50

Second MBBS Practical Mark's Structure (Prelim)

Applicable w.e.f October 2020 onwards examination for batches admitted from June 2019 onwards

Total Marks= 100

(Practicals 70+ Record 10+ Orals 20)

Practical		**Marks**
Practical		**70 marks**
	Spotters	10
	Gram-staining	10
	Special-staining (Acid-fast staining)	10
	Stool examination	10
	Clinical microbiology applied exercise Based on clinical infective syndromes such as (Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system, skin, soft tissue and musculoskeletal system, central nervous system, respiratory system, genitourinary system, Hospital infection control)	10 marks x 3 exercises= 30
Record		**10 marks**
Viva voce		**20 marks**
	Viva voce-I: General Microbiology, Immunology, Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system	10 marks
	Viva voce-II: Infections of skin, soft tissue and musculoskeletal system, central nervous system, respiratory system, genitourinary and sexually-transmitted infections, hospital infection and control, zoonotic and miscellaneous	10 marks
Overall total in practical assessment		**100**

Second MBBS Practical Mark's Structure

(GITAM Deemed to be University Examination)

Applicable w.e.f October 2020 onwards examination for batches admitted from June 2019 onwards

Total Marks= 100

(Practicals 70+ Record 10+ Orals 20)

Practical		**Marks**
Practical		**70 marks**
	Spotters	10
	Gram-staining	10
	Special-staining (Acid-fast staining)	10
	Stool examination	10
	Clinical microbiology applied exercise Based on clinical infective syndromes such as (Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system, skin, soft tissue and musculoskeletal system, central nervous system, respiratory system, genitourinary system, Hospital infection control)	10 marks x 3 exercises= 30
Record		**10 marks**
Viva voce		**20 marks**
	Viva voce-I: General Microbiology, Immunology, Infections of blood stream and cardiovascular system, gastrointestinal tract and hepatobiliary system	10 marks
	Viva voce-II: Infections of skin, soft tissue and musculoskeletal system, central nervous system, respiratory system, genitourinary and sexually-transmitted infections, hospital infection and control, zoonotic and miscellaneous	10 marks
Overall total in practical assessment		**100**

GIMSR, GITAM (Deemed to be University)

Marks distribution for Microbiology University examination as per CBME

Theory: 200M

Paper- I: 100M

Paper II: 100M

Practicals : 100M

Total marks: 300

MICROBIOLOGY THEORY EXAMINATION

2 PAPERS OF 100 MARKS EACH

Type of questions	Marks per question	Number of questions	Total marks
Long Answer questions (clinical case scenario)	10	2	20
Short answer questions	5	8	40
Brief answer questions	3	10	30
MCQs	1	10	10

Paper 1 : Maximum marks: 100

Sl No.	Topic	Weightage	Marks	Nature of questions
1	General Microbiology	20%	20	SAQ, BAQ,MCQS
2	Immunology	20%	20	SAQ, BAQ,MCQS
3	CVS and Blood	30	30	LAQ, SAQ, BAQ,MCQS
4	Gastrointestinal and Hepatobiliary system	30	30	LAQ, SAQ, BAQ,MCQS
	Total	100%	100	

Long Answer Question (LAQ) can be from the following topics:

- CVS and Blood
- Gastrointestinal and Hepatobiliary system

Paper II : Maximum marks: 100

Sl No.	Topic	Weightage	Marks	Nature of questions
1	**Musculoskeletal system skin and soft tissue infections**	20%	20	LAQ, SAQ, BAQ, MCQ
2	**Central Nervous System infections**	20%	20	LAQ, SAQ, BAQ, MCQ
3	**Respiratory tract infections**	20%	20	LAQ, SAQ, BAQ, MCQ
4	**Genitourinary & Sexually transmitted infections**	20%	20	LAQ, SAQ, BAQ, MCQ
5	**Zoonotic diseases and miscellaneous (HIC)**	20%	20	SAQ, BAQ, MCQ

Long answer Questions (LAQ) can be from the following topics:

1. Musculoskeletal system, skin and soft tissue infections

2. Central Nervous system Infections

3. Respiratory tract infections

4. Genitourinary & sexually transmitted infections

GIMSR, GITAM (Deemed to be University)

Microbiology Model Paper

PAPER-I

GENERAL MICROBIOLOGY, IMMUNOLOGY,

INFECTIONS OF BLOOD STREAM AND CARDIOVASCULAR SYSTEM, GASTROINTESTINAL TRACT

Long answer question (10 marks X 2 = 20 marks)

1) A 29-year-old female was referred to outpatient department (OPD) with a two-week history of severe frontal headache and high-grade fever reaching 41°C (106°F), diarrhea, bloody discharge with abdominal cramps. (2+2+4+2=10)

a. What is the most probable diagnosis and name the causative organism?
b. Discuss the pathogenesis of the disease.
c. Discuss the laboratory diagnosis of the above disease
d. Add a note on prophylaxis of the above condition

2) A 25-year-old male with history of multiple sex partners is admitted with complaints of unexplained fever, progressive loss of weight, persistent diarrhoea and generalized lymphadenopathy for the past 6 months.(3+2+4+1 = 10 marks)

a. What is the most probable diagnosis and Draw a labelled diagram of the morphology of the causative agent of this condition.
b. Discuss the pathogenesis of the above condition
c. Discuss the laboratory diagnosis of the above condition.
d. Add a note on post exposure prophylaxis

Short answer questions (5 marks X 8 = 40 Marks)

3) PCR- principle and application pertaining to diagnostic microbiology.
4) Autoclave
5) National immunization schedule.
6) ELISA- principle and application pertaining to diagnostic microbiology.
7) Type I hypersensitivity
8) Bacterial cell wall
9) Laboratory diagnosis of cholera.
10) Laboratory diagnosis of falciparum malaria.

Ultra short answer questions (3 marks x 10 = 30 marks)

11) Laboratory diagnosis of intestinal amoebiasis .
12) Pathogenesis of dengue infection .
13) What is informed consent and what is informed refusal? (AETCOM)
14) What is PKDL?
15) Plasmids
16) Draw a labelled diagram of fertilized egg of *Ascaris lumbricoides*
17) Differences between T cells and B cells
18) Hepatitis B vaccine ?
19) Discuss the causative agents of food poisoning.
20) Microfilaria

Multiple Choice Questions (1mark x10 =10 Marks)

21) Lyme's disease is caused by

a) B.recurrentis b) B. vincenti
c) B.burgdorferi d) Fusobacteria

22) Robertson cooked meat broth is an example of

a. Anaerobic media b. Simple media c. Sugar media d. Enriched media

23) CD8 is a marker of

a. B-cell b. Helper T cell c. Activated macrophage d. Cytotoxic T cell

24) Antibody that crosses placenta is

a. IgA b. IgE c. IgM d. IgG

25) Capsule can be best demonstrated by

a. India ink staining b. Gram staining c. Acidfast staining d. Albert's staining

26) Which of the following can be identified by milk ring test

a. Salmonella b.Brucella C. Coxiella d.M.tb

27) Species of Shigella which is prominent in India is

a. S.sonnei b. S.boydii c. S.dysentriae d. S.flexneri

28) Which of the following bacteria is responsible for Pseudomembranous enterocolitis

a. Cl.difficle b. Cl.botulinum C. Cl.perfringens d. Cl.tetani

29) Which of the following organism is Rapid Urease producer

a. H.pylori b. E.coli c.Pseudomonas d. Shigella

30) Which skin test is useful for diagnosis of Hydatid disease

a. Casoni's test b. Schick test c. Dick test d. Tuberculin test

GIMSR, GITAM (Deemed to be University)

Microbiology Model Paper

PAPER-II

INFECTIONS OF SKIN, SOFT TISSUE AND MUSCULOSKELETAL SYSTEM, CENTRAL NERVOUS SYSTEM, RESPIRATORY SYSTEM, GENITOURINARY SYSTEM, HOSPITAL INFECTION AND CONTROL, ZOONOTIC AND MISCELLANEOUS

Long answer question (10 marks X 2 = 20 marks)

1) A 62 year old man has undergone an open surgery of fracture neck of femur. Three days after the surgery, he developed pus, erythema and tenderness at the site of incision. Discharge collected from the incision site was sent for culture, which has grown golden yellow hemolytic colonies on blood agar, catalase positive, culture smear showed gram positive cocci in clusters. (2+2+2+4= 10 marks)

a) What is the clinical diagnosis and the etiological agent?

b) What are the risk factors that can lead to this condition?

c) What are the common etiological agents?

d) Describe the laboratory diagnosis for this etiological agent.

2) Rajesh, a 28-year-old male, was admitted to the hospital with complaints of low- grade fever, loss of weight and appetite and chronic cough with expectoration for past 6 months. Sputum examination revealed long, slender and beaded acid fast bacilli. **(2+6+2= 10 marks))**

a. What is your provisional diagnosis and how you arrive at it?

b. Mention the laboratory diagnosis and newer diagnostic techniques in detail.

c. Mention briefly about RNTCP

Short answer questions (5 marks X 8 = 40 Marks)

3) Post exposure prophylaxis of rabies.

4) Laboratory diagnosis of pneumococcal meningitis.

5) Pathogenesis of gas gangrene .

6) Laboratory diagnosis of neurocysticercosis.

7) Dermatophyte infections- agents, and clinical types .

8) Laboratory diagnosis of syphilis .

9) Methods of biomedical waste segregation .

10) Post exposure prophylaxis following needle stick injury.

Ultra short answer questions (3 marks x 10 = 30 marks)

11) Laboratory diagnosis of candidiasis.

12) *Trichomonas vaginalis*- clinical manifestation and laboratorydiagnosis.

13) Satellitism

14) Barriers to implementation of healthcare as universal right. (AETCOM)

15) Name two common agents of neonatal pyogenic meningitis.

16) What is the mechanism of action of botulinum toxin ?

17) What is the treatment recommended for melioidosis ?

18) Non-gonococcal urethritis.
19) Antigenic shift and Antigenic drift
20) Kass concept

MCQs (1 mark X 10 = 10 marks)

21) All of the following viruses may be transmitted through Genital tract except

a. HSV b. HCV c. HPV d. Corona virus

22) What type of vaccine is MMR

a. Live attenuated vaccine b. Killed vaccine c. Sub-unit vaccine d. DNA vaccine

23) Which is not an ESKAPE pathogen

a. E.coli b. Acinetobacter c. Salmonella d. Pseudomonas

24) What is the route of administration of BCG Vaccine

a. Intra muscular b. Intravenous c. Intradermal d. Subcutaneous

25) Most common cause of community-acquired urinary tract infection is

a. Proteus b. E.coli C. Klebsiella d. Pseudomonas

26) Which of the following disease is transmitted by rodent

a. Epidemic typhus b. Endemic typhus c. Scrub typhus d. Q fever

27) Waterhouse-Friderichsen syndrome caused by

a. Bordetella b. Vibrio c. Neisseria meningitis d. Staphylococcus

28) Which of the following is not an agent of Bioterrorism

a. Bacillus anthracis b. Vibrio cholera c. Clostridium botulinum d. Bordatella

29) Which is the causative agent of primary atypical pneumonia?

a. S.pneumoniae b. Mycoplasma c. Klebsiella d. Hemophilus

30) All of the following diseases are zoonotic diseases except

a. Brucellosis b. Diphtheria c. Tularensis d. Plague

Competency Based Medical Education

Microbiology Learning Resource Material

Books recommended:

1. Textbook of Microbiology – R. Ananthanarayan C. K. Jayaram Panikar
2. A Textbook of Microbiology – P. Chakraborty
3. Textbook of Medical Microbiology – Rajesh Bhatia & Itchpujani
4. Textbook of Medical Microbiology – Arora and Arora
5. Textbook of Medical Parasitology – C. K. Jayaram Panikar
6. Textbook of Medical Parasitology – Arora and Arora
7. Textbook of Medical Parasitology – S.C.Parija
8. Microbiology in clinical practice – D. C. Shanson
9. A Textbook of Parasitology – Dr. R.P. Karyakarte and Dr. A.S. Damle
10. Essentials of Medical Microbiology – Apurba shashtry

Reference books:

1. Mackie McCartney practical Medical Microbiology- Colle JG, Fraser AG
2. Principles of Bacteriology, Virology & Immunology vol. 1, 2, 3, 4, 5- Topley Wilsons
3. Medical Mycology (Emmons)- Kwon – Chung
4. Review of Medical Microbiology (Lange)- Jawetz
5. Immunology- Weir DM
6. Medical Microbiology- David Greenwood, Richard Stack, John Pentherer
7. Parasitology- KD Chatterjee
8. Medical virology- Timbury MC
9. Mackie McCartney Medical, Microbiology vol.1- Duguid JP
10. Microbial infections- Marmion BP, Swain RHA
11. Bailey & Scott's Diagnostic Microbiology
12. Textbook of Mycology – Jagdish Chander

INDEX

Sr. No	Description	Page No's	Status	Signature of Teacher
			Complete/ Incomplete	
1	Self-Directed Learning, skill assessment, participation in Group discussions			
2	*AETCOM Module No. 2.5, 2.6, 2.7			
3	Attendance Records			
4	Records of Internal Assessment			

*AETCOM – Competencies for IMG, 2018, Medical Council of India.

Section 1. Self-Directed Learning, skill assessment, participation in Group discussions

Sr. No	Self-Directed Learning, skill assessment, participation in Group discussions	Date	Signature of Teacher

Sr. No	Self-Directed Learning, skill assessment, participation in Group discussions	Date	Signature of Teacher

Reflection on Self-directed learning Experience

Topic: **Date:**

Signature of Teacher-in- charge

Reflection on Self-directed learning Experience

Topic: **Date:**

Signature of Teacher-in- charge

Section 2

Reflection on AETCOM Module – 2.5

Topic: **Date:**

Signature of Teacher-in- charge

Reflection on AETCOM Module – 2.6

Topic: **Date:**

Signature of Teacher-in- charge

Reflection on AETCOM Module - 2.7

Topic: **Date:**

Signature of Teacher-in- charge

Section 3

Section 3A: Attendance Record of the Student

S. No	Term	Theory (%)	Practical (%)	Signature of student	Signature of Teacher
A	I Term				
B	II Term				
C	III Term				
D	Overall attendance				

Note: Above information is for the benefit of students and parents. In case of any discrepancy departmental record will be treated as final.

SECTION 3B: Details of attending extra classes [For poor attendance (if any)]

S. No	Date	Period	Total hours	Signature of Student	Signature of Teacher
Total hours					

Note: Above information is for the benefit of students and parents. In case of any discrepancy departmental record will be treated as final.

Section 4

Records of Internal Assessment Examinations

Sr. No	Exam no	Theory	Practical including Viva	Signature of student	Signature of Teacher
1	I Internal Assessment	/50	/50		
2	II Internal Assessment	/50	/50		
3	III Internal Assessment	/200	/100		
4	Internal assessment (1+2+3)	/100	/100		
5	Betterment exam (If Any)	/200	/100		
6	Final Internal Assessment	/100	/100		

Note: Above information is for the benefit of students and parents. In case of any discrepancy departmental record will be treated as final.

GIMSR, GITAM (Deemed to be University)
Competency Based Medical Education (CBME) Curriculum for Undergraduate (MBBS) course
For the year 2020-2021 (October 2020 to September 2021)
Specific Learning Objectives in Pathology (Theory: Competencies No-1.1 to 36.1)

Number	COMPETENCY	Specific learning objective SLO	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching-Learning Methods	Time duration in hours	Suggested assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic	**Introduction to pathology**			**Number of competencies: (3)**					**Number of procedures for certification: (NIL)**		
PA 1.1	Describe the role of a pathologist in diagnosis and management of disease	At the end of the session the student should be able to 1.Define pathology 2.Role of pathologist in the diagnosis and Management of a disease	K	K	Y	lecture	1	Written/viva voce			
PA 1.2	Enumerate common definitions and terms used in Pathology	At the end of the session the student should be able to 1.Define common terms used in	K	K	Y	Small group discussion	1	viva voce			

		pathology									
PA 1.3	Describe the history and evolution of Pathology	At the end of the session the student should be able to 1.Discuss the history evolution of pathology	K	K	Y	Small group discussio n	1	viva voce			

Number	COMPETENCY	Specific learning objective SLO	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching-Learning Methods	Time duration in hours	Suggested assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic Cell Injury and Adaptation Number of competencies: (8) Number of procedures for certification: (NIL)											
PA2.1	Demonstrate knowledge of the causes, mechanisms, types and effects of cell injury and their clinical significance	At the end of the session the student should be able to 1. Enumerate causes of cell injury 2. Discuss mechanism of cell injury 3. Describe types of cell injury 4. List effects of cell injury 5. Discuss clinical significance of cell injury	K	KH	Y	Lecture/ Small group discussion	1	Written/ Viva voce			

PA2.2	Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury	At the end of the session the student should be able to 1. Distinguish between reversible injury and irreversible injury 2. Describe Morphology of cell injury.	K	KH	Y	Small group discussion	1	MCQ/Viva voce			

PA2.3	Intracellular accumulation of fats, proteins, carbohydrates, pigments	At the end of the session the student should be able to 1. Discuss Intracellular accumulation of fats 2. Discuss Intracellular accumulation of proteins 3. Discuss Intracellular accumulation of carbohydrates 4. Discuss Intracellular accumulation of pigments	K	KH	Y	Lecture/ small group discusssion	1	MCQ/Viva voce			
PA2.4	Describe and discuss Cell death- types, mechanisms, necrosis, apoptosis (basic as contrasted	At the end of the session the student should be able to 1. Define cell death 2. Enumerate Types of cell death	K	KH	Y	Lecture/ small group discusssion	1	Written/ Viva voce			

	with necrosis), autolysis	3. Discuss Mechanism of cell death 4. Define necrosis 5. Define apoptosis 6. Distinguish between apoptosis and necrosis 7. Define autolysis									

PA2.5	Describe and discuss pathologic calcifications, gangrene	At the end of the session the student should be able to know 1. Define pathologic calcification 2. Describe types of calcification 3. Define gangrene 4. Discuss types of gangrene	K	KH	Y	Lecture/ small group discusssion	1	Written/ Viva voce			
PA2.6	Describe and discuss cellular adaptations: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia	At the end of the session the student should be able to 1. Describe cellular adaptations 2. Describe atrophy 3. Describe hypertrophy 4. Describe metaplasia 5. Describe dysplasia	K	KH	Y	Lecture/ small group discusssion	1	Written/ Viva voce			

PA2.7	Describe and discuss the mechanisms of cellular aging and apoptosis	At the end of the session the student should be 1. Definition of cellular aging 2. Discuss Mechanism of cellular aging	K	KH	N	Lecture, Small group discussio n	1	Written/ Viva voce			

PA2.8	Identify and describe various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens	At the end of the session the student should be 1. Identify and describe forms of cell injury 2. Discuss manifestations and consequences in gross and microscopic specimens	S	SH	Y	DAOP session	1	Skill assessment			
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic	**Amyloidosis**			**Number of competencies: (2)**						**Number of procedures for certification: (NIL)**	
PA3.1	Describe the pathogenesis and pathology of amyloidosis	At the end of the session the student should be 1. Define amyloidosis 2. Discuss Pathogenesis of amyloidosis	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce			

		3. Describe types of amyloidosis 4. Describe Composition of amyloid									

PA3.2	Identify and describe amyloidosis in a pathology specimen	At the end of the session the student should be 1. Identify amyloidosis 2. Describe the gross and microscopic features of amyloidosis	S	SH	N	DOAP session	1	Skill assesment			
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic	**Inflammation**			**Number of competencies: (4)**						**Number of procedures for certification: (NIL)**	
PA4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	At the end of the session the student should be 1. Define inflammation 2. Describe types of inflammation 3. Discuss vascular and cellular events	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Surgery	

		of inflammation									
PA4.2	Enumerate and describe the mediators of acute inflammation	At the end of the session the student should be 1. Define acute inflammation 2. Discuss mechanism of acute inflammation 2. Enumerate mediators of acute inflammation	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Surgery	
PA4.3	Define and describe chronic inflammation including causes, types non-	At the end of the session the student should be 1. Define chronic	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce			

	specific and granulomatous and enumerate examples of each	inflammation 2. List causes of chronic inflammation 3. Decribe non specific and granulomatous inflammation 4. illustrate examples									
PA4.4	Identify and describe acute and chronic inflammation in gross and microscopic specimens	At the end of the session the student should be 1. Identify acute and chronic inflammation 2. Describe gross and microscopic features in specimens	S	SH	Y	DOAP session	1	Skill assessment			
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic : Healing and repair				**Number of competencies: (1)**					**Number of procedures for certification: (NIL)**		

PA5.1	Define and describe the process of repair and regeneration including wound healing and its types	At the end of the session the student should be 1. Define repair and regeneration 2. Discuss mechanism of repair and regeneration 3. Describe types of wound healing 4. Discuss factors effecting wound healing	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Surgery	
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Hemodynamic disorders**			**Number of competencies: (7)**					**Number of procedures for certification: (NIL)**		

PA6.1	Define and describe edema ,its types, pathogenesis and Clinical correlations	At the end of the session the student should be able to 1. Defineedema 2. Describe pathogenesis of edema 3. List the causes of edema	K	KH	Y	Lecture	2 hrs	Written/Viv avoce		General Medicine	
PA6.2	Define and describe hyperemia, congestion, hemorrhage	At the end of the session the student should be able to 1.Define & describe . hyperaemia 2.Define & describe Congestion 3.Define & describe hemorrhage	K	KH	Y	Lecture	1 hr	Written/Viv avoce			
PA6.3	Define and describe shock, its pathogenesis and its stages	At the end of the session the student should be able to 1. Define shock 2. list causes of	K	KH	Y	Lecture	2hr	Written/Viv avoce		General Surgery	

		shock 3. Discuss types of shock 4. Discuss pathogenesis 5. Describe stages of shock									
PA6.4	Define and describe normal haemostasis and the Etiopathogenesis and consequences of thrombosis.	At the end of the session the student should be able to 1. 1.Define hemostasis 2. Enumerate process of normal haemostasis 3. Define thrombosis 4. Describe pathogenesis of thrombosis 5. List types of thrombosis 6. Describe morphology & fate of thrombosis	K	KH	Y	Lecture	2hr	Written/Viv avoce			

PA6.5	Define and describe embolism and its causes and common types	At the end of the session the student should be able to 1. Define embolism 2. List causes & types and types of embolism 3. Discuss pathogenesis of embolism	K	KH	Y	Lecture	1hr	Written/Viva voce			
PA6.6	Define and describe Ischaemia /infarction its types, etiology ,morphologic changes and clinical effects	At the end of the session the student should be able to 1. Define infract 2. List causes of infarct 3. List types of infarct 4. Describe morphology of infarct with clinical features	K	KH	Y	Lecture	1hr	Written/Viva voce			

PA6.7	Identify and describe the gross and microscopic features of Infarction in a pathologic specimen	At the end of the session the student should be able to 1. Identify & interpret gross & microscopic features in specimen and slides 2. Document his findings in record book	S	SH	Y	DOAP session	Skill assessment	2 hr			
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Neoplastic disorders**			**Number of competencies: (5)**					**Number of procedures for certification: (NIL)**		
PA 7.1	Define and classify neoplasia. Describe the characteristics of neoplasia including gross, microscopy, biologic, behaviour and	At the end of the session the student should be able to 1. Define neoplasia 2. Differentiate between benign & malignant neoplasm 3. Describe gross,	K	KH	Y	Lecture	2hr	Written/Viva voce			

	spread. Differentiate between benign from malignant neoplams	microscopy of benign and maliganat tumours 4. Discuss the biologic, behaviour & spread of tumors									
PA 7.2	Describe the molecular basis of cancer	At the end of the session the student should be able to 1.Describe the molecular basis of cancer	K	KH	Y	Lecture	2hr	Written/Viva voce			
PA 7.3	Enumerate carcinogens and describe the process of carcinogenesis	At the end of the session the student should be able to 1. Define carcinogenesis 2. Enumerate carcinogens 3. Describe types of carcinogenesis	K	KH	Y	Lecture	1hr	Written/Viva voce			
PA 7.4	Describe the effects of tumor on the host including	At the end of the session the student should be able to	K	KH	Y	Lecture	1hr	Written/Viva voce			

	paraneoplastic syndrome	1. List clinical features due to effects of tumor 2. Discuss paraneoplastic syndromes 3. List causes of paraneoplastic syndrome									
PA 7.5	Describe immunology and the immune response to cancer	At the end of the session the student should be able to 1. Describe immunology and the immune response to cancer	K	KH	N	Lecture	1hr	Written/Viva voce			Microbiology
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Basic diagnostic cytology**				**Number of competencies: (3)**					**Number of procedures for certification: (NIL)**	
PA 8.1	Describe the diagnostic role of cytology and	At the end of the session the student should be able to	K	KH	Y	Lecture /Small group	1hr	Written/Viva voce		General surgery	

	its application in clinical care	1. Define cytology 2. Describe FNA procedure 3. Discuss role of cytology in clinical diagnosis				discussion					
PA 8.2	Describe the basis of exfoliative cytology including the technique & stains used	At the end of the session the student should be able to 1. Define exfoliative cytology 2. List Sites for specimen collection 3. Enumerate the stains used and the Staining technique	K	KH	Y	Lecture/ Small group discussion	1hr	Written/Viva voce/		General surgery	
PA 8.3	Observe a diagnostic cytology and its staining and interpret the specimen	At the end of the session the student should be able to 1. Identify the slide & stain used 2. Document findings in record	S	KH	Y	DOAP session	1hr	Skill assessment			

Number	COMPETENCY	Specific learning objective SLO	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching-Learning Methods	Time duration in hours	Suggested assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic: Immunopathology and AIDS					**Number of competencies: (7)**					**Number of procedures for certification: (NIL)**	
PA 9.1	Describe the principles and mechanisms involved in immunity	At the end of the session the student should be able to 1.Define immunity Describe the principle of normal immune response 3.List types of immunity 4. Describe mechanisms involved in immunity	K	KH	Y	Lecture	1hr	Written/Viva voce/		Pediatrics	microbiology
PA 9.2	Describe the mechanism of hypersensitivity reactions	At the end of the session the student should be able to 1.Define	K	KH	Y	Lecture	2hr	Written/Viva voce/			Microbiology

		hypersensitivity 2. List types of hypersensitivity 3. Discuss mechanism of hypersensitivity									
PA 9.3	Describe HLA system and the immune principles involved in transplant and mechanism of transplant rejection	At the end of the session the student should be able to 1. Describe HLA system& immune mechanism of recognition and rejection of transplant	K	KH	Y	Lecture	1hr	Written/Viva voce/			Microbiology
PA 9.4	Define autoimmunity. Enumerate autoimmune disorders	At the end of the session the student should be able to 1. Define autoimmunity 2. Discuss general principles of	K	KH	Y	Lecture	1hr	Written/Viva voce/		General medicine	

		autoimmunity 3.List autoimmune disorders									
PA 9.5	Define and describe the pathogenesis of systemic Lupus Erythematosus	At the end of the session the student should be able to 1. Define SLE 2. Describe Etiopathogenesis of SLE. 3. Morphology of SLE in various organs	K	KH	Y	Lecture	1hr	Written/Viva voce/		General medicine	
PA 9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	At the end of the session the student should be able to 1.Describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	Lecture	2hr	Written/Viva voce/		General medicine	Microbiology
PA 9.7	Define and describe the	At the end of the session the	K	KH	N	Lecture	1hr	Written/Viv		General	

	pathogenesis of other common autoimmune diseases	student should be able to 1.Discuss Rheumatoid arthritis 2.Discuss Systemic sclerosis 3.Discuss Sjogren syndrome						a voce/		medicine	
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic: (NIL)	**Infections and Infestations**			**Number of competencies: (4)**						**Number of procedures for certification:**	
PA 10.1	Define and describe the pathogenesis and pathology of malaria	At the end of the session the student should be able to 1.Describe the pathogenesis and pathology of malaria	K	KH	Y	Lecture	2hr	Written/Viva voce/		General medicine	Microbiology

PA 10.2	Define and describe the pathogenesis and pathology of cysticercosis	At the end of the session the student should be able to 1.Describe the pathogenesis and pathology of cysticercosis	K	KH	Y	Lecture	2hr	Written/Viva voce/		General medicine	Microbiology
PA 10.3	Define and describe the pathogenesis and pathology of leprosy	At the end of the session the student should be able to 1.Describe the pathogenesis and pathology of leprosy	K	KH	Y	Lecture	2hr	Written/Viva voce/		General medicine	Microbiology
PA 10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic	At the end of the session the student should be able to 1.Describe the pathogenesis and pathology of common bacterial, viral, protozoal and	K	KH	N	Lecture	2hr	Written/Viva voce/		General medicine	Microbiology

	diseases	helminthic diseases									
Number	**COMPETENCY**	**Specific learning objective**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core Y/N**	**Suggested Teaching Learning methods**	**Time duration in hours**	**Suggested Assessment methods**	**Number required to certify P**	**Vertical integration**	**Horizontal Integration**
Topic: Genetic and paediatric diseases						**Number of competencies: (03)**				**Number of procedures for certification :(NIL)**	
PA11.1	Describe the pathogenesis and features of common cytogenetic abnormalities and mutations in childhood	At the end of the session the student should be able to 1. Define Cytogenetic abnormalities 2. Define numerical and structural abnormalities 3. Discuss Etiopathogenesis and features of common cytogenetic abnormalities i.e Downs syndrome, klinefelter syndrome, Turner's syndrome,	K	KH	N	Lecture, Small group discussion	1 hour	Written/ Viva voce		Paediatrics	

		Edwards syndrome and patau syndromes 4.Define mutations and types of mutations									
PA11.2	Describe the pathogenesis and pathology of tumor and tumour- like conditions in infancy and childhood	At the end of the session the student should be able to 1.Enumerate tumors and tumour like conditions Classify these tumors 2.Describe	K	KH	N	Lecture, Small group discussion	1 hour	Written/ Viva voce		Paediatrics	

		histogenesis of childhood tumors and tumor like conditions									
PA11.3	Describe the pathogenesis of common storage disorders in infancy and childhood	At the end of the session the student should be able to 1. Define storage disorder 2. Describe pathogenesis of common storage disorders like Gaucher's disease, Neimann- Pick disease, Tay-Sach's disease, metachromatic leukodystrophy, Fabry's disease and Krabbe's disease	K	KH	N	Lecture, Small group discussion	1 hour	Written/ Viva voce		Paediatrics	
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**

Topic:	**Environmental and nutritional diseases**			**Number of competencies:(03)**				**Number of procedures for certification: (NIL)**			
PA12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol	At the end of the session the student should be able to 1. List out common air pollutants and how they affect the health of the individual 2. Discuss Specific features related to lead poisoning 3. Discuss Tobacco usage, its affects and pathogenesis of various disease states caused by tobacco usage 3. Discuss Alcohol usage, alcohol metabolism, its effects and pathogenesis of various disease states caused by its	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce			Community Medicine

		usage									
PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	At the end of the session the student should be able to 1. Define malnutrition and starvation 2. List out common nutrition deficiency disorders 3. Discuss Pathogenesis of protein energy malnutrition 4. Discuss Features of protein energy malnutrition	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		Biochemistry, Pediatrics	
PA12.3	Describe the pathogenesis of obesity and its consequences	At the end of the session the student should be able to 1. Define obesity Etiopathogenesis of	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		General Medicine	

		obesity 2.Describe various health issues in relation to obesity									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Introduction to haematology**				**Number of competencies: (05)**					**Number of procedures for certification:(NIL)**	
PA13.1	Describe hematopoiesis and extramedullary hematopoiesis	At the end of the session the student should be able to 1 Desscribehematopoiesis 2.Discuss Sites of hematopoiesis 3.DescribeExtramedullary hematopoiesis and cause of extramedullary	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		General Medicine	

		hematopoiesis 4. Describe Stem cells and proginator cells 5. Discuss Various factors involved in differentiation of hematopoietic cells									
PA13.2	Describe the role of anticoagulants in hematology	At the end of the session the student should be able to 1. Describe about coagulants and anticoagulants 2. Discuss Characteristics of anticoagulant 3. the Types of anticoagulant used in different tests 4. Discuss the Color coding of anticoagulants used	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		General Medicine	

PA13.3	Define and classify anemia	At the end of the session the student should be able to 1. Define anemia 2. Describe Pathophysiology of anemia 3. Discuss Classification of anemia based on the pathophysiology and morphology	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		General Medicine	
PA13.4	Enumerate and describe the investigation of anemia	At the end of the session the student should be able to 1. Describe Clinical manifestations in anemia 2. List Hemoglobin parameters 3. Discuss Peripheral smear	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		General Medicine	

		and its findings 4. List Blood indices and know how to calculate them 5. Discuss Reticulocyte count 6. Discuss Bone marrow examination									
PA13.5	Perform, Identify and describe the peripheral blood picture in anemia	At the end of the session the student should be able to 1. Demonstrate, Peripheral smear staining by using a drop of blood. 2.Interpretation of peripheral smear in a microscope identify the morphology of RBC, WBC and platelets and hemoparasites if	S	SH	Y	DOAP session	2 hours	Skill assessment		General Medicine	

		any									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Microcytic anemia**					**Number of competencies: (03)**			**Number of procedures for certification:(NIL)**		
PA14.1	Describe iron metabolism	At the end of the session the student should be able to 1. Know the Daily requirement of iron 2. List the Sources of iron 3. Discuss the mechanism of Absorption, storage and release of iron 4. Describe the various forms of iron 5. Discuss the regulation of iron	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		Biochemistry	

		metabolism 6.Discuss the adverse affects of iron metabolism ,in deficient or excess state									
PA14.2	Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	At the end of the session the student should be able to 1. Describe microcytic hypochromic picture 2. Enumerate the etiological factors in microcytic hypochromic anemia 3. Discuss the differential diagnosis of microcytic hypochromic anemias 5.Interpret the	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		General Medicine	

		Laboratory findings of these anemias									
PA14.3	Identify and describe the peripheral smear in microcytic anemia	At the end of the session the student should be able 1. Identify microcytic hypochromic blood picture on a peripheral smear 2. Able to show other morphological features of RBC in different types of microcytic hypochromic anemia 3. Demonstrate any associated features in WBC and platelets in relation to different types of these anemias	S	SH	Y	DOAP session	1 hour	Skill assessment		General Medicine	

Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic: Macrocytic anemia			**Number of competencies: (04)**						**Number of procedures for certification:(NIL)**		
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	At the end of the session the student should be able to 1. Describe Macrocytic anemia 2. Discuss Daily requirement of vitamin B12 3. List the Sources of vitamin B12 4. Discuss the Absorption, storage and release of vitamin B12 5. Discuss the Biochemical functions of	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		Biochemistry, General Medicine	

		vitamin B 12 6.Describe the effects of vitamin B12 deficiency									
PA15.2	Describe laboratory investigations of macrocytic anemia	At the end of the session the student should be able to 1.Describe the Blood picture and Red cell indices in various types of macrocytic anemia 2.Discuss the Peripheral and Bonemarrow findings 3.Interpret the Biochemical tests and other special tests to differentiate type of macrocytic anemia	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		General Medicine	

PA15.3	Identify and describe the peripheral blood picture of macrocytic anemia	At the end of the session the student should be able to 1. Identify Macrocytes 2. Identify the other morphological features of RBC in macrocytic anemia 3. Demonstrate any associated features in WBC and platelets in relation to different types of macrocytic anemias	S	SH	Y	DOAP session	2 hours	Skill assessment			
PA15.4	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic	At the end of the session the student should be able to 1. Describe Various etiological factors causing macrocytic anemia 2. Discuss	K	KH	N	Lecture, Small group discussion	1 hour	Written/ Viva voce		General Medicine	

	macrocytic anemia	Megaloblastic anemia 3. Discuss Non megaloblastic macrocytic anemia 4. Elaborate differences between megaloblastic and non megaloblasticanemia									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic: Hemolyticanemia				**Number of competencies: (07)**					**Number of procedures for certification: (01)**		
PA16.1	Define and classify hemolyticanemia	At the end of the session the student should be able to 1. Define Hemolyticanemia 2. Discuss	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		Biochemistry, General Medicine	

		classification of hemolyticanemia 3.Differentiate between intracorpuscular and extra corpuscular hemolysis									
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolyticanemia	At the end of the session the student should be able to 1. Describe pathogenesis of hemolyticanemias 2. Discuss Clinical manifestations of hemolyticanemias 3. Discuss the hematological parameters in various types of hemolyticanemia	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		Biochemistry, General Medicine	

PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	At the end of the session the student should be able to 1. Describe Hemoglobinopathies 2. Discuss the Pathogenesis of sickle cell anemia 3. Discuss the Clinical manifestations of sickle cell anemia 4. Discuss Laboratory evaluation of sickle cell anemia including hematological indices, peripheral smear findings and any other confirmatory tests 5. Discuss Pathogenesis of thalassemia 6. Describe the types	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		Biochemistry, General Medicine	

		of thalassemia 7. Discuss the clinical manifestations 8. Discuss the laboratory evaluation including hematological indices, peripheral smear findings and other confirmatory tests									
PA16.4	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolyticanemia	At the end of the session the student should be able to 1. Describe acquired hemolyticanemias 2. Discuss the Etiopathogenesis acquired hemolyticanemias 3. Discuss the Laboratory evaluation of acquired hemolyticanemias	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		Biochemistry, General Medicine	

		which includes hematological indices, blood picture and other confirmatory tests									
PA16.5	Describe the peripheral blood picture in different hemolytic anaemias	At the end of the session the student should be able to 1. Describe Hemolytic RBC 2. Describe Anisopoikilocytosis 3. Discuss Specific morphology related to specific hemolyticanemias 4. Describe Reticulocytes and nucleated RBC	K	KH	Y	Lecture, Small group discussion	1 hour	Written/ Viva voce		General Medicine	

PA16.6	Prepare a peripheral blood smear and identify hemolytic anaemia from it	At the end of the session the student should be able to 1. Perform staining of a peripheral blood smear 2. Identify different types of cells in hemolyticanemia 3. Identify reticulocytes and nucleated RBC	S	P	Y	DOAP session	2 hours	Skill assessment			
PA16.7	Describe the correct technique to perform a cross match	At the end of the session the student should be able to 1. Describe cross matching, purpose and types of cross matching 2. Discuss various steps involved in cross matching Centrifugation and separation of serum	S	SH	Y	Lecture, Small group discussion	2 hours	Skill assessment			

		and RBC RBC saline wash 3.Do major and minor cross matching Check for compatability of blood									

Number	COMPETENCY	Specific learning objective SLO	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching-Learning Methods	Time duration in hours	Suggested assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic	**Aplastic anemia**			**Number of competencies: (2)**						**Number of procedures for certification: (NIL)**	
PA 17.1	Enumerate the etiology, pathogenesis and findings in aplastic anemia	At the end of the session the student should be able to 1. Define aplastic anemia 2. Describe pathogenesis of aplastic anemia 3. Discuss the Laboratory evaluation of aplastic anemias which includes hematological indices, blood picture and other confirmatory tests	K	K	N	Lecture/ Small group discussion	1	Written/viva voce		General medicine	
PA 17.2	Enumerate the indications and describe the	At the end of the session the student	K	K	N	Lecture/ Small group	1	Written/ viva voce		General medicine	

	findings in bone marrow aspiration and biopsy	should be able to 1. Discuss the indications of bone marrow aspiration and biopsy 2. Interpret the findings in bone marrow aspiration and bone marrow biopsy.				discussion					

Number	COMPETENCY	Specific learning objective SLO	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching-Learning Methods	Time duration in hours	Suggested assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic : Leukocyte disorders				**Number of competencies: (2)**						**Number of procedures for certification: (NIL)**	
PA18.1	Enumerate and describe the causes of leucocytosis leucopenia lymphocytosis and leukemoid reactions	At the end of the session the student should be able to 1. Defineleucocytosis 2. Discuss causes of leucocytosis 3. Defineleucopenia 4. Discuss causes of leucopenia 5. Define lymphocytosis 5. Discuss causes of lymphocytosis 6. Define leukemoid reaction 2. Discuss causes of leukemoid reaction	K	KH	Y	Lecture/ Small group discussion	1	Written/ Viva voce			

PA18.2	Describe the etiology, genetics, pathogenesis classification, features, hematologic features of acute and chronic leukemia	At the end of the session the student should be able to 1. Describe acute and chronic myeloid leukemia 2. Discuss the etiology, pathogenesis and genetics of acute and chronic myeloid leukemia 3. Describe the classification of acute and chronic myeloid leukemia 4. Discuss the hematologic features of acute and chronic leukemia	K	KH	Y	Lecture/ Small group discussion	1	Written/ Viva voce			
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**

Topic : Lymph node and spleen					**Number of competencies: (7)**				**Number of procedures for certification: (NIL)**	
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	At the end of the session the student should be able to 1. Describe lymphadenopathy 2. Enumerate the causes of lymphadenoapthy 3. Discuss the differential diagnosis of lymphadenoapthy	K	KH	Y	Lecture/ Small group discussion	1	Written/ Viva voce		General Surgery	
PA19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	At the end of the session the student should be able to 1. Describe tuberculous lymphadenopathy 2. Discuss pathogenesis of tuberculosis 3. Discuss	K	KH	Y	Lecture/ Small group discussion	1	Written/ Viva voce		General Surgery	Microbiology

		pathology of tuberculous lymphadenitis									
PA19.3	Identify and describe the features of tuberculous lymphadenitis in a gross and microscopic specimen	At the end of the session the student should be able to 1. Identify and describe the features of tuberculous lymphadenitis in a gross and microscopic specimen	S	SH	Y	DOAP session	1	skill assessment			
PA19.4	Describe and discuss the pathogenesis, pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	At the end of the session the student should be able to 1. Describe Hodgkin's and non-Hodgkin's lymphoma 2. Discuss pathogenesis of Hodgkin's and non-Hodgkin's	K	KH	Y	Lecture/ Small group discussion	1	Written/ Viva voce		General Surgery	

		lymphoma 3. Describe pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma									

PA19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	At the end of the session the student should be able to 1. Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	S	SH	Y	DOAP session	1	skill assessment		General Surgery	
PA19.6	Enumerate and differentiate the causes of splenomegaly	At the end of the session the student should be able to 1. Describe spleenomegaly 2. Discuss causes of splenomegaly 3. Discuss the differential diagnosis of Spleenomegaly	K	KH	Y	Lecture/ Small group discussion	1	Written/ Viva vocenb b \\\\\\\		General Surgery, General Medicine	
PA19.7	Identify and describe the gross specimen	At the end of the session the student should be able to	S	SH	Y	DOAP session	1	skill assessment			

	of an enlarged spleen	1. Identify and describe the gross specimen of an enlarged spleen									

Number	COMPETENCY	Specific learning objective SLO	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching-Learning Methods	Time duration in hours	Suggested assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic : Plasma cell disorders						**Number of competencies: (1)**				**Number of procedures for certification: (NIL)**	
PA20.1	Describe the features of plasma cell myeloma	At the end of the session the student should be able to 1. Describe plasma cell disorders 2. Discuss features of plasma cell myeloma	S	SH	Y	DOAP session	1	skill assessment			
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic: Haemorrhagic disorders						**Number of competencies: (5)**				**Number of procedures for certification: (NIL)**	
PA21.1	Describe normal hemostasis	At the end of the session the student should be able to 1.Describe normal hemostasis	K	KH	Y	Lecture	1 hr	Written/Viva voce		General Medicine	

PA21.2	Classify and describe the etio pathogenesis of vascular and platelet disorders including ITP and haemophilia's	At the end of the session the student should be able to 1. Describe the etiology of vascular and platelet disorders like ITP and haemophilia 2. Discuss the pathogenesis of vascular and platelet disorders like ITP and haemophilia	K	KH	Y	Lecture	1 hr	Written/Viva voce			
PA21.3	Enumerate the differences between platelet and clotting disorders based on the clinical and hematologic features	At the end of the session the student should be able to 1.Describe the clinical and haematolodical features of clotting disorders 2. Describe the clinical and haematological features of platelet disorders	K	KH	Y	Lecture	2hr	Written/Viva voce		general medicine	

		3.Differentiate between platelet and clotting disorders based on the clinical and hematologic features									
PA21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	At the end of the session the student should be able to 1 Describe disseminated intravascular coagulation 2. Describe laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	Y	Lecture	1hr	Written/Viv avoce		general medicine	
PA21.5	Define and describe clinical features laboratory findings and diagnosis of vitamin k	At the end of the session the student should be able to 1.Describe clinical features of vitamin	K	KH	Y	Lecture	1hr	Written/Viv avoce			

	deficiency	k deficiency 2.Discuss laboratory findings and diagnosis of vitamin k deficiency									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Blood banking and transfusion**			**Number of competencies: (6)**						**Number of procedures for certification: (NIL)**	
PA 22.1	Classify and describe blood group systems (ABO and RH) Describe other types of blood group systems	At the end of the session the student should be able to 1. Classify and describe blood group systems (ABO and RH) 2.Describe other types of blood group systems	K	KH	Y	Lecture/ small group discussion	1hr	Written/Viva voce			
PA22.2	Enumerate indications ,describe principles of compatability	At the end of the session the student should be able to 1. describe the	K	KH	Y	Lecture	1hr	Written/Viva voce			

	testing	procedure of compatability testing 2. Discuss.indications of compatability testing 3. Discuss the principles of compatability testing									
PA22.3	Enumerate blood components and describe their clinical uses	At the end of the session the student should be able to 1. Enumerate blood components 2. Describe the clinical uses of different blood components	K	KH	Y	Lecture	1hr	Written/Viva voce			
PA22.4	Enumerate and describe infections transmitted by blood transfusion	At the end of the session the student should be able to 1. Describe infections	K	KH	Y	Lecture	1hr	Written/Viva voce			

		transmitted by blood transfusion.									
PA 22.5	Enumerate different transfusion reactions and evaluation of these reactions.	At the end of the session the student should be able to 1.Enumerate types of transfusion reactions 2.Evaluation of these reactions	K	KH	N	Lecture	1hr	Written/Viva voce			
PA 22.6	Enumerate the indications and describe the principles and procedure of autologous transfusion	At the end of the session the student should be able to 1.Enumerate the indications 2.Describe the principles of autologous transfusion 3.Describe the procedure of autologous transfusion	K	KH	N	Lecture	1hr	Written/Viva voce			
Number	**COMPETENCY**	**Specific learning objective**	**Domain K/S/A/C**	**Level K/KH/**	**Core (Y/N)**	**Suggested Teaching-Learning**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**

		SLO		SH/P		Methods					
Topic:	**Clinical Pathology**			**Number of competencies: (3)**				**Number of procedures for certification: (NIL)**			
PA 23.1	Describe complete urine examination Describe abnormal urinary findings in disease states and identify common urinary abnormalities in a clinical specimen	At the end of the session the student should be able to 1. Describe complete urine examination 2. Describe abnormal urinary findings in disease states 3. Identify common urinary abnormalities in a clinical specimen	K	KH	Y	DOAP SESSION	1hr	Written/Viv avoce		general medicine	
PA 23.2	Describe abnormal findings in different body fluids like peritoneal , pleural and CSF fluids in various disease states	At the end of the session the student should be able to 1. Describe normal and abnormal findings in	K	KH	Y	Lecture	1hr	Written/Viv avoce/		General medicine	

		peritoneal fluid 2. Describe normal and abnormal findings in pleural fluid 3. Describe abnormal findings in CSF in various diseases									
PA 23.3	Describe and interpret the abnormalities in semen analysis, thyroid function tests, renal function tests and liver function tests	At the end of the session the student should be able to 1.Describe and interpret the abnormalities in semen analysis 2.Describe, thyroid function tests 3.Describe, renal function tests 4. Describe liver function tests	S	KH	Y	DOAP session	2HR	Skill assessment			Biochemistry

Number	COMPETENCY	Specific learning objective SLO	Domain K/S/A/C	Level K/KH / SH/P	Core (Y/N)	Suggested Teaching-Learning Methods	Time duration in hours	Suggested assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic:	**Gastrointestinal tract**			**Number of competencies: (12)**					**Number of procedures for certification: (NIL)**		
PA 24.1	Describe the etiology, pathogenesis, pathology and clinical features of premalignant conditions of oral cavity and oral cancers	At the end of the session the student should be able to 1. Describe the etiology of premalignant conditions of oral cavity and oral cancers 2. Diescribe pathogenesis of premalignant conditions of oral cavity and oral cancers 2. Discuss clinical features of premalignant conditions of oral	K	KH	Y	Lecture	1hr	Written/Viv avoce/		Dental	

		cavity									
PA 24.2	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers	At the end of the session the student should be able to 1. Describe the etiology of oral cancers 2. Describe the pathogenesis of oral cancers 3. Describe pathology of oral cancers 3. Discuss clinical features of oral cancers	K	KH	Y	Lecture	1hr	Written/Viv avoce/		Dental	
PA 24.3	Classification of salivary gland tumours. Describe the clinical features and histopathologica l findings of	At the end of the session the student should be able to 1. Discuss Classification of salivary gland	K	KH	Y	Lecture	1hr	Written/Viv avoce/			Dental

	some important tumours.	tumours 2. Describe histopatholocal findings of some important salivary gland tumours. 3. Discuss the clinical features of salivary gland tumours									
PA 24.4	Describe the etiology, pathogenesis, pathology and clinical features of Barrett esophagus	At the end of the session the student should be able to 1. Describe the etiology of Barrett esophagus 2.Describe the pathogenesis of Barrett esophagus 3.Discuss pathology of Barrett esophagus 4. Discuss the clinical features of Barrett	K	KH	Y	Lecture	1hr	Written/Viv avoce/		General surgery	

		esophagus									
PA 24.5	Describe the etiology, pathogenesis, pathology of acute and chronic gastritis Enumerate the.Differences between H.PYLORI and Autoimmune gastritis.	At the end of the session the student should be able to 1 Describe the etiology of acute and chronic gastritis 2. Discuss the pathogenesis of acute and chronic gastritis 3. Discuss the pathology of acute and chronic gastritis 2.Enumerate the. differences between H.PYLORI and Autoimmune gastritis	K	KH	Y	Lecture	1hr	Written/Viv avoce/		General medicine	
PA 24.6	Describe the etiology, pathogenesis,	At the end of the session the student should be	K	KH	Y	Lecture	1hr	Written/Viv avoce/		General medicine	

	pathology, clinical and microscopic features of peptic ulcer disease	able to 1.Describe the etiology of peptic ulcer disease 2.Discuss the pathogenesis of peptic ulcer disease 3.Describe the clinical and microscopic features of peptic ulcer disease									
PA 24.7	Describe and etiopathogenesis and pathologic features of carcinoma of the stomach	At the end of the session the student should be able to 1. Describe etiology of carcinoma of the stomach. 2. discuss the pathogenesis of carcinoma of the stomach 2. Describe the pathologic features	K	KH	N	Lecture	1hr	Written/Viva voce/		General medicine/ general surgery	

		of carcinoma of the stomach									
PA 24.8	Describe etiopathogenesis and clinical features of malabsorption syndromes.	At the end of the session the student should be able to 1 Describe malabsorption syndromes. 2. Describe etiology of malabsorption syndromes. 3. Describe pathogenesis of malabsorption syndromes. 4. Discuss the clinical features of malabsorption syndromes.	K	KH	Y	Lecture	1hr	Written/Viva voce/		General medicine	Microbiology
PA 24.9	Describe etiology, pathogenesis and pathologic features of	At the end of the session the student should be able to	K	KH	Y	Lecture	2hr	Written/Viva voce/		General medicine	Microbiology

	Tuberculosis and enterocolitis of the intestine	1. Describe etiology of Tuberculosis and enterocolitis of the intestine 2. Describe Pathogenesis of Tuberculosis and enterocolitis of the intestine 3.Discuss the pathologic features of Tuberculosis and enterocolitis of the intestine									
PA 24.10	Describe etiology ,pathogenesis and pathologic features of Inflammatory bowel disease Enumerate the differences between different types of inflammatory	At the end of the session the student should be able to 1. Describe etiology of Inflammatory bowel disease 2. Describe pathogenesis of Inflammatory bowel disease	K	KH	Y	Lecture	1hr	Written/Viv avoce/		General medicine	

	bowel disease.	3.Discuss pathologic features of Inflammatory bowel disease 4..Enumerate the differences between different types of inflammatory bowel disease									
PA 24.11	Describe neoplastic polyps Describe non-neoplastic polyps Describe gastrointestinal syndromes	At the end of the session the student should be able to 1. Describe neoplastic polyps 2. Describe non-neoplastic polyps 3. Describe gastrointestinal syndromes	K	KH	N	Lecture	1hr	Written/Viva voce/		General medicine	
PA.24.12	Describe the etiology, pathogenesis,	At the end of the session the student should be	K	KH	N	Lecture	1hr	Written/Viva voce/		General medicine	

	pathology and distinguishing features of carcinoma of the colon	able to 1. Describe the etiology of carcinoma of the colon. 2. Discuss pathogenesis carcinoma of the colon. 3. Describe the pathology and distinguishing features of carcinoma of the colon									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic :	**Hepatobiliary system**					**Number of competencies: (7)**				**Number of procedures for certification: (NIL)**	
PA.25.1	Describe bilirubin metabolism, Describe the	At the end of the session the student should be able to	K	KH	N	Lecture	1hr	Written/Viv avoce/		General medicine	Physiology, biochemistry

	etiology and pathogenesis of jaundice, Describe the differences between direct and indirect hyperbilirubinemia	1. Describe bilirubin metabolism, 2. Describe the etiology of jaundice 3. Discuss the pathogenesis of jaundice, 3.Describe the differences between direct and indirect hyperbilirubinemia									
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure Describe the clincialmanifestations,complications and consequences of hepatic faliure	At the end of the session the student should be able to 1.Describe the pathophysiology of hepatic failure 2. Discuss the pathologic changes seen in hepatic failure 3.Describe the clinical	K	KH	N	Lecture	1hr	Written/Vivavoce/		General medicine	

		manifestations, of hepatic failure 4. 4.Discuss the complications and consequences of hepatic failure									
PA25.3	Describe different types of hepatitis Describe the etiology and pathogenesis of viral hepatitis. Describe the laboratory findings,complications and conbsequences of viral hepatitis	At the end of the session the student should be able to 1. List types of hepatitis 2. Describe the etiology of viral hepatitis 3.Describe the pathogenesis of viral hepatitis. 3. Describe the laboratory findings of viral hepatitis 4. Discuss the complications and consequences of viral hepatitis	K	KH	N	Lecture	1hr	Written/Viv avoce/		General medicine	

PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	At the end of the session the student should be able to 1. Describe alcoholic liver disease 2. Describe cirrhosis. 3..Describe the pathophysiology of alcoholic liver disease including cirrhosis. 4.Discuss the pathology and progression of alcoholic liver disease including cirrhosis	K	KH	N	Lecture	1hr	Written/Viv avoce/		General medicine	
PA25.5	Describe the etiology, pathogenesis and complications of	At the end of the session the student should be able to 1.Describe the	K	KH	N	Lecture	1hr	Written/Viv avoce/		General medicine	

	portal hypertension	etiology of portal hypertension 2. Describe pathogenesis of portal hypertension 3. Describe complications of portal hypertension									
PA25.6	Describe the etiology, pathogenesis ,clinical and histopathological features of hepatocellular carcinoma	At the end of the session the student should be able to 1. Describe the etiology of hepatocellular carcinoma 2. Discuss pathogenesis of hepatocellular carcinoma 3. Discuss clinical features of hepatocellular carcinoma	K	KH	N	Lecture	1hr	Written/Viv avoce/		General medicine	

		4.Describe histopathological features of hepatocellular carcinoma									
PA25.7	Describe cholelithiasis, cholecystitis Describe etiopathogenesis and histopathological findings in gall bladder carcinoma	At the end of the session the student should be able to 1. Describe pathogenesis of cholelithiasis. and cholecystitis 2. List causesp9;7 of gall bladder carcinoma 3.Describe pathogenesis of gall bladder carcinoma 4.Describe histopathological findings in gall bladder carcinoma	K	KH	N	Lecture	1hr	Written/Viv avoce/		General medicine	
Number	**COMPETENCY**	**Specific learning**	**Domain**	**Level K/KH**	**Core (Y/N**	**Suggested Teaching-**	**Time duration**	**Suggested assessment**	**Number required to**	**Vertical**	**Horizontal**

		objective SLO	K/S/A/C	/ SH/P	)	Learning Methods	in hours	method	certify	Integration	Integration
Topic:	**Respiratory system**				**Number of competencies: (7)**					**Number of procedures for certification: (NIL)**	
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	At the end of the session the student should be able to 1. Describe pneumonia 2. Discuss etiology of pneumonia 3. Discuss types of pneumonia 4. Discuss pathogenesis of pneumonia 5. Describe stages of pneumonia 6. Describe morphology of pneumonia 7. Discuss complications of	K	KH	Y	Lecture, Small group discussion	2	Written/ Viva voce		General Medicine	Microbiology

		pneumonia									
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	At the end of the session the student should be able to 1. Describe etiology of lung abscess 2. Describe the gross and microscopic appearance of lung abscess 3. Discuss the complications of lung abscess	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	Microbiology
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and	At the end of the session the student should be able to 1. Define Obstructive airway disease 2. Define bronchiectasis 3. Describe etiology of Obstructive	K	KH	Y	Lecture, Small group discussion	2	Written/ Viva voce		Physiology, Medicine	General

	bronchiectasis	airway disease (OAD) and bronchiectasis 3. Describe types of Obstructive airway disease (OAD) and bronchiectasis 4. Describe pathogenesis of Obstructive airway disease (OAD) and bronchiectasis 5. Describe stages of Obstructive airway disease (OAD) and bronchiectasis 6. Describe morphology of Obstructive airway disease (OAD) and bronchiectasis 7. Describe evaluation of									

		Obstructive airway disease (OAD) and bronchiectasis									
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	At the end of the session the student should be able to 1. Discuss etiology of tuberculosis 2. Discuss types of tuberculosis 3. Discuss pathogenesis of tuberculosis 4. Describe morphology and microscopic appearance of tuberculosis 5. Discuss complications of tuberculosis	K	KH	Y	Lecture, Small group discussion	2	Written/ Viva voce		General Medicine	Microbiology
PA26.5	Define and describe the	At the end of the session the student	K	KH	Y	Lecture, Small	1	Written /		General Medicine,	

	etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	should be able to 1. Describe Occupational lung disease 2. Describe etiology of Occupational lung disease 3. Describe etiology, exposure, environmental influence of Occupational lung disease 4. Discuss types of Occupational lung disease 5. Discuss pathogenesis of Occupational lung disease 6. Discuss morphology and microscopic appearance of Occupational lung				group discussion		Viva voce		Community Medicine	

		disease 7. Discuss complications of Occupational lung disease									
PA26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance, metastases and complications of tumors of the lung and pleura	At the end of the session the student should be able to 1. Describe tumors of the lung and pleura 2.Describe etiology exposure, genetics environmental influence of tumors of the lung and pleura 3.Discuss types tumors of the lung and pleura 4. Describe the pathogenesis of tumors of the lung and pleura	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	

		5. Describe the morphology, microscopic appearance of tumors of the lung and pleura 6. Describe the metastases and complications of tumors of the lung and pleura									
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	At the end of the session the student should be able to 1. Describe mesothelioma 2.Describe etiology exposure, genetics environmental influence of mesothelioma 3.Discuss types of mesothelioma 4. Describe the pathogenesis of	K	KH	N	Lecture, Small group discussion	1	Written / Viva voce		General Medicine, Community Medicine	

		mesothelioma 5. Describe the morphology, microscopic appearance of mesothelioma 6. Describe the metastases and complications of tumors of mesothelioma									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic : Cardiovascular system				**Number of competencies: (10)**					**Number of procedures for certification: (NIL)**		
PA 27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of	At the end of the session the student should be able to 1. Define arteriosclerosis 2. Define atherosclerosis 3. Describe etiology	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	

	arteriosclerosis	of arteriosclerosis 4.Describe pathogenesis of arteriosclerosis 5.Describe pathology of arteriosclerosis 4. List types of arteriosclerosis 5. Distinguish arteriosclerosis from atherosclerosis									
PA27.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	At the end of the session the student should be able to 1. Define aneurysm 2. Describe etiology of aneurysms 3.Discuss pathogenesis of aneurysms 4.List types of aneurysms	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	

		5.Discuss the complications of aneurysms									
PA27.3	Describe the etiology, types, stages pathophysiology, pathology and complications of heart failure	At the end of the session the student should be able to 1. Describe etiology of heart failure 2. Describe pathogenesis of heart failure 2. Enumerate types and stages of heart failure 3. Discuss complications of heart failure	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine, Physiology	
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of	At the end of the session the student should be able to 1. Describe etiology of rheumatic fever 2. Describe pathophysiology of	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General medicine	microbiology

	rheumatic fever	rheumatic fever 3. Describe gross and microscopic features 4.Discuss criteria and complications of rheumatic fever									
PA27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic heart disease	At the end of the session the student should be able to 1. Describe epidemiology of ischemic heart disease 2. Discuss the Risk factors of ischemic heart disease 3. Describe etiology of ischemic heart disease 4.Discuss pathogenesis of ischemic heart	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General medicine	

		disease 4. Discuss the gross and microscopic features of ischemic heart disease 5. Enumerate the diagnostic tests of ischemic heart disease 6. Discuss the complications of ischemic heart disease									
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis	At the end of the session the student should be able to 1. Describe the etiology of infective endocarditis 2. Discuss the pathogenesis of infective endocarditis	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General medicine	Microbiology

		2. Describe the gross and microscopic features of infective endocarditis 3. Discuss the diagnostic tests of infective endocarditis 4. Discuss complications of infective endocarditis									
PA27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion	At the end of the session the student should be able to 1.Describe the etiology of pericarditis and pericardial effusion 2.Discusss the pathogenesis of pericarditis and pericardial effusion	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General medicine	

		2. Describe gross and microscopic features of pericarditis and pericardial effusion 3. Discuss the diagnosis and complications of pericarditis and pericardial effusion									
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	At the end of the session the student should be able to 1. Discuss normal cardiac function 2. Discuss acute coronary syndromes 3. Discuss abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	1	Skill assessment		Physiology, General Medicine	

PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	At the end of the session the student should be able to 1. Describe the etiology of cardiomyopathies 2. Describe the pathogenesis of cardiomyopathies 3. Enumerate types of cardiomyopathies 4. Describe gross and microscopic features of cardiomyopathies 5. Discuss diagnosis of cardiomyopathies 6. Discuss complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine, Physiology	
PA27.10	Describe the etiology,	At the end of the session the student	K	KH	N	Lecture, Small	1	Written/ Viva voce		General Medicine	Microbiology

	pathophysiology, pathology features and complications of syphilis on the cardiovascular system	should be able to 1. Describe etiopathogenesis of syphilis 2. Describe gross and microscopic features of syphilis on cardiovascular system				group discussion					

Number	COMPETENCY	Specific learning objective SLO	Domain K/S/A/C	Level K/KH / SH/P	Core (Y/N)	Suggested Teaching-Learning Methods	Time duration in hours	Suggested assessment method	Number required to certify	Vertical Integration	Horizontal Integration
Topic : urinary tract			**Number of competencies: (16)**							**Number of procedures for certification: (NIL)**	
PA28.1	Describe the normal histology of the kidney	At the end of the session the student should be able to 1. Describe the normal histology of the kidney	K	KY	Y	Lecture, Small group discussion	1	Written/ Viva voce			
PA28.2	Define, classify and distinguish the clinical syndromes and describe the etiology, pathogenesis, pathology, morphology, clinical and laboratory and urinary findings, complications of renal failure	At the end of the session the student should be able to 1. Define renal failure 2. Discuss clinical syndromes 3. Describe the etiology of renal failure 4. Discuss pathogenesis of	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce			

		renal failure 5. Discuss the morphology of renal failure 6. Discuss clinical, laboratory and urinary findings in renal failure 7. Discuss complications of renal failure									

PA28.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure	At the end of the session the student should be able to 1. Define acute renal failure 2. describe etiology of acute renal failure 3.Discuss pathogenesis of acute renal failure 4.Describe Pathology of acute renal failure 5..Discuss clinical, laboratory and urinary findings of acute renal failure 6. Discuss progression and complications of acute renal failure	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	
PA28.4	Define and describe the etiology, precipitating	At the end of the session the student should be able to	K	KH	Y	Lecture, Small group	1	Written/ Viva voce		General Medicine	

	factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure	1. Define chronic renal failure 2. describe etiology of chronic renal failure 3. Describe pathogenesis of chronic renal failure 3. Describe Pathology of chronic renal failure 4. .Discuss clinical, laboratory and urinary findings of chronic renal failure 5. Discuss progression and complications of chronic renal failure				discussion					
PA28.5	Define and classify	At the end of the session the student	K	KH	Y	Lecture, Small	2	Written/		General	

	glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	should be able to 1. Define and classify glomerular diseases 2. Enumerate etiology of glomerular injury 3. describe the pathogenesis and mechanisms of glomerular injury. 4. Describe Pathology of glomerular injury 5. Discuss the distinguishing features and clinical manifestations of glomerulonephriti				group discussion		Viva voce		Medicine Physiology	

PA28.6	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	At the end of the session the student should be able to 1. Define IgA nephropathy 2. Describe etiology IgA nephropathy 3.Describe pathogenesis IgA nephropathy 4. discuss Pathology of IgA nephropathy 5. Discuss laboratory, urinary findings of IgA nephropathy	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	
PA28.7	Enumerate and describe the findings in glomerular manifestations of systemic disease	At the end of the session the student should be able to 1. Enumerate and describe the findings in glomerular manifestations of	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	

		systemic disease									
PA28.8	Enumerate and classify diseases affecting the tubular interstitium	At the end of the session the student should be able to 1. Enumerate diseases affecting the tubular interstitium 2. Discuss the classification of diseases affecting the tubular interstitium	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	
PA28.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	At the end of the session the student should be able to 1. Define and describe acute tubular necrosis 2. describe etiology of acute tubular necrosis 3. describe pathogenesis of	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	

		acute tubular necrosis 4. describe pathology of acute tubular necrosis 5. describe laboratory, urinary findings of acute tubular necrosis 6.describe progression and complications of acute tubular necrosis									
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic	At the end of the session the student should be able to 1. Describe acute and chronic pyelonephritis and reflux nephropathy 2. Describe the etiology of acute and chronic pyelonephritis and	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		Human Anatomy, General Surgery	

	pyelonephritis and reflux nephropathy	reflux nephropathy 3. Describe the pathogenesis of acute and chronic pyelonephritis and reflux nephropathy 4. Describe the pathology of acute and chronic pyelonephritis and reflux nephropathy 5. Describe the laboratory findings of acute and chronic pyelonephritis and reflux nephropathy 6. . Describe the distinguishing features of acute and chronic pyelonephritis and reflux nephropathy 7.Discuss the progression and									

		complications of acute and chronic pyelonephritis and reflux nephropathy									
PA28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features progression and complications of vascular disease of the kidney	At the end of the session the student should be able to 1. Describe and classify vascular disease of the kidney 2. Describe etiology of vascular disease of the kidney 3. Describe pathogenesis of vascular disease of the kidney 4. Describe pathology of vascular disease of the kidney 5. Describe laboratory, urinary findings of vascular	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	

		disease of the kidney 6. Describe distinguishing features of vascular disease of the kidney 7. Discuss progression and complications of vascular disease of the kidney									
PA28.12	Define classify and describe the genetics, inheritance, etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of	At the end of the session the student should be able to 1. Describe and classify cystic disease of the kidney 2. Describe etiology, genetics, inheritance of cystic disease of the kidney 3. Describe	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine, Pediatrics	

	the kidney	pathogenesis of cystic disease of the kidney 4. Describe pathology of cystic disease of the kidney 5. Describe laboratory, urinary findings of cystic disease of the kidney 6. Describe distinguishing features of cystic disease of the kidney 7. Discuss progression and complications of cystic disease of the kidney									
PA28.13	Define classify and describe the etiology,	At the end of the session the student should be able to.	K	KH	Y	Lecture, Small group	1	Written/ Viva voce		General Surgery	

	pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression and complications of renal stone disease and obstructive uropathy	1. Describe and classify renal stone disease and obstructive uropathy 2. Describe etiology of renal stone disease and obstructive uropathy 3. Describe pathogenesis of renal stone disease and obstructive uropathy 4. Describe pathology of renal stone disease and obstructive uropathy 5. Describe laboratory, urinary findings of renal stone disease and obstructive				discussion					

		uropathy 6. Describe distinguishing features of renal stone disease and obstructive uropathy 7. Discuss progression and complications of renal stone disease and obstructive uropathy									
PA28.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	At the end of the session the student should be able to 1. Describe renal tumors 2.Describe etiology, genetics of renal tumors 3. Describe the pathogenesis of	K	KH	Y	Lecture, Small group discussion	1	Written/ Viva voce		Pediatrics	

		renal tumors 5. Describe the morphology, microscopic appearance of renal tumors 6. Describe the presenting features of renal tumors 7. Describe the progression and spread of renal tumors									
PA28.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies	At the end of the session the student should be able to 1. Describe thrombotic angiopathies 2.Describe etiology, genetics of thrombotic angiopathies 3. Describe the	K	KH	N	Lecture, Small group discussion	1	Written/ Viva voce		General Medicine	

		pathogenesis of thrombotic angiopathies 5. Describe the morphology, microscopic appearance of thrombotic angiopathies 6.Describe the presenting features of thrombotic angiopathies 7. Describe the progression thrombotic angiopathies									
PA28.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of urothelial	At the end of the session the student should be able to 1. Describe urothelial tumors 2.Describe etiology, genetics of	K	KH	N	Lecture, Small group discussion	1	Written/ Viva voce		General Surgery	

	tumors	urothelial tumors 3. Describe the pathogenesis of urothelial tumors 5. Describe the morphology, microscopic appearance of urothelial tumors 6.Describe the presenting features of urothelial tumors 7. Describe the progression of urothelial tumors									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Male genital system**			**Number of competencies: (5)**					**Number of procedures for certification: (NIL)**		
PA29.1	Describe the pathogenesis, pathology,	At the end of the session the student should be able to	K	KH	Y	Lecture/ small group	1 hr	Written/Viv avoce		General surgery	

	presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma penis	1. Describe the pathogenesis of carcinoma penis 2. Describe the presenting features of carcinoma penis 3. Describe the diagnostic tests of carcinoma penis 4. Describe the progression and spread of carcinoma penis				discussion					
PA29.2	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of	At the end of the session the student should be able to 1. Discuss the Classification of testicular tumors 2.Describe the pathogenesis, of testicular tumors 3. .Describe the pathology.of	K	KH	Y	Lecture	1hr	Written/Viv avoce		General Surgery	

	testicular tumors	testicular tumors 4. Describe the presenting and distinguishing features. of testicular tumors 5. Enumerate the Diagnostic tests. of testicular tumors 6. Describe the progression and spread of testicular tumors									
PA29.3	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign	At the end of the session the student should be able to 1. Describe benign prostatic hyperplasia 2. Describe pathogenesis and hormonal dependency of benign prostatic	K	KH	Y	Lecture	1hr	Written/Viv avoce		General surgery	

	prostatic hyperplasia	hyperplasia 3. Describe pathology of benign prostatic hyperplasia 4.Describe diagnostic features benign prostatic hyperplasia									
PA 29.4	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of carcinoma prostate	At the end of the session the student should be able to 1..Describe carcinoma prostate. 2. Describe pathogenesis and hormonal dependency of carcinoma prostate. 3. Describe pathology	K	KH	Y	Lecture/ small group discussion	1	Written/Viv avoce		General surgery	

		of carcinoma prostate. 4. Describe diagnostic features of carcinoma prostate. 5. Describe progression and spread of carcinoma prostate.									
PA 29.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis	At the end of the session the student should be able to 1. Describe etiology of prostatitis 2. Describe pathogenesis of prostatitis 3. Describe pathology of prostatitis 4. Describe progression of	K	KH	Y	Lecture/ small group discussion	1	Written/Viv avoce		General surgery	

		prostatitis									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Female genital tract**		**Number of competencies: (6)**					**Number of procedures for certification: (NIL)**			
PA 30.1	Describe the etiology and morphologic features of cervicitis and endocervical polyp	At the end of the session the student should be able to 1.Describe etiology and morphologic features of acute cervivitis 2.Describe etiology and morphologic features of chronic cervicitis 3.Describe the etiology and morphology of endocervical polyp	K	KH	Y	Lecture	1hr	Written/Viv avoce		Obstetrics & Gynaecology	

PA 30.2	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	At the end of the session the student should be able to 1.Describe the pathogenesis and morphological features of cervical intraepithelial neoplasms 2.Describe the epidemiology, pathogenesis and etiology of carcinoma cervix 3.Discuss the diagnostic tests for carcinoma cervix 4.Describe the progression, spread and prognosis of	K	KH	Y	Lecture/ small lgroup discussion	2hr	Written/Viv avoce		Obstetrics & Gynaecology	

		carcinoma cervix									
PA 30.3	Describe the etiology, hormonal dependence, features and morphology of endometriosis and adenomyosis	At the end of the session the student should be able to 1.Describe the etiology, pathogenesis and morphology of acute endometritis 2.Describe the etiology, pathogenesis and morphology of chronic endometritis 3.describe the etiology, pathogenesis, morphology of adenomyosis	K	KH	Y	Lecture	1hr	Written/Viv avoce		Obstetrics & Gynaecolo gy	
PA 30.4	Describe the etiology, hormonal dependence and	At the end of the session the student should	K	KH	Y	Lecture/ small group	1hr	Written/Viv avoce		Obstetrics & Gynaecolo	

	morphology of endometrial hyperplasia and endometrial carcinoma	be able to 1.classify the endometrial hyperplasias 2.describe the pathogenesis, morphology of endometrial hyperplasia 3.Describe the etiology, pathogenesis of endometrial carcinoma 4.describe the morphology, progression and spread of endometrial carcinoma				discussion				gy	

PA30.5	Describe the pathogenesis, etiology, pathology, diagnosis, progression and spread of leiomyomas and leiomyosarcomas.	At the end of the session the student should be able to 1.Describe the etiology of leiomyomas. 2.Describe the pathogenesis and pathology of leiomyomas 3.Discuss the progression and spread of leiomyomas. 4. Describe the etiology of leiomyosarcomas 2.Describe the pathogenesis and pathology of leiomyosarcomas	K	KH	Y	Lecture/ small group discussion	1hr	Written/Viva voce		Obstetrics & Gynaecology	

		3.Discuss the progression and spread of leiomyosarcomas									
PA 30.6	Classify and describe the etiology, pathogenesis, pathology,	At the end of the session the student should be able to 1.classify	K	KH	Y	Lecture/ small group discussion	2hr	Written/Viv avoce		Obstetrics & Gynaecology	

	morphology, clinical course, spread and complications of ovarian tumors	ovarian tumors 2. describe etiology and pathogenesis of ovarian tumors 3. describe the morphology of various ovarian tumors 4. Describe the clinical course, spread and complications of ovarian tumors									
PA 30.7	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic	At the end of the session the student should be able to 1. classify the gestational trophoblastic neoplasms 2. Describe the etiology and pathogenesis of	K	KH	Y	Lecture/ small group discussion	1hr	written		Obstetrics & Gynaecology	

	neoplasms	gestational trophoblastic neoplasms 3.Describe the morphology and progression of gestational trophoblastic tumors									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Breast**			**Number of competencies: (5)**					**Number of procedures for certification: (NIL)**		
PA 31.1	Classify and describe the types, etiology, pathogenesis,pathology and hormonal imbalances in benign breast disease	At the end of the session the student should be able to 1. Discuss the clinical presentations of breast disease 2. Describe the etiology, pathogenesis	K	KH	Y	Lecture	1hr	Written/Vivavoce		Human anatomy, General surgery	

		and morphology of inflammatory disease of breast 3.Describe the etiology, pathogenesis and morphology of benign epithelial lesions									
PA 31.2	Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	At the end of the session the student should be able to 1. Describe the epidemiology, pathogenesis of carcinoma breast 2. Classify carcinoma breast 3. Describe the morphology of various types of	K	KH	Y	Lecture/ small group discussion	2hr	Written/Viv avoce/		General surgery	

		carcinoma breast 4. Enumerate the prognostic factors of carcinoma breast 5. Describe the staging and spread of carcinoma breast									
PA31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast	At the end of the session the student should be able to 1. Describe the gross and microscopic features of carcinoma breast 2. Document findings in record	S	KH	Y	DOAP session	1hr	Skill assessment			

PA 31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	At the end of the session the student should be able to 1. Enumerate the etiological factors and hormonal dependency of gynaecomastia 2. Describe the pathogenesis of gynaecomastia 3. Describe the morphology of gynaecomastia	K	KH	Y	Lecture	1hr	written		General surgery	
PA 31.5	Classify and describe the types, etiology, pathogenesis,pathology and hormonal imbalances in stromal tumors of breast	At the end of the session the student should be able to 1.Classify the stromal tumors of breast	K	KH	Y	lecture	1hr	written		General surgery	

		2. Describe the etiology, clinical course, morphology of fibroadenoma 3. Describe the etiology, pathogenesis, morphology of phyllodes tumor 4. Differentiate fibroadenoma and phyllodes tumor									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic:	**Endocrine**			**Number of competencies: (9)**					**Number of procedures for certification: (NIL)**		
PA 32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency	At the end of the session the student should be able to 1.Define hypothyroidism	K	KH	Y	Lecture	1hr	Written/Viv avoce/		Physiology, General medicine General surgery	

	of thyroid swellings	and hyperthyroidism 2. Describe the etiology, pathogenesis of hypo thyroid and hyperthyroid lesions 3. Describe the etiology, pathogenesis and morphology of multinodular goitre									
PA 32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	At the end of the session the student should be able to 1. Define and classify thyroiditis 2. Describe the pathogenesis, diagnostic tests	K	KH	Y	Lecture	1hr	Written/Viv avoce/		General medicine	

		and morphology of hashimoto thyroiditis									
PA 32.3	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of thyroid neoplasms	At the end of the session the student should be able to 1. Classify thyroid neoplasms 2. Describe the etiology and pathogenesis of thyroid neoplasms 3. Describe the clinical course and prognosis of thyroid neoplasms	K	KH	Y	Lecture/small group discussion	1hr	Written/Viva voce/		General medicine	
PA 32.4	Classify and describe the epidemiology, etiology, pathogenesis,	At the end of the session the student should be able to 1.Define and	K	KH	Y	Lecture	1hr	Written/Viva voce/		General medicine	

	pathology, clinical laboratory features, complications and progression of diabetes mellitus	classify diabetes 2. Describe etiological factors, pathogenesis and pathology of diabetes mellitus 3. Enumerate laboratory tests for diagnosing diabetes mellitus 4. Describe the complications and progression of diabetes mellitus									
PA 32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of	At the end of the session the student should be able to 1.describe Etiopathogenesis, genetics and	K	KH	Y	Lecture	1hr	Written/Viv avoce/		General medicine	

	hyperparathyroidism	morphologic features of hyperparathyroidism 2.describe etiology, morphology and pathogenesis of hypoparathyroidism									
PA 32.6	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features and metastases of pancreatic tumors	At the end of the session the student should be able to 1. Describe the etiology, pathogenesis, pathology of pancreatic tumors 2. Describe the laboratory and morphologic features of pancreatic	K	KH	Y	Lecture	1hr	Written/Viv avoce/		General surgery	

		tumors 3.Describe the clinical course and metastases of pancreatic tumors									
PA 32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	At the end of the session the student should be able to 1. classify adrenal insufficiency lesions 2. describe the etiology, pathogenesis of adrenocortical insufficiency 3. describe the laboratory tests, morphology and complications of adrenal insufficiency	K	KH	N	Lecture	1hr	Written/Viv avoce/		General medicine	

PA 32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	At the end of the session the student should be able to 1. describe the etiology, pathogenesis pf cushing syndrome 2. describe the laboratory tests, morphological features and complications of cushing syndrome	K	KH	N	lecture	1hr	written		General medicine	
PA 32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	At the end of the session the student should be able to 1. classify adrenal neoplasms 2. describe etiopathogenesi	K	KH	N	lecture	1hr	written		General medicine	

		s, clinical and laboratory manifestations of adrenal neoplasms 3.describe the morphological features and progression of adrenal neoplasms									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic: Bone and soft tissue				**Number of competencies: (5)**					**Number of procedures for certification: (NIL)**		
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of	At the end of the session the student should be able to 1. Discuss Classification of osteomylitis 2. Describe Etiology of	K	KH	Y	Lecture	1 hr	Written/Viv avoce		Human Anatomy, Orthopaedics	microbiology

	osteomyelitis	osteomylitis 3. Describe Pathogenisis of osteomylitis 4. Describe Clinical Manifestations of osteomylitis 5. Describe Radiologic and morphologic features of osteomylitis 6.Describe.Complications of osteomylitis									
PA33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	At the end of the session the student should be able to 1. Discuss Classification of bone tumors 2. Describe Etiology of bone tumors 3. Describe	K	KH	Y	Lecture	1 hr	Written/Viv avoce		Orthopaedics	

		Pathogenesis of bone tumors 4. Describe Radiologic and morphologic features of bone tumors 5. Describe Complications of bone tumors 6.Describe.Metastasis of bone tumours									
PA33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors	At the end of the session the student should be able to 1. Discuss Classification of soft tissue tumors 2. Describe Etiology of soft tissue tumors	K	KH	Y	Lecture	2hr	Written/Viva voce		Orthopaedics	

		3. Describe Pathogenisis of soft tissue tumors 4. Describe Clinical manifestations of soft tissue tumors 5. Describe Radiologic features of soft tissue tumors 6. Describe Morphologic features of soft tissue tumors 6. Describe Complications of soft tissue tumors 7. Describe Metastasis of soft tissue tumors									

PA33.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	At the end of the session the student should be able to 1. Describe Classification of Paget's disease of the bone 2 Describe Etiology of Paget's disease of the bone 3. Describe Pathogenesis of Paget's disease of the bone 4. Describe Clinical manifestations of Paget's disease of the bone 5. Describe Radiologic	K	KH	Y	Lecture	1hr	Written/Viv avoce		Orthopaedics	

		feature of Paget's disease of the bone 6. Describe Morphologic features of Paget's disease of the bone 7. Describe Complications of Paget's disease of the bone									
PA33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	At the end of the session the student should be able to 1. Discuss Classification of rheumatoid arthritis 2. Describe Etiology of rheumatoid	K	KH	Y	Lecture	1hr	Written/Viv avoce		Orthopaedic s	

		arthritis 3. Describe Immunology of rheumatoid arthritis 4. Describe Pathogenesis of rheumatoid arthritis 5. Describe Clinical manifestations of rheumatoid arthritis 6. Describe Radiological features of rheumatoid arthritis 7.Discuss Laboratory features of rheumatoid arthritis 8. Describe									

		Diagnostic criteria of rheumatoid arthritis 9.Describe complications of rheumatoid arthritis									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic: skin				**Number of competencies: (4)**						**Number of procedures for certification: (NIL)**	
PA34.1	Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	At the end of the session the student should be able to 1.Describe the risk factors of squamous cell carcinoma of the skin	K	KH	Y	Lecture/ small group discussion	1hr	Written/Vivavoce		Dermatology, Venereology & Leprosy	

		2. Describe Pathogenesis of squamous cell carcinoma of the skin 3. Describe Pathology and natural history of squamous cell carcinoma of the skin									
PA34.2	Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of the skin	At the end of the session the student should be able to 1. Describe the risk factors of basal cell carcinoma of the skin 2. Describe Pathogenesis of basal cell carcinoma of the skin	K	KH	Y	Lecture	1hr	Written/Vivavoce		Dermatology, Venereology & Leprosy	

		3.Pathology and natural history of basal cell carcinoma of the skin									
PA34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors morphology clinical features and metastases of melanoma	At the end of the session the student should be able to 1. Describe the distinguishing features between a nevus and melanoma. 2. Describe the etiology of melanoma 3 Describe Pathogenesis of melanoma 4. Describe Risk factors of melanoma 5.Clinical	K	KH	Y	Lecture	1hr	Written/Viv avoce		Dermatolog y, Venereolog y & Leprosy	

		features of melanoma 6 Describe Morphology of melanoma 7.Discuss Metastasis of melanoma									
PA34.4	Identify, distinguish and describe common tumors of the skin	At the end of the session the student should be able to . 1.identify common tumors of skin 2.distinguish and describe common tumors of skin	K	KH	Y	Lecture	1hr	Written/Viv avoce		Dermatology, Venereology & Leprosy	
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**

Topic: Central Nervous System				**Number of competencies: (3)**				**Number of procedures for certification: (NIL)**			
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	At the end of the session the student should be able to 1.Describe the etiology of meningitis 2.Discuss Types of meningitis 3.Describe Pathogenesis of meningitis 4.Discuss differentiating factors of meningitis 5. Discuss CSF findings in meningitis	K	KH	Y	`Lecture	1hr	Written/Viv avoce		general medicine	microbiology
PA35.2	Classify and describe the etiology, genetics, pathogenesis, pathology,	At the end of the session the student should be able to	K	KH	Y	Lecture	1hr	Written/Viv avoce/		Paediatrics	

	presentation sequelae and complications of CNS tumors	1.Classify and describe the etiology of CNS tumors 2.Discuss Genetics of CNS tumors 3. Describe Pathogenesis of CNS tumors 4. Describe Pathology of CNS tumors 5.Describe presentation sequelae of CNS tumors 6. Describe Complications of CNS tumors									
PA35.3	Identify the etiology of meningitis based on given CSF parameters	At the end of the session the student should be able to	S	KH	Y	DOAP session	2HR	Skill assessment		General Medicin	Microbiology

		1. Disscuss and identify the etiology of meningitis based on CSF parameters.									
Number	**COMPETENCY**	**Specific learning objective** **SLO**	**Domain K/S/A/C**	**Level K/KH / SH/P**	**Core (Y/N)**	**Suggested Teaching-Learning Methods**	**Time duration in hours**	**Suggested assessment method**	**Number required to certify**	**Vertical Integration**	**Horizontal Integration**
Topic: Eye						**Number of competencies: (1)**				**Number of procedures for certification: (NIL)**	
PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	At the end of the session the student should be able to 1.Describe the etiology of retinoblastoma 2.Discuss the Genetics of retinoblastoma 2. Describe the Pathogenesis of retinoblastoma 3. Describe the	K	KH	Y	Lecture	1hr	Written/Viv avoce/		Ophthalmo l-ogy	

		Pathology of retinoblastoma 4. Describe Presentation of retinoblastoma 5.Discuss the Sequelae of retinoblastoma 6. Describe Complications of retinoblastoma									

GITAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH
GITAM (Deemed to be University)
Pathology Department

BASIC GUIDELINES FOR PATHOLOGY PRACTICALS

I. **Exfoliative Cytology** : (competency – 8.2)

a) Techniques

b) Demonstration of PAP, H & E of Cervical smears and Bronchial Wash

c) 3 disease samples with discussion & Clinical correlation

II. **FNAC** (competency –8.3)

a) Techniques Demonstration

b) inflammatory & Neoplastic cases for discussion & Interpretation

III. HEMATOLOGY PRACTICALS

1. Collection of blood, methods and anticoagulants used. (competency - 13.2)

2. Estimation of Haemoglobin : (competency 13.4)

a) Demonstration

b) Conduction of Practicals with Basic standard questionnaire & model disease charts for interpretation

3. Hematocrit & ESR: (competency 13.4)

a) Demonstration

b) Basic standard questionnaire & model disease charts for Interpretation

4. Reticulocyte count Demonstration with basic standard Questionnaire (competency - 13.4, 16.6)

5. Peripheral smear: (competency 13.5)

a) Techniques of smear making & staining with demonstration

b) Identification of cells - demonstration

c) Model disease charts for interpretation

d) Practicals:

i) Smears of Microcytic Hypochromic & Macrocytic Anaemial & Haemolytic Anaemias

(competency – 14.3, 15.3, 16.6)

ii) Smears of CLL , Smears of CML, Smears of Acute lcukemia: AML or ALL

(competency – 18.2)

iii) Eosinophilia (competency – 18.1)

All the above with basic standard Questionnaire

6. RBC & WBC counts: (competency – 14.3,18.1)

a) Demonstration

b) Conduction of Practicals with Basic standard questionnaire & model disease charts for interpretation

7. Bone marrow Examination (competency - 17.2)

a) Methods of collection and demonstration

b) Study of normal marrow

c) Study of abnormal bone marrows

8. Bleeding Time, Clotting Time & Platelet Demonstration (competency - 21.1)

9. Blood groups & blood transfusion reactions (competency – 22.1, 22.5)

IV. **EXAMINATION OF URINE** (competency – 23.1)

1. Physical characters & different samples with pH & Sp gravity Demonstration

2. Chemistry of Urine with Albumin, Blood, Sugar, Ketone bodies, Bilesalts & pigments Demonstration with discussion about errors in interpretation

3. Practical Tests for students:

a) Albumin + Blood Physical properties & Clinical correlation

b) Sugar + Ketone bodies Physical properties & Clinical correlation 1 a & b with case charts for interpretation

4. Microscopy:

a) Casts, crystals, RBC, Pus cells Demonstration

b) Case charts for interpretation

V. **EXAMINATION OF BODY FLUIDS** (competency – 23.2)

1.Body fluids sampling (collection) preservation Techniques

2.Demonstration of CSF, Plueral fluid, Ascitic fluid & Sputum – Normal Inflammation and malignancy

VI. INSTRUMENTS

1. RBC & WBC pipettes & diluting fluids

2. Neubauer chamber & Others

3. PCV Tube

4. ESR Tube

5. Hb Meter

6. Urino meter

7. Esbach's albumino meter

8. L.P. Needle

9. Bone marrow aspiration needles (Salah and Klima)

10. Blood bag

VII. HISTOPATHOLOGY

1. Histopathology Lab – Practical demonstration of steps involved

2. Staining Techniques, H&E, Special stains - PAS, Vangieson, Sudan (Fat), Iron

3. Preparation of Requisition for Pathology Lab Points to remember – fixatives, Clinical details and Specific points regarding the lesion

4. General pathology Slides :

1) Cloudy swelling (2.2)

2) Fatty change (2.3)

3) Hyaline change (2.3)

4) Coagulation and caseous Necrosis (2.4)

5) Amyloidosis (Spleen) (3.2)

6) Cells of Acute & Chronic inflammation (4.4)

7) Granulation tissue (5.1)

8) CVC Lung & Liver (6.2)

9) Thrombus (6.4)

10) Squamous papilloma, Squamous cell Ca. (7.1)

11) Lipoma, fibroma (7.1)

12) Capillary & Cavernous hemangioma (7.1)

13) Cellular features of malignancy (7.1)

14) adenoma & adeno Ca. (7.1)

15) Fibrosarcoma (7.1)

16) Leprosy (10.3)

17) Rhinosporidiosis (10.4)

18) Actinomycosis (10.4)

19) Mycetoma (10.4)

20) Filarial Lymph node (10.4)

6. Systemic Pathology slides

1. Lymph nodes
    a. Hodgkin's lymphoma (competency – 19.5)
    b. Non-Hodgkin's Lymphoma (competency – 19.5)
    c. TB Lymph node (competency - 19.3)
2. Salivary glands: Pleomorphic adenoma (24.1)
3. GIT
    a. Chronic Gastric ulcer(24.6)
    b. Carcinoma stomach & colon (24.7, 24.12)
4. Liver
    a. Cirrhosis (25.4)
    b. Hepatoma
5. Respiratory system :
    a. Emphysema (26.3)
    b. Bronchiectasis (26.3)
    c. Lobar & Bronchopneumonias(26.1)
    d. Pulmonary tuberculosis (26.4)
    e. Carcinoma Lung (26.6)
6. Blood Vessels & Heart :
    a. Atherosclerosis (27.1)
    b. Monckeberg's arteriosclerosis (27.1)
7. Kidney
    a. Chronic Glomerulonephritis(28.5)
    b. Chronic Pyelonephritis(28.10)
    c. Benign Nephrosclerosis(28.7)
    d. Wilm's Tumor(11.2)
    e. Renal Cell carcinoma (28.14)
8. Testis & FGT
    a. Seminoma(29.2)

b. Endometrium – Proliferative, Secretory

c. Leiomyoma (30.5)

d. Dermoid Cyst (30.6)

e. Vesicular mole

9. Breast.

a. Duct cell carcinoma (31.3)

b. Fibroadenoma (31.5)

10.Thyroid

a. Hashimoto's Thyroiditis (32.2)

b. Follicular adenoma (32.3)

c. Papillary Carcinoma (32.3)

11. Musculo Skeletal

a. Osteomyelitis (33.1)

b. Osteosarcoma(33.2)

c. Chondrosarcoma (33.2)

d. Giant cell tumor (33.2)

e. Ewing's sarcoma(33.2)

12. Skin

a. Basal cell carcinoma(34.2)

b. Melanoma (34.3)

VIII. GROSS DESCRIPTION OF SPECIMENS

1. Lipoma (2.3)
2. Gangrene foot (2.5)
3. Gangrene intestine (2.5)
4. Acute appendicitis (4.4)
5. Infarct spleen (6.4)
6. Tuberculosis lymphnode (19.3)
7. Peptic ulcer (24.6)
8. carcinoma stomach (24.7)
9. Intestinal polyp (24.11)
10. Carcinoma colon (24.12)
11. Cirrhosis of liver (25.4)
12. Gall stones (25.7)

13.chronic pyelonephritis (28.10)
14.Renal cell carcinoma (28.14)
15. Seminoma (29.2)
16.Adenomyosis – Uterus (30.3)
17.Dermoid cyst of ovary (30.6)
18.Intramural leiomyoma – uterus (30.5)
19.Carcinoma Breast (31.3)
20.Fibroadenoma – breast (31.5)
21. Multinodular goitre (32.1)
22. Pleomorphic adenoma (32.3)
23.Adenoma of thyroid (32.3)
24.Papillary carcinoma thyroid(32.3)
25. Hashimotos thyroiditis (32.2)
26. Osteoclastoma (33.2)
27. Osteosarcoma (33.2)
28. Squamous cell carcinoma (34.1)
29. Melanoma (34.3)
30. Hydatidiform mole

TOPICS FOR SDL

1. Blood collection and component preparation
2. Fine needle aspiration cytology procedure
3. Screening method for detecting cervical carcinoma
4. Processing of histopathology specimen and its staining
5. Environmental and nutritional disorders
6. Peripheral smear study and correlation with a histogram
7. Cross matching
8. Transfusion reactions
9. Diabetes
10. Hypertension
11. Obesity
12. Malaria

PATHOLOGY
PAPER I

Max marks : 100M **Time: 3 hours**

Answer all the questions and draw diagrams where ever necessary

ESSAY QUESTIONS **2x 10= 20M**

1. Define necrosis, types of necrosis& morphological features and types of necrosis (2+1+7 =10)
2. 40 yr old male visits OPD with fever, fatigue & dragging sensation on left side of abdomen, peripheral smear shows elevated total leucocyte count of 2,00,000/dl.

   What is your provisional diagnosis? Describe pathogenesis, peripheral smear & bone marrow findings (2+2+6 =10)

Write short notes **8x5=40**

1. Apoptosis
2. Vascular events in inflammation
3. Define thrombosis & describe pathophysiology of thrombosis
4. Type III hypersensitivity
5. Write the differences between tuberculoid and lepromatous leprosy
6. Define metastasis & describe routes of metastasis
7. Peripheral smear and bone marrow findings of megaloblastic anemia
8. Transfusion reactions

Write briefly **10x3=30**

1. Gamma-gandy bodies
2. Dystrophic calcification& list causes
3. Gohn's focus
4. Write six complications of wound healing
5. Tumor markers
6. Cells in PAP smear
7. Myeloblast
8. Microscopic appearance of peripheral smear in iron deficiency anemia
9. Types of Reed-sternberg cells
10. Physiological causes of hyperplasia

Multiple choice questions **10x 1= 10**

All are characteristics of malignant tumors except

a. Pleomorphism
b. Encapsulation
c. Hyperchromatism
d. Mitotic figures

1. It is a form of necrosis with superadded putrefaction
   a. Apoptosis
   b. Necrosis
   c. Gangrene
   d. Autolysis
2. In Barret's oesophagus metaplasia is
   a. Squamous metaplasia
   b. Mesenchymal metaplasia
   c. Epithelial metaplasia
   d. Columnar metaplasia
3. All are examples of type II hypersensitivity except
   a. Tuberculosis
   b. Hashimoto's thyroiditis
   c. Myasthenia gravis
   d. Type 1 diabetes
4. Myleoblasts showing auer rods is diagnostic of
   a. Chronic myeloid leukemia
   b. Acute lymphoid leukemia
   c. Acute myeloid leukemia
   d. Chronic myeloid leukemia
5. Basophilia is seen
   a. Corticosteroid therapy
   b. Polycythemia vera
   c. Tuberculosis
   d. Polyarteritis nodosa
6. FNAC stands for
   a. Fine needle adequate cytology
   b. Firm needle abdominal cytology

c. Fine needle aspiration cytology
d. Fixed needle aspiration cytology

7. All are features of Kwashiorkar except
   a. Protein deficiency
   b. Flag sign
   c. Edema absent
   d. Wasting of muscles
8. Non caseating granulomas are seen in
   a. Tuberculosis
   b. Syphilis
   c. Sarcoidosis
   d. Leprosy
9. All are haemoparasites except
   a. Malaria
   b. Trypnasomes
   c. Trichinella
   d. Microfilaria

Note : key should be attached for objective type questions.

PATHOLOGY
PAPER II

Max Marks : 100M **Time: 3 hours**

Answer all the questions and draw diagrams where ever necessary

ESSAY QUESTIONS **2 x 10 = 20M**

1. A 45 year old hypertensive, obese, chronic alcoholic male, developed sudden chest pain, distress, dyspnea and his face is ashy pale bathed in sweat admitted in collapsing condition. (1+2+3+5)

a) Mention the probable diagnosis

b) Discuss the sequence of changes that will take place in lesion.c) Briefly describe the complications.

d) Describe the various laboratory tests.

2. Define cirrhosis ? classify cirrhosis. Write gross and microscopic appearance of alcoholic cirrhosis. (2+3+5)

Write short notes **8 x 5 = 40M**

1. Hashimotos thyroiditis

2. Crohn disease
3. Carcinoma cervix
4. Seminoma
5. CSF findings in meningitis
6. Chronic pyelonephritis
7. Etiopathogenesis of atherosclerosis
8. Bronchiectasis

Write briefly **10 x 3 = 30M**

1. Pleomorphic adenoma
2. Cause and histology of Barrets oesophagus
3. Classification of cholelithiasis
4. Stages of lobar pneumonia
5. Fibroadenoma
6. Pheochromocytoma
7. Rodent ulcer
8. Sequestrum
9. Name four glial tumours of brain
10. Pathology of wilms tumor

MULTIPLE CHOICE QUESTIONS **10 x 1 = 10M**

1. Micro organism responsible for peptic ulcer

a. Helicobacter pylori b. Hemophilus influenza c. Hemophilus ducreyi d. Hepatitis B

2. Most common malignant tumor of bone

a. Osteoclastoma b. Osteosarcoma c. Ewings tumor d. Chondrosarcoma

3. Which types of stones are seen in infection of urinary tract

a. Cystine stones b. Calcium stones c. Struvite stones d. Uric acid stones

4. COPD includes all, except

a. Emphysema b. Bronchiectasis c. Bronchial asthma d. Pneumonia

5. Most common germ cell tumor of ovary

a. Dysgerminoma b. Teratoma c. Yolksac tumor d. Embyonal carcinoma

6. Marjolin's ulcer can lead to

a. Squamous cell carcinoma b. Basal cell carcinoma

c. Malignant melanoma d. Squamous papilloma

7. Psammoma bodies are seen in

a. Papillary Ca. Thyroid b. Follicular carcinoma c. Medullary carcinoma d. Oncocytoma

8. Female counterpart of seminoma

a. Dysgerminoma b. Dermoid cyst c. Choriocarcinoma d. Yolksac tumor

9. Carcinoid syndrome is commonly due to increased levels of which chemical

a. Histamine b. Seratonin c. Epinephrine d. Nor epinephrine

10. aschoff bodies are seen in

a. MI b. Atherosclerosis c. Rheumatic heart disease d. Bacterial endocarditis

Note : key should be attached for objective type questions.

THIRD PROFESSIIONAL PART - 1

DEPARTMENT OF OTORHINOLARYNGOLOGY

VISION AND MISSION

The undergraduate medical education program is designed with a goal to create an "Indian Medical Graduate" (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby prescribed.

GOALS

National Goals

At the end of undergraduate program, the Indian Medical Graduate should be able to:

a) Recognize "health for all" as a national goal and health right of all citizens and by undergoing training for medical profession to fulfill his/her social obligations towardsrealization of this goal.

b) Learn every aspect of National policies on health and devote her/him to its practical implementation.

c) Achieve competence in practice of holistic medicine, encompassing promotive,preventive, curative and rehabilitative aspects of common diseases.

d) Develop scientific temper, acquire educational experience for proficiency in professionand promote healthy living.

e) Become exemplary citizen by observance of medical ethics and fulfilling social andprofessional obligations and to respond to national aspirations.

Institutional Goals

In consonance with the national goals each medical institution should evolve institutionalgoals to define the kind of trained manpower (or professionals) they intend to produce.

(a) To be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of thehealth team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.

(b) To be competent to practice preventive, promotive, curative, palliative and rehabilitative medicine in respect to the commonly encountered health problems.

(c) Appreciate rationale for different therapeutic modalities; be familiar with theadministration of “essential medicines” and their common adverse effects.

(d) Be able to appreciate the socio-psychological, cultural, economic and environmentalfactors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

(e) Possess the attitude for continued self-learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentationskills.

OBJECTIVES

During under graduate course, the students should learn the principles of examination and management of common Ear, Nose and throat diseases and acquire adequate skills to managecommon diseases like CSOM, tonsillitis, common emergencies like upper airway obstruction and peritonsillar abscess and be able to refer the complicated cases to an appropriate specialist.

At the end of the otorhinolaryngology posting, the student shall be able to:

1. Examine and diagnosis common ear, nose, and throat problems. 2.Suggest common investigative procedures and their interpretation todiagnose and manage the patient.

3. Treat the common ear, nose, throat and neck problem at primary carecenter, while treating the patient. He should know the rational use of commonly used design with their adverse effects.

4. Train to perform various minor surgical procedures like ear syringing nasalpacking and biopsy procedure.

5. Assist common surgical procedures such as tonsillectomy, mastoidectomy,septoplasty, tracheostomy

and endoscopic removal of foreign bodies.

6. Have awareness of Preventive otology and head & neck cancer for publicguidance.

Sl No	No	COMPETENCY	Hr	INTEGRATION	TL Method
1	EN1.1	Describe the Anatomy & physiology of ear, nose, throat, head & neck	3	Anatomy(36.1,36.2,36.3,36.5,37.1,37.2,38.1,40.1)	LGT
2	EN1.2	Describe the pathophysiology of common diseases in ENT	2	Anatomy40.4&40.5	LGT
3	EN2.15	Describe the national programs for prevention of deafness, cancer, noise & environmental pollution	1		LGT
4	EN4.12	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Hearing loss	1	PY10.16	LGT
5	EN4.13		1		LGT
6	EN4.14 & 4.15		1		LGT
7	EN4.18		1		LGT
8	EN4.19,4.20	Describe the clinical features, investigations management of Vertigo, Describe the clinical features,investigation& principle of management of Meniers disease	1		LGT
9	EN4.21	Describe the clinical features, investigation& principle of management of Tinnitus	1		LGT
10	EN4.27	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of seasonal type of Allergic Rhinitis	1	PE31.1,PE31.3	LGT
11	EN4.28	Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	1		LGT
12	EN4.30	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosal type of Epistaxis	1		LGT
	EN4.31	Describe the clinical features, investigations and principles of management of trauma to the face & neck	1		LGT
	EN4.32	Describe the clinical features, investigations and principles of management of nasopharyngeal Angiofibroma	1		LGT

	EN4.33	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principlesof management of squamosal type of Acute & Chronic Sinusitis	1		LGT
	EN4.34	Describe the clinical features, investigations and principles ofmanagement of Tumors of Maxilla	1	AN37.3	LGT
	EN4.35	Describe the clinical features, investigations and principles of management of Tumors of Nasopharynx	1		LGT
	EN4.38	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principlesof management of type of dysphagia,	1		LGT
	EN4.46	Describe the clinical features, investigations and principles of management of Malignancy of the Larynx& Hypopharynx	1	SU20.1	LGT
	EN4.52	Describe the Clinical features, Investigations and principles of management of diseases of Oesophagus	1		LGT
	EN4.53	Describe the clinical features, investigations and principles of management of HIV manifestations of theENT	2		LGT

UG CURRICULUM FOR SMALL GROUP TEACHING

Sl No	No	COMPETENCY	Hour	INTEGRATION	TL METHOD
1	EN2.11	Describe and identify by clinical examination malignant & pre-malignantENT diseases	2		Small group teaching
2	EN3.1	Observe and describe the indications for and steps involved in the performance ofOtomicroscopic examination in a simulated environment	2		Small group teaching
3	EN3.2,	Observe and describe the indications for and steps involved in the performance of diagnostic nasal Endoscopy	2		Small group teaching
4	EN3.3	Observe and describe the indications for and steps involved in the performance of Rigid/Flexible Laryngoscopy	2		Small group teaching
5	EN3.4	Observe and describe the indications forand steps involved in the removal of foreign bodies from ear, nose & throat	2		Small group teaching
6	EN4.3	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principlesof management of ASOM	2		Small group teaching
7	EN4.22	Elicit document and present a correct history demonstrate and describe the clinical features, choose the correct investigations and describe the principlesof management of squamosal	2		Small group teaching

		type of Nasal Obstruction			
8	EN23,EN4.24	Describe the clinical features, investigations and principles ofmanagement of DNS, Enumerate theindications observe and describe thesteps of septoplasty	2		Small group teaching
9	EN4.25	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principlesof management of squamosal type of Nasal Polyps	2		Small group teaching
10	EN4.36	Describe the clinical features, investigations and principles of management of diseases of the Salivaryglands	2		Small group teaching
11	EN4.37	Describe the clinical features, investigations and principles ofmanagement of Ludwig's angina	2		Small group teaching
12	EN4.39	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principlesof management of squamosal type of Acute & Chronic Tonsillitis	2		Small group teaching
13	EN4.42	Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles	2		Small group teaching

		of management of hoarseness of voice			
14	EN4.43	Describe the clinical features, investigations andprinciples of management of Acute & Chronic Laryngitis	4		Small group teaching
15	EN4.44	Describe the clinical features, investigations and principles of management of Benign lesions of thevocal cord		AN38.3 Describe anatomical basis of recurrent laryngeal nerve injury	Small group teaching
16	EN4.45	Describe the clinical features, investigations andprinciples of management of Vocal cord palsy	2		Small group teaching
17	EN4.47	Describe the clinical features, investigations and principles of management of Stridor	4	PE28.7 Discuss the etiology, clinical features and management of Stridor in children	Small group teaching
18	EN4.48	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of Airway Emergencies			Small group teaching
19	EN4.49	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of foreign bodies in the air & food passages	4	PE28.8 Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	Small group teaching

20	EN3.6	Observe and describe the indications for and steps involved in the skills of emergency procedures in ear, nose & throat	5		SDL

UG CURRICULUM FOR CLINICAL DEMONSTRATION/BED SIDE TEACHING/DOAP

Sl No	No	COMPETENCY	Hour	Integration	TL METHOD
1	EN2.1	Elicit document and present an appropriate history in a patient presenting with an ENT complaint	3		Clinical Demonstration/Bed Side teaching
2	EN2.10	Identify and describe the use of common instruments used in ENT surgery	3		Clinical Demonstration/Bed side teaching
3	EN2.12	Counsel and administer informed consent to patients and their families ina simulated environment	3		Clinical Demonstration/Bed side teaching
4	EN4.1	Elicit document and present a correct history, demonstrate and describe theclinical features, choose the correct investigations and describe the principles of management of Otalgia	3		Clinical Demonstration/Bed side teaching
5	EN4.2	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of diseases ofthe external Ear	3		Clinical Demonstration/Bed side teaching

6	EN4.4	Demonstrate the correct technique to hold visualize and assess the mobility ofthe tympanic membrane and its mobilityand interpret and diagrammatically represent the findings	3		Clinical Demonstration/Bed side teaching
7	EN4.5	Elicit document and present a correct history, demonstrate and describe theclinical features, choose the correct investigations and describe the principles of management of OME	3		Clinical Demonstration/Bed side teaching
8	EN4.6	Elicit document and present a correct history, demonstrate and describe theclinical features, choose the correct investigations and describe the principles of management of Discharging ear	3		Clinical Demonstration/Bed side teaching
9	EN4.7	Elicit document and present a correct history demonstrate and describe theclinical features, choose the correct investigations and describe the principles of management of CSOM	3		Clinical Demonstration/Bed side teaching
10	EN4.8	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosaltype of CSOM	3		Clinical Demonstration/Bed side teaching
11	EN4.26	Elicit document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of	3		Clinical Demonstration/Bed side teaching

		squamosaltype of Adenoids			
12	EN4.29	Elicit, document and present a correct history, demonstrate and describe the clinical features, choose the correct investigations and describe the principles of management of squamosaltype of Acute & Chronic Rhinitis	3		Clinical Demonstration/Bed side teaching
13	EN4.41	Describe the clinical features, investigations and principles ofmanagement of Acute & chronic abscesses in relation to Pharynx	3		Clinical Demonstration/Bed side teaching
14	EN2.2	Demonstrate the correct use of a headlamp in the examination of the ear,nose and throat	6	PY10.15.PE 28.10.PE28.11,PE28.12	DOAP
15	EN2.3	Demonstrate the correct technique ofexamination of the ear including Otoscopy	6		DOAP
16	EN2.4	Demonstrate the correct technique of performance and interpret tuning forktests	6		DOAP
17	EN2.5	Demonstrate the correct technique ofexamination of the nose & paranasal sinuses including the use of nasal speculum	6		DOAP
18	EN2.6	Demonstrate the correct technique of examining the throat including the useof a tongue depressor	6		DOAP
19	EN2.7	Demonstrate the correct technique ofexamination of neck including	6		DOAP

		elicitation of laryngeal crepitus			
20	EN2.8	Demonstrate the correct technique toperform and interpret pure tone audiogram & impedance audiogram	6		DOAP
21	EN2.9	Choose correctly and interpret radiological, microbiological & histological investigations relevant tothe ENT disorders	6	PE28.4 Discuss the etio-pathogenesis, clinical features and management of Acute Otitis Media (AOM)	DOAP
22	EN2.13	Identify, resuscitate and manage ENT emergencies in a simulated environment(including tracheostomy, anterior nasal packing, removal of foreign bodies in ear, nose, throat and upper respiratory tract)	6		DOAP
23	EN4.9	Demonstrate the correct technique forsyringing wax from the ear in a simulated environment	6		DOAP
24	EN4.10	Observe and describe the indications for and steps involved in myringotomy and myringoplasty	6		DOAP
25	EN4.11		6		DOAP
26	EN4.16	Observe and describe the indications forand steps involved in the performance of pure tone audiometry	6		DOAP
27	EN4.17	Enumerate the indications and interpretthe results of an audiogram	3		DOAP

28	En4.40	Observe and describe the indications forand steps involved in a tonsillectomy / adenoidectomy	6		DOAP
29	EN4.5	Observe and describe the indications forand steps involved in tracheostomy	6		DOAP
30	EN4.51	Observe and describe the care of the patient with a tracheostomy	6		DOAP
31	EN4.4	Demonstrate the correct technique to hold visualize and assess the mobility ofthe tympanic membrane and its mobilityand interpret and diagrammatically represent the findings	6		DOAP

Suggested books

Fundamentals of EAR,NOSE AND THROAT & HEAD & NECK SURGERY- Dr.S.K.Dey

Diseases of EAR, NOSE & THROAT- Dr P L Dhingra

A short practice of Otolaryngology- Prof. K.K. Ramalingam

Logan Turner

DEPARTMENT OF OTORHINOLARYNGOLOGY(ENT)THEORY PAPER- TOPIC WISE WEIGHTAGE

Ear - 40%

Nose - 20%

Throat (Oral cavity,Pharynx,Larynx& Trachea) - 30%

Neck and Recent Advances - 10%

EAR Topics- 40 % marks		
1	Anatomy of the Ear Including Embryology	EQ/SAQ/VSAQ/MCQ
2	Physiology of Hearing and Equilibrium	EQ/SAQ/VSAQ/MCQ
3	Audiology, Assessment of hearing and vestibular functions	SAQ/VSAQ/MCQ
4	Disorders of vestibular function	SAQ/VSAQ/MCQ
5	Diseases of External ear	SAQ/VSAQ/MCQ
6	Diseases of Middle ear, CSOM and its complications	EQ/SAQ/VSAQ/MCQ
7	Otosclerosis	SAQ/VSAQ/MCQ
8	Meniere's disease	SAQ/VSAQ/MCQ
9	Acoustic neuroma	SAQ/VSAQ/MCQ
10	Facial nerve and its disorders	EQ/SAQ/VSAQ/MCQ
11	Deaf child, Rehabilitation of the Hearing Impaired	EQ/SAQ/VSAQ/MCQ
12	Otalgia, Tinnitus	SAQ/VSAQ/MCQ
13	Temporal bone fractures	SAQ/VSAQ/MCQ
14	Common Ear surgeries	SAQ/VSAQ/MCQ
NOSE Topics- 20% marks		
1	Anatomy of the Nose and PNS including Embryology	EQ/SAQ/VSAQ/MCQ
2	Physiology of the Nose and PNS	EQ/SAQ/VSAQ/MCQ
3	Diseases of the External Nose	SAQ/VSAQ/MCQ
4	Nasal Septum and its disorders	EQ/SAQ/VSAQ/MCQ
5	Acute and Chronic Rhinosinusitis, Complications	SAQ/VSAQ/MCQ
6	Allergic rhinitis, Vasomotor Rhinitis	SAQ/VSAQ/MCQ
7	Granulomatous Conditions of the nose	SAQ/VSAQ/MCQ
8	Nasal Polyposis	EQ/SAQ/VSAQ/MCQ

9	Epistaxis	EQ/SAQ/VSAQ/MCQ
10	Facial trauma	SAQ/VSAQ/MCQ
11	Common Nose surgeries	SAQ/VSAQ/MCQ
ORAL CAVITY, SALIVARY GLANDS, LARYNX AND TRACHEOBRONCHIAL TREE- 30% marks		
1	Anatomy of Oral cavity and Salivary glands including Embryology	SAQ/VSAQ/MCQ
2	Common disorders of the Oral cavity including tumours	SAQ/VSAQ/MCQ
3	Neoplastic and Non neoplastic disorders of Salivaryglands	SAQ/VSAQ/MCQ
4	Anatomy and Physiology of the Pharynx	SAQ/VSAQ/MCQ
5	Tumours of the Nasopharynx	SAQ/VSAQ/MCQ
6	Acute and Chronic tonsillitis	SAQ/VSAQ/MCQ
7	Tumours of Oropharynx and Hypopharynx including Pharyngeal pouch	SAQ/VSAQ/MCQ
8	Snoring and Sleep Apnoea	SAQ/VSAQ/MCQ
9	Anatomy and Physiology of the Larynx and Tracheobronchial tree including Embryology	EQ/SAQ/VSAQ/MCQ
10	Congenital lesions of the Larynx and trachea, Stridor	EQ/SAQ/VSAQ/MCQ
11	Laryngeal paralysis	EQ/SAQ/VSAQ/MCQ
12	Cancer larynx	SAQ/VSAQ/MCQ
13	Voice and Speech disorders	SAQ/VSAQ/MCQ
14	Tracheostomy	EQ/SAQ/VSAQ/MCQ
NECK AND RECENT ADVANCES- 10% marks		
1	Anatomy of the Neck	SAQ/VSAQ/MCQ
2	Neck Swellings	SAQ/VSAQ/MCQ
3	Head and Neck spaces and Infections	SAQ/VSAQ/MCQ
4	Anatomy and Physiology of Oesophagus	SAQ/VSAQ/MCQ
5	Disorders of Oesophagus	SAQ/VSAQ/MCQ
6	Dysphagia	SAQ/VSAQ/MCQ
7	Laser Surgery, Radiofrequency, Hyperbaric oxygen therapy, Coblation,Cryosurgery	SAQ/VSAQ/MCQ

8	Radiotherapy and Chemotherapy in Head and neck cancers	SAQ/VSAQ/MCQ
9	HIV/AIDS and ENT manifestations	SAQ/VSAQ/MCQ

ASSESMENT AND EXAMINATION PATTERN:

Formative :

Four Internal Assessments:

1st: Conducted at the end of 1 four weeks of clinical postings in 2nd MBBS in the form of-

a ward out exam. **25marks:**

-Long case presentation- 01×10=10marks

-Theory questions in the form of SAQ - 05×03=15marks

2nd and 3rd:

-**Theory exams:** **50 marks:**

Essay Q 01×10=10marks

Short Answer Qs 04×05=20marks

Brief Answer Qs 05×02=10marks

Mcq Qs 10×01=10marks

- Practical exams:

Conducted during 2nd four weeks postings in 3rd MBBS part1.

25marks:

- Theory questions in the form of SAQ - 05×03=15marks

- Long case presentation- 10×01=10marks

4th/Prefinal Exam:

- Theory&Practical(includes Log book marks for 20): in University exam pattern- **100+100 marks**

TIMING OF INTERNAL ASSESSMENT EXAMS:

1st IA exam: at the end of 2nd MBBS clinical postings (schedule given by Principal)

2nd IA exam: in Final MBBS part1,tentatively in the month of March/April

3rd IA exam: in Final MBBS part1,tentatively in the month of August/September

4th IA exam: in Final MBBS part1,tentatively in the month of November/December

Eligibility criteria to appear for University Examination:

-75% attendance in Theory classes

-80% attendance in Clinical postings

-50% total marks in IA Theory & Practical exam together (with 40% minimum in each)

Summative / University Examination :

Theory Exam: **100 marks**

Essay Questions 02×10=20marks

Short Answer Qs 10×05=50marks

Brief Answer Qs

10×02=20marks

MCQs	10×01=10marks

Practical Exam:	**100 marks**
Long Cases	02×20=40marks
Short Cases	02×10=20marks
Specimens & Spotters	04×05=20marks
Viva: Xrays & Instruments	01×10=10marks
Orals	01×10=10marks

Criteria to pass the University Examination:

By securing 50% in theory & 50% in practical (Clinical+Viva) examination,

not less than 40% in theory and practical separately.

SAMPLE THEORY QUESTION PAPER

GITAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH

Subject: OtorhinolaryngologyTheory Question Paper

Total Marks: 100 Time: 3 Hours

Answer all questions-Figures in right-hand denote marks

Theory Question Paper

(Draw diagrams wherever applicable, Answer All questions)

Long Answer Questions 2x10=20

1. Describe aetio-pathology and investigation of Atrophic rhinitis? **5+5=10**

2. Describe the stages and treatment of acute suppurative otitis media? **5+5=10**

3. Short Answer Questions 10x5=50

4. Positional vertigo

5. Singers node

6. Referred otalgia

7. Rhinoscleroma

8. Globus hystericus

9. Branchial cyst

10. Atresia pinna

11. Cauliflower ear

12. Cochlear Hydrops

13. Eagle's Syndrome

Brief Answer Questions 10x2=20

14. Carharts notch

15. Cone of light

16. Malignant otitis externa.

17. Little's area

18. Peritonsilar abscess.

19. Safety muscle of larynx

20. Bleeding polyp nose

21. Keratosis obturans

22. Grommet

23. Killian dehiscence

Multiple Choice Question Paper 10x1=10

24. Prussak's space is bounded below by?

A. Fibers of lateral malleolar fold

B. Shrapnell's membrane

C. Short process of malleus

D. Neck of malleus

25. All are true regarding Reinke's oedema except?

A. Usually caused by vocal abuse

B. There is collection of oedema fluid in the subepithelial space

C. There is asymmetrical swelling of vocal cords

D. Vocal cord stripping is the treatment

26. Pain pathway from ethmoid sinus is via?

A. Nasociliary nerve

B. Lacrimal nerve

C. Lateral pterygoid nerve

D. Frontal nerve

27. Bifurcation of Trachea is at the level of

A. T2

B. T3

C. T4

D. T5

28. Acoustic dip in audiogram in Noise induced deafness is at

A. 1 KHz

B. 2 KHz

C. 3KHz

D. 4KHz

29. In Bilateral Conductive hearing loss the Webers test is lateralizes to

A. Both ears

B. Heard in center

C. More deaf Ear

D. Less deaf ear

30. The organ which is most important for articulation of speech is

A. Para-nasal sinus

B. Vocal cord

C. Tongue

D. Nose

31. Muscle present in Tonsillar posterior piller is

A. Superior constrictor

B. Palato-glossus

C. Middle constrictor

D. None of the above

32. Dangerous area of nose is

A. Lower part of nose and upper lip

B. Little's area

C. Olfactory area

D. Posterior Ethmoid area

33. Jacobson nerve is a branch of

A. Glossopharyngeal nerve

B. Facial Nerve

C. Trigeminal Nerve

D. Vestibulo-Cochlear Nerve

DEPARTMENT OF OPHTHALMOLOGY

COMPETENCY BASED UNDERGRADUATE CURRICULUM

GOAL

The goal is to mould the student into a competent clinician with compassion and acquire knowledge and skills to provide preventive, promotive, curative, palliative and holistic eye care. The student should be a good communicator with patients, families, colleagues and community. The student should recognize the key importance of ocular health in our country.

OBJECTIVES

1. The student should possess adequate knowledge, skills, attitude regarding examination and management of ophthalmology disorders
2. Function appropriately and effectively as a clinician in correlating history and symptoms of patients to diagnose ocular diseases and advising proper investigations.
3. Take decisions for the patient's and patient's family's best interest including referral to a senior consultant if there is any difficulty.
4. Possess the attitude for continued self learning and to seek further expertise or to pursue research in any chosen area of Ophthalmology.
5. Be familiar with the essential National Eye Health Programs, including National Programmes for Control of Blindness.

KNOWLEDGE AND SKILLS

The student will be able to

1. Demonstrate knowledge about structure and function of the eye and orbit
2. Demonstrate Visual acuity assessment and understand the principles of refraction

and diagnose refractive errors

3. Demonstrate knowledge and take detailed history, perform full ocular examination including anterior and posterior segment of eye and neuro ophthalmology and make clinical diagnosis and competently manage the patient
4. Perform relevant investigative and therapeutic procedures for the patient
5. Interpret important imaging and laboratory results
6. Plan and advise measures for the prevention of eye diseases and visual disability
7. Manage ocular emergencies efficiently
8. Integrate Ocular diseases with systemic disorders
9. Actively participate in Community eye camps
10. Demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families and communities
11. Develop skills as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based ophthalmology.

DEPARTMENT OF OPHTHALMOLOGY

UG Classes Division

Topic	**Large Group Lectures**	**Small Group Lectures / Tutorial / Seminar**			**SDL**
		Small group lectures / Tutorial / seminar	Integration classes	Number of hours	
Topic: Visual Acuity Assessment Number of	OP1.1 OP1.2 OP1.4	OP1.2.2 OP1.2.3 OP1.2.4	AN41.1 PY10.17	5	OP1.3

Competencies: (05)					
Topic: Lids and Adnexa, Orbit Number of Competencies: (06)	OP2.1.1 OP2.1.2 OP2.1.3	OP2.4 OP2.7.2 OP2.5 OP2.8.1 OP2.6.1 OP2.8.2 OP2.6.2 OP2.8.3 OP2.7.1		10	OP2.1 OP2.2 OP2.3
Topic: Conjunctiva Number of Competencies (05)	OP3.3.1 OP3.3.2 OP3.4 OP3.5 OP3.6	OP3.7		6	OP3.1 OP3.2 OP3.8 OP3.9
Topic: Corneas Number of Competencies: (08)	OP4.1.1 OP4.1.2 OP4.1.3 OP4.2 OP4.5.2	OP4.3 OP4.7 OP4.4.1 OP4.9.1 OP4.4.2 OP4.9.2 OP4.5		13	OP4.8 OP4.10

		OP4.6.1 OP4.6.2 OP4.6.3			
Topic: Sclera Number of competencies: (02)		OP5.1 OP5.2 OP5.2.2		2	
Topic: Iris and Anterior chamber Number of Competencies (09)	OP6.1 OP6.8.1 OP6.2 OP6.9 OP6.3.1 OP6.5 OP6.7.1 OP6.7.2 OP6.7.3 OP6.7.4 OP6.7.5 (R) OP6.7.9 OP6.7.10	OP6.3.2 OP6.4.1 OP6.4.2 OP6.5 (R) OP6.7.5 OP6.7.6 OP6.7.6 (R) OP6.7.7 OP6.7.8 OP6.7.8 (R) OP6.8.2 OP6.8.3 OP6.9.2	AN41.2 PY10.20	20	

Topic: Lens Number of Competencies: (03)	OP7.2.5 OP7.2.6 OP7.4.1 OP7.4.2 OP7.4.5	OP7.1 OP7.2.1 OP7.2.2 OP7.2.3 OP7.2.4 OP7.2.7		9	OP7.3.1
Topic: Retina & optic Nerve Number of Competencies (10)	OP8.5.1 OP8.5.2 OP8.5.4	OP8.1 OP8.2.1 OP8.2.2 OP8.2.3 OP8.3.1 OP8.4	PA36.1 PY10.18 PY10.19 AN30.5 AN31.3	13	OP8.3.2
Topic: Miscellaneous Number of Competencies (16)	OP1.5 OP9.4.1 OP7.3.2 OP9.5.2 OP8.5.3 OP9.5.3 OP9.2	OP2.3.2 OP9.4.2 OP6.7.5 OP9.4.3 OP7.4.3 OP9.4.4 OP7.4.4 OP9.5.1 OP9.3	AN31.5 AN41.3 IM24.15 PH1.58	20	OP9.1

TOTAL	**44**	**60**	**13**	**117**	**13**

DEPARTMENT OF OPHTHALMOLOGY

Lectures

Sl no	Number	Competency	Number of Hours
Topic: Visual Acuity Assessment			
1.	OP1.1	• Describe the physiology of vision	1
2.	OP1.2	• Define, classify and describe the types and methods ofcorrecting refractive error	1
3.	OP1.4	• Enumerate the indications and describe the principles of refractive surgery	1
Topic: Lids and Adnexa, Orbit			
4.	OP2.1.1 OP2.1.2 OP2.1.3	• Enumerate the causes, describe and discuss the aetiology, clinicalpresentations and diagnostic features of commonconditions of the lid and adnexa including Hordeolumexternum/ internum, blepharitis,preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis,entropion, lid lag, lagopthalmos	3
Topic: Conjunctiva			
05.	OP3.3.1	• Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications. and	2

	OP3.3.2	management of various causes of conjunctivitis	
06.	OP3.4	• Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of trachoma	1
07.	OP3.5	• Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh	1
08.	OP3.6	• Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium	1
Topic: Cornea			
09.	OP4.1.1 OP4.1.2 OP4.1.3	• Enumerate, describe and discuss the types and causes of corneal ulceration.	3
10.	OP4.2	• Enumerate and discuss the differential diagnosis of infective keratitis	1
11	OP4.5.2	• Enumerate the causes of corneal blindness	1
Topic: Iris and Anterior chamber			
12.	OP6.1	• Describe clinical signs of intraocular inflammation and enumerate the features that distinguish granulomatous from non-granulomatous inflammation	1
13.	OP6.2	• Identify and distinguish acute iridocyclitis from chronic iridocyclitis	1

14.	OP6.3.1	• Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations	1
15.	OP6.5	• Describe and discuss the angle of the anterior chamber and its clinical correlates	1
16.	OP6.7.1 OP6.7.2 OP6.7.3 OP6.7.4 OP6.7.5(R) OP6.7.9 OP6.7.10	• Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions.	7
17.	OP6.8.1	• Enumerate and choose the appropriate investigation for patients with conditions affecting the Uvea	1
18.	OP6.9	• Choose the correct local and systemic therapy for conditions of the anterior chamber and enumerate their indications, adverse events and interactions	1
<u>Topic – Lens</u>			
19.	OP7.2.5 OP7.2.6	• Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract	2
20.	OP7.4.1 OP7.4.2 OP7.4.5	• Enumerate the types of cataract surgery and describe the steps, intra-operative and post-operative complications of extracapsular cataract extraction surgery.	3

Topic: Retina & optic Nerve			
21.	OP8.5.1 OP8.5.2 OP8.5.4	• Describe and discuss the correlative anatomy, aetiology, clinical manifestations, diagnostic tests, imaging and management of diseases of the optic nerve and visual pathway	3
<u>Topic – Miscellaneous</u>			
22.	OP1.5 OP7.3.2 OP8.5.3 OP9.2 OP9.4.1 OP9.5.2 OP9.5.3	• Define, enumerate the types and the mechanism by which strabismus leads to amblyopia. • Demonstrate the correct technique of ocular examination in a patient with a cataract. • Describe and discuss the correlative anatomy, aetiology, clinical manifestations, diagnostic tests, imaging and management of diseases of the optic nerve and visual pathway. • Classify, enumerate the types, methods of diagnosis and indications for referral in a patient with heterotropia/ strabismus. • Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020). • Describe the evaluation and enumerate the steps involved in the stabilisation, initial management and indication for referral in a patient with ocular injury.	7
Total			**44**

DEPARTMENT OF OPHTHALMOLOGY

Small group teaching / Tutorial / Seminar

Sl no	Number	Competency	Number of hours
		Topic: Visual Acuity Assessment	
1	OP1.2.2 OP1.2.3 OP1.2.4	Define, classify and describe the types and methods ofcorrecting refractive error	3
Topic: Lids and Adnexa, Orbit			
2	OP2.4	• Describe the aetiology, clinical presentation. Discuss the complications and management of orbital cellulitis	1
3	OP2.5	• Describe the clinical features on ocular examination and management of a patient with cavernous sinus thrombosis	1
4	OP2.6.1 OP2.6.2	• Enumerate the causes and describe the differentiating features, and clinical features and management of proptosis	2
5	OP2.7.1 OP2.7.2	• Classify the various types of orbital tumours. Differentiate the symptoms and signs of the presentation of various types of ocular tumours	2

6	OP2.8.1 OP2.8.2 OP2.8.3	• List the investigations helpful in diagnosis of orbital tumors. Enumerate the indications for appropriate referral	3
Topic: Conjunctiva			
7	OP3.7	• Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of symblepharon	1
Topic: Cornea			
8	OP4.3	• Enumerate the causes of corneal edema	1
9	OP4.4.1 OP4.4.2	• Enumerate the causes and discuss the management of dry eye	2
10	OP4.5	• Enumerate the causes of corneal blindness	1
11	OP4.6.1 OP4.6.2 OP4.6.3	• Enumerate the indications and the types of keratoplasty	3
12	OP4.7	• Enumerate the indications and describe the methods of tarsorraphy	1
13	OP4.9.1 OP4.9.2	• Describe and discuss the importance and protocols involved in eye donation and eye banking	2

		Topic – Sclera	
14	OP5.1	• Define, enumerate and describe the aetiology, associated systemic conditions, clinical features complications indications for referral and management of episcleritis	1
15	OP5.2.1 OP5.2.2	• Define, enumerate and describe the aetiology, associated systemic conditions, clinical features, complications, indications for referral and management of scleritis	2
		Topic: Iris and Anterior chamber	
16	OP6.3.2 OP6.4.1 OP6.4.2 OP6.5 (R) OP6.7.5 OP6.7.6 OP6.7.6(R) OP6.7.7 OP6.7.8 OP6.7.8(R) OP6.8.2 OP6.8.3 OP6.9.2	• Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations. • Describe and distinguish hyphema and hypopyon. • Describe and discuss the angle of the anterior chamber and its clinical correlates. • Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions. • Enumerate and choose the appropriate investigation for patients with conditions affecting the Uvea. • Choose the correct local and systemic therapy	13

		for conditions of the anterior chamber and enumerate their indications, adverse events and interactions.	
		Topic – Lens	
17	OP7.1 OP7.2.1 OP7.2.2 OP7.2.3 OP7.2.4 OP7.2.7	• Describe the surgical anatomy and the metabolism of the lens • Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract	6
		Topic – Retina and Optic Nerve	
18	OP8.1	• Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina	1
19	OP8.2.1 OP8.2.2 OP8.2.3	• Enumerate the indications for laser therapy in the treatment of retinal diseases (including retinal detachment, retinal degenerations, diabetic retinopathy & hypertensive retinopathy)	3
20	OP8.3.1	• Demonstrate the correct technique of a fundus examination and describe and distinguish the	1

		funduscopic features in a normal condition and in conditions causing an abnormal retinal exam.	
21	OP8.4	• Enumerate and discuss treatment modalities in management of diseases of the retina.	1
		Topic Miscellaneous	
22	OP2.3.2 OP6.7.5 OP7.4.3 OP7.4.4	• Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ ectropion, perform the regurgitation test of lacrimal sac. massage technique in cong. dacryocystitis, and trichiatic cilia removal by epilation • Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions. • Enumerate the types of cataract surgery and describe the steps, intra-operative and post-operative complications of extracapsular cataract extraction surgery	4
23	OP9.3	• Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral	1
24	OP9.4.2 OP9.4.3 OP9.4.4	• Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)	3

25	OP9.5.1	• Describe the evaluation and enumerate the steps involved in the stabilisation, initial management and indication for referral in a patient with ocular injury	1
Total			**60**

DEPARTMENT OF OPHTHALMOLOGY

Integrated Classes

Sl no.	**Number**	**Human Anatomy**					**No of Hours**
1	AN30.5	Explain effect of pituitary tumours on visual pathway	Lecture	Written		Ophthalmology	1
2	AN31.3	Describe anatomical basis of Horner's syndrome	Lecture	Written		Ophthalmology	1
3	AN31.5	Explain the anatomical basis of oculomotor, trochlear andabducent nerve palsies along with strabismus	Lecture	Written		Ophthalmology	1
4	AN41.1	Describe & demonstrate parts and layers of eyeball	Practical, Lecture, Small group discussion	Written / Viva voce		Ophthalmology	1
5	AN41.2	Describe the anatomical aspects of cataract, glaucoma &central retinal artery occlusion	Lecture	Written		Ophthalmology	1
6	AN41.3	Describe the position, nerve supply and actions of intraocularmuscles	Lecture	Written		Ophthalmology	1
Physiology							

7	PY10.17	Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, Refractive errors, colour blindness, Physiology of pupil and light reflex	Lecture, Small group discussion	Written / Viva voce		Ophthalmology
8	PY10.18	Describe and discuss the physiological basis of lesion in visualpathway	Lecture, Small group discussion	Written / Viva voce		Ophthalmology
9	PY10.19	Describe and discuss auditory & visual evoke potentials	Lecture, Small group discussion	Written / Viva voce		Ophthalmology
10	PY10.20	Demonstrate testing of visual acuity, colour and field of visionin volunteer/ simulated environment	DOAP sessions	Skill assessment / Viva voce	1	ENT, Ophthalmology
Pathology						
11	PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	Lecture, Small group discussion	Written / Viva voce		Ophthalmology
Pharmacology						
12	PH1.58	Describe drugs used in Ocular disorders	Lecture	Written / Viva voce		Ophthalmology
General Medicine						
13	IM24.15	Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly	Lecture, Small group discussion	Written / Viva voce		Ophthalmology

Total

GITAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH

DEPARTMENT OF OPHTHALMOLOGY

UG CURRICULUM FOR SDL

Topic code.	**Topic**	**No. of Hours (13)**	**Integration**	**Method of Teaching**
OP9.1	Examination of extra ocularmovements?	1 hr		SDL
OP8.3.2	fundus examination techniques. Describe & distinguishthe fundoscopic features of abnormal retina?	1 hr		SDL
OP7.3.1	Ocular examination of a patient with cataract	1 hr		SDL
OP4.8	Demonstrate technique of removal of foreign body in thecornea in a simulated environment	1 hr		SDL
OP4.10	Counsel patients and family about eye donation in asimulated environment	1 hr		SDL
OP3.1	Elicit document present an appropriate history in patientpresenting with red eye	1 hr		SDL
OP3.2	Demonstrate document and present the correct method of examination of a “red eye” including vision assessment,corneal	1 hr		SDL
OP2.1	Demonstrate the symptoms & clinical signs of different lid disorder	1 hr		SDL
OP2.2	Demonstrate the symptoms & clinical signs of different liddisorder	1 hr		SDL

OP1.3	Demonstrate & describe the steps in performing visual acuity assessment for distance vision, near vision, colourvision pinhole test	1 hr		SDL
OP2.3	Demonstrate and describe bell's phenomena regurgitation test of lecrimal sac, massage technique inCong. NSDO	1 hr		SDL
OP3.8	Demonstrate and describe the technique of removal offoreign body from eye	1 hr		SDL
OP3.9	Demonstrate the correct technique of instillation of eye drops in a simulated environment	1 hr		SDL

DEPARTMENT OF OPHTHALMOLOGY

Sample Question paper

Time Duration = 3 Hours **Total Marks = 100 Marks**

Answer all questions. No negative marking. Select the single best answer in multiple choice questions. Draw diagrams wherever necessary.

Long Answer Question/ Essay [10X2 = 20 marks]

1. Describe etiology, clinical features, complications, investigations and treatment of Bacterial corneal ulcers. [2+2+2+2+2=10 marks]
2. Discuss classification, clinical features, investigations and treatment of Iridocyclitis . [2+2+3+3=10 marks]

Short Answer Questions [10X5 = 50 marks]

3. Methods to correct Myopia
4. A baby born at home 14 hours earlier was brought to the neonatology department with severe redness and discharge. On examination conjunctival chemosis with purulent secretions present, with no general signs of infection. The baby was diagnosed to have Ophthalmia Neonatorum. Discuss the case.
5. A 15 year old boy came with complaints of both eyes itching, redness, and tearing for 1 month. What is the Differential diagnosis of Allergic conjunctivitis. Describe the clinical features and management of Vernal keratoconjunctivitis [1+2+2=5marks]
6. Define and discuss about clinical features and management of congenital Glaucoma [1+2+2=5 marks]
7. A 60 year old male patient came with a complaint of gradual painless loss of vision in both eyes, since 3 years associated with glare and improvement in near vision. Which type of cataract is associated with this clinical scenario. Discuss the clinical features and Management. [1+2+2=5 marks]
8. Role of eye camps in prevention of blindness
9. Mention 5 important differences between papillitis and papilloedema

10. A 70 year old male patient came with complaints of watering and mucopurulent discharge from right eye for 6 months. On examination, there is mucopurulent discharge with localized conjunctivitis and swelling in the lacrimal sac area with positive regurgitation test. What is the diagnosis? Discuss the etiology, clinical features and management. [1+1+1+2=5 marks]

11. Discuss the etiology, complications and management of orbital cellulitis. [1+2+2=5 marks]
12. Discuss the Medical errors in clinical care

Brief Answer Questions **[10X2= 20marks]**

13. Draw Anatomy of Eyeball
14. Uses of convex lenses in Ophthalmology.
15. Draw and Describe Strum's conoid.
16. Differential Diagnosis of Pterygium
17. SAFE strategy
18. Mention three differences between granulomatous and nongranulomatous uveitis
19. Mention three causes for night blindness
20. State 4 causes for sudden loss of vision
21. State W. H. 0 classification of Xerosis
22. Classify and indicate the uses of Gonioscopy

Multiple Choice Questions **[10x1 =10 marks]**

23. A young child suffering from fever and sore throat began to complain of lacrimation. On examination, follicles were found in the lower palpebral conjunctiva with tender preauricular lymph nodes. The most probable diagnosis is:
    a. Trachoma
    b. Staphylococcal conjunctivitis
    c. Adenoviral conjunctivitis
    d. Phlyctenular conjunctivitis
24. Phlycten is due to:
    a. Endogenous allergy
    b. Exogenous allergy

c. Degeneration
d. None of the above

25. Corneal sensations are diminished in:
    a. Herpes simplex
    b. Conjunctivitis
    c. Fungal infections
    d. Marginal keratitis

26. Dense scar of cornea with incarceration of iris is known as:
    i. a. Adherent Leucoma
    ii. b. Dense leucoma
    iii. c. Ciliary staphyloma
    iv. d. Iris bombe

27. Phakolytic glaucoma is best treated by:
    i. Fistulizing operation
    ii. Cataract extraction
    iii. Cyclo-destructive procedure
    iv. Miotics and Beta blockers

28. The only extraocular muscle which does not arise from the apex of the orbit is:
    i. a. Superior rectus
    ii. b. Superior oblique
    iii. c. Inferior oblique
    iv. d. Inferior rectus

29. D-shaped pupil occurs in:
    a. Iridocyclitis
    b. Iridodonesis
    c. Cyclodialysis
    d. Iridodialysis

30. Unilateral aphakia is likely to be corrected by any of the following except:
    a. Anterior chamber intraocular lens
    b. Posterior chamber intraocular lens
    c. Contact tens
    d. Glasses

31. Presbyopia occurs as a result of::
    a. Loss of elasticity of the sclera
    b. Reduced anterior movement of the lens
    c. Reduced contraction of the ciliary muscle
    d. Reduced axial length of eye
32. Which of the following is not included under the global Vision 2020 Program?
    a. Cataract
    b. Refractive error
    c. Trachoma
    d. Glaucoma

Department of Ophthalmology

Theory & Practical Internal Assessment Exams

A minimum of 4 theory internal assessment exams will be conducted as per the schedule

Sl no	Professional year	Number of exams	Theory Internal Assessment	Practical Internal Assessment	Total Marks	Scheduling
1	II	1	10 marks	15 marks	25 marks	At the end of 2nd MBBS clinical postings
2	III	2	50 marks	50 marks	100 marks	Tentatively in the month of March/April
3	III	3	50 marks	50 marks	100 marks	Tentatively in the month of August/September
4	III	4	100 marks	100 marks	200 marks	Preliminary exam, tentatively in the month of November/December, as per final exam pattern.

Eligibility criteria to appear for University Examination

- 75% attendance in Theory classes
- 80% attendance in Clinical postings
- 50 % total marks in Internal Assessment theory and practical together (40% minimum in each).

DEPARTMENT OF OPHTHALMOLOGY

Blueprint for Final Practical / Clinical examinations

The University Practical examination in Ophthalmology will be conducted for 100 marks as per NMC guidelines

The pattern of assessment in practical is suggested as follows

Sl no	Name of the Activity	Marks
1	Case presentations = 2 long cases + 2 short cases	2x15 = 30 marks 2x10= 20 marks Total = 50 marks
2	Objective Structured Clinical Examination (OSCE)	15 marks
3	Directly Observed Procedural Skills (DOPS)	5 marks
4	Viva Voce	20 marks
5	Instruments	10 marks
	Total	100 marks

GITAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH

DEPARTMENT OF OPHTHALMOLOGY

Blueprint of Theory assessment

Maximum Marks : 100 Marks

Sl no	Topic	Weightage	Marks	Type of questions
1	Anatomy and Physiology of eye	2%	2	BAQ, MCQ
2	Conjunctiva	10%	10	LAQ, SAQ,BAQ, MCQ
3	Cornea & Sclera	12%	12	LAQ, SAQ, BAQ,MCQ
4	Iris & Anterior chamber	15%	15	LAQ, SAQ,BAQ, MCQ
5	Lens	10%	10	LAQ, SAQ, BAQ,MCQ
6	Strabismus	1%	1	MCQ
7	Retina & Optic Nerve	10%	10	LAQ, SAQ,BAQ, MCQ
8	Lids, Adnexa and Orbit	10%	10	LAQ, SAQ,BAQ, MCQ
9	Ocular injuries	5%	5	
10	Optics and Refraction	10%	10	LAQ,SAQ, BAQ,MCQ
11	Ocular manifestations of systemic diseases & Community Ophthalmology	5%	5	SAQ, BAQ,, MCQ
11	Ocular Pharmacology & Ocular Pathology, Ocular Diagnostics	6%	6	SAQ, BAQ, MCQ
12	AETCOM	4%	4	SAQ
	Total	100%	100	

LAQ = long answer question, SAQ = short answer question,BAQ = brief answer questions, MCQ = multiple choice question

Two LAQ (2x10 = 20 marks) will be from following topics

1. Conjunctiva
2. Cornea
3. Iris & Anterior chamber
4. Lens
5. Retina & Optic Nerve
6. 0ptics & Refraction
7. Lids, Adnexa

DEPARTMENT OF OPHTHALMOLOGY

CLINICAL POSTINGS- STUDENT DOCTOR METHOD OF LEARNING

STUDENTS-3rd PROFESSIONAL PART-1 STUDENTS

DURATION OF POSTING- 4 WEEKS

METHOD OF TRAINING--MBBS, 3rd PRFESSIONAL YEAR STUDENTS ARE POSTED TO DEPARMENT OF OPHTHALMOLOGY FOR 4 WEEKS BATCH WISE, EACH BATCH COMPRISING 25 STUDENTS.

AN INTRODUCTORY CLASS IS TAKEN TO THE ENTIRE BATCH REGARDING CASE SHEET WRITING, HOW TO INTERACT WITH PATIENTS, HOW TO ELICIT & RECORD COMPLAINTS, HISTORY OF ILLNESS, NECESSARY PERSONAL & FAMILY HISTORY.

THEY WILL BE EXPLAINED HOW TO EXAMINE THE PATIENT AFTER TAKING HIS/ HER CONSENT, HOW TO ELICIT EXAMINATION FINDINGS, SUGGESTING NECESSARY INVESTIGATIONS & TREATMENT BY PRESCRIPTION.

THE STUDENTS ARE DIVIDED INTO BATCHES AND ENTRUSTED TO FACULTY MEMBERS. UNDER GUIDANCE AND SUPERVISION OF DESIGNATED FACULTY MEMBERS, THE STUDENTS WILL PERFORM CLINICAL EXAMINATION, CASE SHEET WRITING, FOLLOW WARD ROUNDS, ATTEND OPERATION THEATRE AND FOLLOW THE ENTRUSTED PATIENT UNTIL HE/SHE IS DISCHARGED FROM WARD.

FACULTY WILL TAKE CLASSES FOR CASE DISCUSSIONS, DISCUSS ETHICAL & HUMANITARIAN ISSUES AND TRAIN HOW TO DOCUMENT THE FINDINGS.

STUDENTS HAVE TO ENTER ALL THEIR DAILY CLINICAL WORK IN LOG BOOK AND SHOW IT TO FACULTY.

LOG BOOK WILL BE REVIEWED PERIODICALLY BY FACULTY AND NECESSARY CORRECTIONS MADE.

BY THE END OF POSTING STUDENT SHOULD LEARN NECESSARY CLINICAL KNOWLEDGE, DOCTOR- PATIENT RELATIONSHIP, ORDERING NECESSRY INVESTIGATIONS, PRESCRIBING TREATMENT & KNOWLEDGE OF REFERRAL WHEN NECESSARY.

AT THE END OF EACH BATCH WARD POSTING, FORMATIVE ASSESSMENT TEST IS CONDUCTED AND FEEDBACK GIVEN TO STUDENT. WHEN NEEDED, REVISED CLASSES AND REEXAMINATION WILL BE CONDUCTED.

DEPARTMENT OF OPHTHALMOLOGY

DOAP sessions

Sl no	Number	Competency	Number of hours
Topic Visual Acuity Assessment			
1	OP1.3	Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, colour vision, the pin hole test and the menace and blink reflexes	6
		Topic Lids Adnexa and Orbit	
2.	OP2.2	Demonstrate the symptoms & clinical signs of conditions of lids & adnexa.	6
3	OP2.3	Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ ectropion, perform the regurgitation test of lacrimal sac. massage technique in cong. dacryocystitis, and trichiatic cilia removal by epilation	3
Topic Conjunctiva			
4	OP3.1	Elicit document and present an appropriate history in a patient presenting with a “red eye” including congestion, discharge, pain	3
5	OP3.2	Demonstrate document and present the correct method of examination of a “red eye” including vision assessment,	3

		corneal lustre, pupil abnormality, ciliary tenderness	
6	OP3.8	Demonstrate correct technique of removal of foreign body from the eye in a simulated environment	3
7	OP3.9	Demonstrate the correct technique of instillation of eye drops in a simulated environment	3
Topic Cornea			
8	OP4.8	Demonstrate technique of removal of foreign body in the cornea in a simulated environment & Corneal diseases	6
9	OP4.10	Counsel patients and family about eye donation in a simulated environment	3
Topic Iris and Anterior chamber			
10	OP6.6	Identify and demonstrate the clinical features and distinguish and diagnose common clinical conditions affecting the anterior chamber	12
11	OP6.10	Counsel patients with conditions of the iris and anterior chamber about their diagnosis, therapy and prognosis in an empathetic manner in a simulated environment	9
Topic Lens			
12	OP7.3	Demonstrate the correct technique of ocular examination	3

		in a patient with a cataract	
13	OP7.4	Enumerate the types of cataract surgery and describe the steps, intra-operative and post-operative complications of extracapsular cataract extraction surgery.	6
14	OP7.5	To participate in the team for cataract surgery	6
15	OP7.6	Administer informed consent and counsel patients for cataract surgery in a simulated environment	3
<u>Topic Miscellaneous</u>			
16	OP9.1	Demonstrate the correct technique to examine extra ocular movements (Uniocular& Binocular)	3
		Total Hours:	**78**

COMMUNITY MEDICINE

Goal: The broad goal of teaching in Community Medicine is to prepare the student to function effectively as a Community Physician.

(a) **Competencies**: The undergraduate must demonstrate:

1. Understanding of the concept of health and disease,
2. Understanding of demography, population dynamics and disease burden in National and global context,
3. Comprehension of principles of health economics and hospital management,
4. Understanding of interventions to promote health and prevent diseases as envisioned in National and State Health Programmes.
5. Understanding of physical, social, psychological, economic and environmental

determinants of health and disease,

6. Ability to recognize and manage common health problems including physical, emotional and social aspects at individual family andcommunity level in the context of National Health Programmes,
7. Ability to Implement and monitor National Health Programmes in the primary care setting,
8. Knowledge of maternal and child wellness as they apply to national health care priorities and programmes,
9. Ability to recognize, investigate, report, plan and manage community health problems including malnutrition and emergencies.

(b)**Integration**: The teaching should be aligned and integrated horizontally and vertically in order to allow the learner to understand the impact of environment, society and national health priorities as they relate to the promotion of health and prevention and cure of disease.

Assessment – Formative & Summative:

I Formative Assessment or Internal Assessment (IA) :

Components of IA

(i) **Theory IA can include**: Written tests, should have essay questions, short notes and creative writing experiences.

(ii) **Practical / Clinical** IA can include: practical / clinical tests, Objective Structured Clinical Examination (OSCE) / Objective Structured Practical Examination (OSPE), Directly Observed Procedural Skills (DOPS), Mini Clinical Evaluation Exercise (mini-CEX), records maintenance and attitudinal assessment.

(iii) **Assessment of Log-book**. Log book should record all activities like seminar, symposia, quizzes and other academic activities. Achievement of certifiable competencies should also be recorded in logbooks. It should be assessed regularly and submitted to the department.Upto twenty percent IA marks (Theory and Practical) shall be from Log book assessment.

(iv) **Internal Assessment for Professional development programme (AETCOM)** will include:

a. Written tests comprising of short notes and creative writing experiences in each subject.

b. OSCE based clinical scenarios and/or viva voce. Skill competencies acquired during the Professional Development Programme must be tested during the clinical, practical and vivavoce in every subject.

Scheduling of IA

A minimum of 5 theory internal assessment exams will be conducted as per the following schedule:

S. No	Phase of MBBS	Internal Assessment	Weightage of Marks	Scheduling
1	I	**1**	50 M	Along with 2nd Internal of Phase I subjects

2	II	**2**	50 M	Along with 1st and 2nd internal of Phase II subjects
		3	100M	
3	III	**4**	100M	Along with internals of Phase III subjects
		5	200 M	Prefinal Examination as per final exam pattern.
			500 M	

These are minimum required numbers but more tests shall be scheduled by departments as required. Prior to University examinations, departments can conduct additional tests as and when required with the purpose of providing formative feedback to the students.

A student who has not taken minimum required number of tests for IA each in theory and practical will not be eligible for university examinations.

Practical assessment:

An end of posting clinical assessment shall be conducted for each clinical posting in each professional year. **Accordingly end posting examination shall be conducted in phase II and Phase III for 50 Marks each at the end of clinical postings and one Prefinal examination for 100 Marks shall be conducted in line with the final examination pattern.**

Students must secure at least 50% marks of the total marks (combined in theory and practical / clinical; not less than 40 % marks in theory and practical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject.

In the subject of Community Medicine the internal assessment marks will be consolidated for 100 Marks (Theory 50 M, Practical 40 M, Log Book & Record assessment 10 M).

Internal assessment marks will not be added to University examination marks and will reflect as a separate head of passing at the summative examination.

The results of IA shall be displayed on notice board within two weeks of the test and an opportunity provided to the students to discuss the results and get feedback on making their performance better. It is also recommended that students should sign with date whenever they are shown IA records in token of having seen and discussed the marks**.**

II. Summative assessment

Summative assessment consists of University examinations. Each theory paper will have 100 marks. In subject of Community Medicine the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass.

Table 2: Marks distribution for various subjects in University examinations

Phase of Course	Written-Theory – Total	Practicals / Orals/ Clinicals	Pass Criteria
First Professional			Internal Assessment: 50%combined in theory and practical (not less than 40% in each) for eligibility for appearing for University Examinations University Examination Mandatory 50% marks in theory and practical (practical = practical/ clinical + viva) [theory=theory paper(s) only] Internal assessment marks are not to be added to marks of the University examinations and should be shown separately in the grade card.
Human Anatomy - 2 papers	200	100	
Physiology - 2 papers	200	100	
Biochemistry - 2 papers	200	100	
Second Professional			
Pharmacology - 2 Papers	200	100	
Pathology - 2 papers	200	100	
Microbiology - 2 papers	200	100	
Third Professional Part – I			
Forensic Medicine & Toxicology - 1 paper	100	100	
Ophthalmology – 1 paper	100	100	
Otorhinolaryngology – 1 paper	100	100	
Community Medicine - 2 papers	200	100	
Third Professional Part – II			
General Medicine - 2 papers	200	200	
General Surgery - 2 papers	200	200	
Pediatrics – 1 paper	100	100	
Obstetrics & Gynaecology - 2 papers	200	200	

Theory question paper :

Paper setting may be done as per the guidelines for given below:

1. Follow MCI competencies for paper setting in the subject.

2. Designing of question paper should take into consideration all levels of knowledge domain e.g. Bloom's taxonomy of cognitive domain. Use appropriate verbs for the questions at each level to assess higher levels of learning.

Use combination of various types of questions e.g. structured essays (Long Answer Questions - LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). Marks for each part should be indicated separately. MCQs if used, shouldnot have more than 20% weightage.

3. The question paper setter must sample the contents appropriately from competencies. Blueprinting will add to the value and quality of these assessments. Moderation of theory question paper by subject expert must be arranged by Universities.

Pattern of the Theory Question Paper:

Community Medicine Paper I and Paper II for 100 marks each as per the following pattern

1. **Structured Essay / Long Essay Questions : 3 X 10 M = 30 M**
2. **Short Answer Questions : 15 X 4 M = 60 M**
3. **Multiple Choice Questions (MCQ) : 10 X 1 M = 10 M**

TOTAL : 100 M

Practical/Clinical examination

This part should include assessment in psychomotor and affective domain. Assessment of clinical and procedural skills should be based on direct observations

by the examiners.

The University Practical examination in Community medicine will be conducted for 100 Marks as per NMC guidelines.

The pattern of assessment in practicals is suggested as follows :

S. NO	Name of the Activity / Exercise	Marks allotted
1.	Spotters	10 M

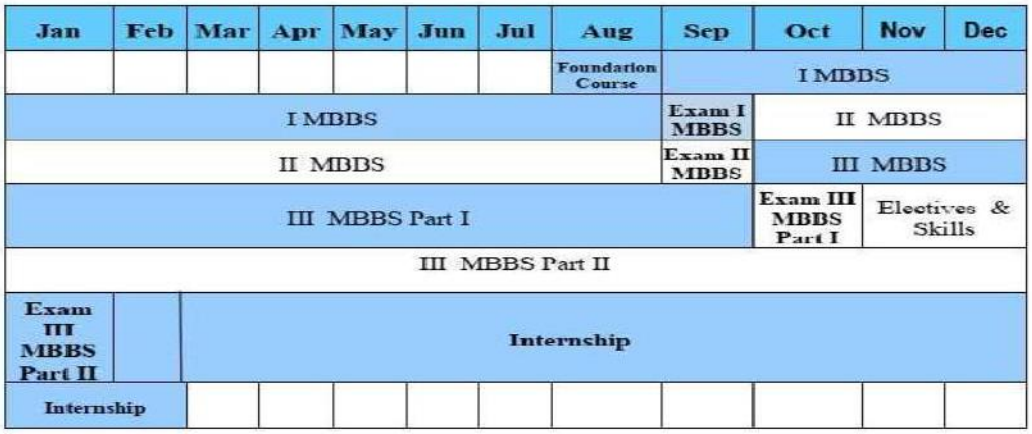
2.	Epidemiological exercises	20 M
3.	Exercises in Biostatistics & Vital statistics	10 M
4.	Clinico Social case study	20 M
5.	OSPE / OSCE	20 M
6.	VIVA VOCE	20 M
	Grand Total	**100 M**

Viva/oral examination shall also assess approach to patient management, emergencies, attitudinal, ethical and professional values.

Conduct of University Examinations:

Third Professional Part I examination shall be held at end of third Professional part 1 of training (12 months) in the subjects of Ophthalmology, Otorhinolaryngology, Community Medicine and Forensic Medicine and Toxicology

Table 3: Examinations schedule



In subjects that have two papers, the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass in the said subject.

First Professional Year Classes – Community Medicine				
LGTs 20 SGTs 26 SDL 5				
S.No	**Competency**	**Topic**	**TL Method**	**Integration**
1	CM1.1	Concept of public health	Lecture	
2	CM1.2	Dimensions of health and concept of wellbeing	SGTs	
3	CM1.2	Determinants of health	SGTs	
4	CM1.7	Indicators of health	SGTs	
5	CM1.7	Health indicators of your respective states/ districts with sources	SDL	
6	CM1.3	Aetiology of disease	Lecture	
7	CM1.4	Natural history of disease	SGTs	
8	CM1.5	Levels of prevention	SGTs	
9	CM1.9	Effective communication DOAP	SGTs	AETCOM
10	CM1.1	Doctor patient relationship DOAP	SGTs	AETCOM
11		Revision concept of health topics	Lecture	
12		FA on concept of health topics	SGTs	
13	CM2.1	Concepts in sociology	Lecture	

14	CM2.2	Cultural factors in health and disease	SGTs	
15	CM2.2	Cultural factors with respect to etiology of disease, maternal and child health and care during illness from your respective areas	SDL	
16	CM2.2	Family types, role in health and disease	SGTs	
17	CM2.3	Scenarios on barriers to good health and health seeking behaviour	SGTs	
18	CM2.5	Social class and health; social security measures	Lecture	
19	CM2.5	Prepare material on any one social security measure	SDL	
20	CM3.2	Sources of water, water purification	Lecture	
21	CM3.2	Water quality standards; water conservation	Lecture	
22	CM3.3	Water borne diseases	Lecture	Microbiology, General Medicine, Paediatrics

23	CM3.2	Methods of water conservation	SDL	
24	CM3.1	Air pollution	Lecture	General Medicine, ENT
25	CM3.1	Noise and radiation pollution	Lecture	General Medicine, ENT
26	CM5.1	Sources of nutrients	Lecture	General Medicine, Paediatrics
27	CM5.1	Balanced diet and Nutritional requirements according to age, sex etc	SGTs	General Medicine, Paediatrics
28	CM5.4	Dietary recommendations to individuals and families DOAP (more in 2nd yr postings)	SGTs	General Medicine, Paediatrics
29	CM5.3	Macronutrient malnutrition	SGTs	General Medicine, Paediatrics
30	CM5.3	Micronutrient malnutrition	SGTs	General Medicine, Paediatrics
31	CM5.3	Nutritional factors in cardiovascular diseases and cancers	SGTs	General Medicine, Paediatrics

32	CM5.2	Assessment of nutritional status	SGTs	General Medicine, Paediatrics
33	CM5.2	Exercises/scenarios on nutritional status assessment DOAP	SGTs	General Medicine, Paediatrics
34	CM5.2	Nutritional status assessment	SDL	General Medicine, Paediatrics
35	CM5.7	Food hygiene	SGTs	Microbiology
36	CM5.8	Food toxicants, additives	SGTs	Paediatrics
37	CM5.8	Food fortification, adulteration FSSAI	SGTs	Paediatrics
38	CM5.5	Nutritional surveillance, rehabilitation, social aspects of malnutrition	Lecture	General Medicine, Paediatrics
39	CM5.6	Describe national nutrition policy and important nutritional programs	Lecture	Paediatrics
40		Revision nutrition topics	Lecture	
41		FA on nutrition topics	SGTs	
42	CM9.1	Demographic cycle, vital statistics	SGTs	
43	CM9.3	Demographic trends	Lecture	

44	CM9.2	Calculate and interpret demographic and fertility indicators	SGTs	Obstetrics& Gynaecology, Paediatrics
45	CM9.3	Declining sex ratio and its implications	SGTs	
46	CM1.8, 9.4	Demographic profile of India; population explosion and its consequences	Lecture	
47	CM9.6	Concepts in family welfare and national population policy	Lecture	
48	CM9.5	Methods of population control and MTP act	Lecture	Obstetrics& Gynaecology
49	CM9.7	Sources of health information	Lecture	
50		FA on Demography and Family planning	SGTs	
51		Revision Demography and Family planning	Lecture	

Second Professional Year Classes- Community Medicine				
LGT =20 hours		**SGTs=31hours**		**SDL=8 hours**
S.No	**Competency**	**Topic**	**TL Method**	**Integration**

1	CM 1.8	Demographic profile of India and its impact on health	Lecture	
2	CM 2.4	Describe social psychology, community behavior and community relationship and their impact on health and disease	Lecture	
3	CM 2.4	Describe social psychology, community behavior and community relationship and their impact on health and disease	Lecture	
4	CM 3.4	Describe the concept of solid waste, human excreta and sewage disposal	SGT	
5	CM 3.4	Describe the concept of solid waste, human excreta and sewage disposal	SGT	
6	CM 3.5	Housing standards and the effect of housing on health	SGT	
7	CM 3.6	Role of vectors in disease causation. Discuss NVBDCP	SGT	Microbiology
8	CM 3.6	Role of vectors in disease causation. Discuss NVBDCP	SGT	Microbiology
9	CM 3.7	Identify and describe the identifying features and life cycles of vectors of public health importance and their control measures	SGT	Microbiology
10	CM 3.7	Identify and describe the identifying features and life cycles of vectors of public health importance and their control measures	SGT	Microbiology
11	CM 3.8	Describe mode of action, application cycle of	Lecture	Pharmacology

		commonly used insecticides and rodenticides		
12	CM 6.2	Presentation of statistical data	SGT	General Medicine, Pediatrics
13	CM 6.4	Types of data, measures of central tendency and dispersion	SGT	General Medicine, Pediatrics
14	CM 6.4	Measures of central tendency and dispersion	DOAP/SGT	General Medicine, Pediatrics
15	CM 6.3	Statistical analysis and tests of significance	SGT	General Medicine, Pediatrics
16	CM 6.3	Statistical analysis and tests of significance	DOAP/SGT	General Medicine, Pediatrics
17	CM 6.1	Formulating a Research question and literature review	SGT	General Medicine, Pediatrics
18	CM 6.4	Sampling methods	SGT	General Medicine, Pediatrics
19	CM 6.3	Designing Data collection tool	SGT	General Medicine, Pediatrics
20	-	FA on Statistics		
21	CM 1.6	Communication Process, IEC, BCC	SGT	
22	CM 1.6	Principles of Health Education	Lecture	
23	CM 4.1	Describe various methods of health education with their advantages and limitations	Lecture	
24	CM 4.2	Describe methods of organizing health promotion and education and counseling	SGT	

		activities at individual, family and community settings		
25	CM 4.2	Describe methods of organizing health promotion and education and counseling activities at individual, family and community settings	SGT	
26	CM 4.3	Demonstrate and describe steps in evaluation of health promotion and education programme	Lecture	
27	CM 14.1, 14.2	Hospital Waste Management	SGT	Microbiology
28	CM 14.3	Biomedical Waste Management Rules	Lecture	Microbiology
29	CM 7.2	Ennumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	Lecture	General Medicine
30	CM 7.2	Ennumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	Lecture	General Medicine
31	CM 7.2	Ennumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	Lecture	General Medicine
32	CM 7.2	Ennumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-	Lecture	General Medicine

		communicable diseases		
33	CM 7.2	Ennumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	Lecture	General Medicine
34	CM 7.9	Describe and demonstrate the application of computers in epidemiology	SGT	
35	CM 8.4	Describe the principles and enumerate the measures to control a disease epidemic	SGT	General Medicine, Pediatrics
36	CM 5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors	SGT	General Medicine
37	CM 13.1, 13.2	Disaster Management	SGT	General Surgery, General Medicine
38	CM 13.2, 13.4	Disaster management, NDMA	Lecture	General Surgery, General Medicine
39	CM 13.3	Man-made disasters	SGT	General Surgery, General Medicine
40	-	Recent Disasters and how they are managed	SDL	
41	-	FA on Hospital Waste management and Disaster Management		
42	CM 15.1,15.2	Epidemiology of Mental Illnesses	SGT	Psychiatry
43	CM 15.2	Drug Addiction	SGT	Psychiatry

44	CM 15.3	National Mental Health Programme	Lecture	Psychiatry
45	-	Depression as a public health problem	SDL	
46	-	FA on Environment		
47	-	FA on demography and FP		
48	-	FA on Mental Health		
49	-	Pros and cons of different diets: Mediterranean, DASH, keto etc..	SDL	
50	-	Emerging or re-emerging disease case study	SDL	
51	-	Emerging or re-emerging disease case study	SDL	
52	-	Small pox eradication or SARS CoV2 vaccination	SDL	
53	-	Water conservation and rain water harvesting	SDL	
54	-	Socio-cultural factors in health and disease	SDL	

Pandemic Module

S.No	Competency	Topic	TL Method	Integration
55	CM 7.2	Epidemiology of emerging and re-emerging infectious diseases	Lecture	General Medicine
56	CM 7.2	Prevention and control of emerging and re-emerging infectious diseases	Lecture	General Medicine
57	CM 7.2	Challenges faced in controlling these diseases	SGT	General Medicine
58	CM 7.2	Summary and closure	SGT	General Medicine

59	CM 7.2	The process of vaccine development; role of vaccines in disease control and eradication	Lecture	General Medicine
60	CM 7.2	Routine vaccination during pandemics	Lecture	General Medicine
61	CM 7.2	Cold chain for vaccine storage and delivery	SGT	General Medicine
62		Visit to PHC to see cold chain and micro planning for vaccination	SGT	
63		Visit to PHC to see cold chain and micro planning for vaccination	SGT	
64	CM 7.2	Role of communities in vaccination programmes and summary	Lecture	General Medicine

S.No	Competency	Topic
1.	CM-1.8	Calculation of demographic indicators, fertility rates
2.	CM-2.1, 5.2	Family Health Study – Briefing
3.	CM-2.1, 5.2	Family Health Study – Visit
4.	CM-2.1, 5.2	Family Health Study - Discussion
5.	CM-5.1	Nutritive values of common foods
6.	CM-5.1	Nutritive values of common foods
7.	CM-5.3	Nutritional deficiency diseases spotters
8.	CM-5.4	Dietary assessment and planning
9.	CM-5.4	Dietary assessment and planning

10.	CM-5.6	Anganwadi centre visit
11.	CM-3.2	Exercises on water quality standards
12.	CM-3.2	Estimation of chlorine demand & residual chlorine content of drinking water
13.	CM-3.2	Environment spotters
14.	CM-3.2	Environment spotters
15.	CM-3.4	Visit to sewage treatment plant (STP)
16.	CM-3.7	Entomology spotters
17.	CM-3.7	Entomology spotters
18.	CM-3.8	Insecticides and disinfectants spotters
19.	CM-9.5, 10.6	Family planning spotters
20.	CM-14.1	Hospital waste management visit
21.		RHTC VISIT
22.		UHTC VISIT
23.		Internal practical exam

THIRD PROFESSIONAL YEAR COMPETENCIES – COMMUNITY MEDICINE

LECTURES: 41, SDL: 6 SGD: 45

S.No	Competency	Topic	TL Method	Integration
1.	CM7.1	Define epidemiology, the tools of	LECTURE	General Medicine

		measurement and measurement of mortality including death certificate and standardization		
2.	CM7.1	Measurement of morbidity, uses of epidemiology	LECTURE	General Medicine
3.	CM7.5	Classify epidemiologic studies. Descriptive epidemiology	SGD	General Medicine
4.	CM7.5	Case control studies	SGD	General Medicine
5.	CM7.5	Cohort studies	SGD	General Medicine
6.		SDL on case-control and cohort studies	SDL	General Medicine
7.	CM7.5	RCTs	SGD	General Medicine
8.	CM 7.5	SDL on RCTs	SDL	General Medicine
9.	CM7.8	Principles of association and causation	SGD	General Medicine
10.	CM7.7	Describe investigation of epidemic	LECTURE	General Medicine, Microbiology
11.	CM7.7 PM3.1	Demonstrate investigation of epidemic	LECTURE	General Medicine, Microbiology
12.	CM7.6	Screening for diseases	LECTURE	General Medicine
13.	CM7.8	Validity, reliability and biases	LECTURE	
14.	CM8.1	EPC of measles, rubella and meningococcal meningitis	SGD	General Medicine, Peadiatrics, Pathology,

				Microbiology
15.	CM8.1	EPC of influenza, diphtheria and pertussis	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
16.	CM8.1	EPC of ARIs, ARI component of IMNCI	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
17.	CM8.1	EPC of tuberculosis	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
18.	CM8.3	NTEP	LECTURE	
19.	CM8.1	EPC of polio	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
20.	CM8.1	EPC of acute viral infections	SGD	General Medicine, Peadiatrics, Pathology, Microbiology

21.	CM8.1	EPC of acute diarrheal diseases and cholera, ADD part of IMNCI	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
22.	CM8.3, 10.5	UIP and MI	LECTURE	Paediatrics
23.	CM8.3, 10.5	IMNCI	LECTURE	Paediatrics
24.	CM8.1	EPC of infections causing food poisoning	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
25.	CM8.1	EPC of Dengue	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
26.	CM8.1	EPC of malaria	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
27.	CM8.1	EPC of LYF	SGD	General Medicine, Peadiatrics, Pathology, Microbiology

28.	CM8.3	NVBDCP	LECTURE	
29.	CM8.1	EPC of rabies and JE	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
30.	CM8.1	EPC of leptospirosis and scrub typhus	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
31.	CM8.1	SDL on neglected tropical diseases	SDL	
32.	CM8.1	EPC of tetanus	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
33.	CM8.1	EPC of leprosy	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
34.	CM8.3	NLEP	LECTURE	
35.	CM8.1	EPC OF STDs	SGD	General Medicine, Peadiatrics, Pathology,

				Microbiology
36.	CM8.1	EPC OF HIV/AIDS	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
37.	CM8.3	NACP	LECTURE	
38.	CM8.1	EPC of emerging and re-emerging diseases	LECTURE	
39.	CM8.3	IDSP	LECTURE	
40.	CM8.1	Prevention of hospital acquired infections	SGD	General Medicine, Peadiatrics, Pathology, Microbiology
41.	CM8.2	EPC of CVDs	SGD	General Medicine
42.	CM8.2	EPC of RHD	LECTURE	General Medicine
43.	CM8.2	EPC of cancers	SGD	General Medicine
44.	CM8.2	EPC of obesity and DM	SGD	General Medicine
45.	CM8.3	NPCDCS	LECTURE	
46.	CM8.2	Tobacco and alcohol associated diseases	SDL	General Medicine
47.	CM8.2	EPC of blindness including NPCB & Vision Impairment	SGD	General Medicine
48.	CM8.2	EPC of accidents and injuries	LECTURE	General Medicine

49.	CM10.1	Current status of RMNCH	LECTURE	Obstric & Gyncology, Peadiatrics
50.	CM10.2	Risk approach & specific health protection in pregnancy	SGD	Obstric & Gyncology, Peadiatrics
51.	CM10.2	Low birth weight	SGD	
52.		Breastfeeding & baby friendly hospital initiative	SGD	
53.	CM10.3	Local practices in pregnancy, childbirth and child feeding	SDL	Obstric & Gyncology, Peadiatrics
54.	CM10.2	Anthropometric measurements for under-5 children, Growth charts	SGD	
55.		Maternal mortality	SGD	
56.		Mortality in infancy	SGD	
57.	CM10.4,10.5	IMNCI, ICDS & NRC	LECTURE	Peadiatrics
58.		Congenital malformations & handicapped children	SGD	
59.	CM10.4	School health services	SGD	
60.	CM10.4	Laws to protect children: JJA, POCSO, child labour act, child marriage act	LECTURE	

61.	CM10.9	Gender issues and women empowerment	SGD	
62.	CM10.4	RCH program	LECTURE	Obstric & Gyncology, Peadiatrics
63.	CM10.4	NRHM	LECTURE	
64.	CM10.4	JSY, JSSK, PMSMA, RBSK	LECTURE	
65.	CM10.4, 10.8	RMNCHA, ARSH	LECTURE	
66.	CM10.4	NHM & NUHM	LECTURE	
67.		AYUSHMAN BHARAT	LECTURE	
68.	CM12.1-12.4	Geriatric health & NPHCE	SGD	General Medicine
69.	CM11.4	Principles of ergonomics	LECTURE	
70.	CM11.5	Occupational hazards of health professionals	SGD	
71.	CM11.3	Occupational hazards; of agricultural workers	SGD	
72.		Occupational hazards of software engineers, traffic police, miners, truck drivers etc	SDL	
73.	CM11.3	Pneumoconiosis	SGD	
74.	CM11.3	Lead poisoning and occupational cancers	SGD	
75.	CM11.3	Accidents in industries; sickness absenteeism; health problems due to industrialization	LECTURE	

76.	CM11.3	Prevention of occupational diseases including factories act	SGD	
77.	CM11.2	ESI scheme	LECTURE	
78.	CM16.1, 16.2	Describe health planning and planning cycle	LECTURE	
79.	CM16.3	Management techniques	SGD	
80.	CM16.4	National health policy	LECTURE	
81.	CM 16.4	Health planning in India	LECTURE	
82.	CM16.4	Health system in India	LECTURE	
83.	CM17.2,17.3	Community diagnosis, Describe primary health care; its components and principles	LECTURE	
84.	CM17.5	ASHA & sub centres	SGD	
85.	CM17.5	Primary health centres	LECTURE	
86.	CM17.5	Community health centres	LECTURE	
87.	CM17.5	Job description of members of health team	SGD	
88.	CM18.2	Functions of WHO, UNICEF and other UN agencies	LECTURE	
89.	CM18.2	Functions of bilateral agencies and health NGOs	LECTURE	
90.	CM19.1-19.3	Essential medicines and counterfeit medicines	LECTURE	

91.	CM20.1, 20.3	Recent advances in community medicine	LECTURE	
92.	CM20.4	Describe clinical establishment act, organ transplantation act etc.	LECTURE	
	PANEMIC MODULES			
S no	**Module**	**Topic**	**TL method**	
93.	3.1	Introduction to case scenarios 3.1	LECTURE	
94.	3.1	Outbreak management	SDL	
95.		Calculating time, place and person distribution from the given data		
96.		Discussion and closure		
97.	3.2	RRT 3.2	LECTURE	
98.	3.2	RRT based on case scenarios	SDL	
99.		Discussion and closure		
100.	3.3	Public health surveillance 3.3	LECTURE	
101.	3.3	Operations research applied to outbreak management	LECTURE	
102.	3.3	Public health surveillance	SDL	

Topics for clinical postings - PHASE 3		
S.No	**Competency**	**Topic**
1.	CM-17.1	Primary Health Centre visit
2.	CM-17.1	Primary Health Centre visit

3.	CM-6.3	Statistical exercises
4.	CM-6.3	Statistical exercises
5.	CM-6.3	Data analysis On PC
6.	CM-6.3	Data analysis On PC
7.	CM-8.2	Hypertension/Diabetes - Clinico Social Case Study
8.	CM-8.2	Hypertension/Diabetes - Clinico Social Case Study
9.	CM-8.2	Hypertension/Diabetes - Clinico Social Case Study
10.	CM-7.4	Epidemiological exercises
11.	CM-7.4	Epidemiological exercises
12.	CM-7.4	Epidemiological exercises
13.		Review of exercises
14.		Under 5 Child Clinico Social Case Study
15.		Under 5 Child Clinico Social Case Study
16.		Antenatal care / Postnatal care (ANC/PNC)
17.		Antenatal care (ANC) Clinico Social Case Study
18.		Postnatal care (PNC) Clinico Social Case Study
19.		Fever Clinico Social Case Study
20.		Review of Antenatal care & Postnatal care Clinico Social Case Study
21.		Review of Under 5 child & Fever Clinico Social Case Study
22.		Review of Hypertension & Diabetes Clinico Social Case Study
23.		Vaccine spotters

24.		Vaccine spotters
25.		Vaccination centre visit
26.		Subcentre visit
27.		School health survey
28.		Integrated Counseling and Testing Centre (ICTC)
29.		District Tuberculosis Centre (DTC)
30.		Evaluation of health education program
31.		Internal practical exam

DEPARTMENT OF COMMUNITY MEDICINE

Syllabus for Paper I & II

	Paper -1		**Paper - II**
1	Concepts of health & disease	**1**	Demography & Vital Statistics
2	Social & behavior sciences as relevant to health and disease	**2**	Reproductive Maternal and Child health, Geriatric Services & Relevant National
3	Principles of Health Promotion & Education	**3**	Occupational Health
4	Nutrition & health	**4**	Environmental health problems
5	Basic Statistics & its applications	**5**	Disaster Management
6	Epidemiology & screening tests	**6**	Hospital Waste management
7	Epidemiology of communicable Diseases & Related National Health Programs	**7**	Mental Health
8	Epidemiology of non communicable diseases & Related Health Programs	**8**	Health Planning & Management
9	AETCOM related competencies	**9**	Health Care of the Community
10	AETCOM 1.3, 1.4, 2.8, 3.1, 3.3	**10**	International Health
11	Pandemic Module	**11**	Recent advances in Community Medicine Essential Medicines, Pandemic Module

Recommended books : LATEST EDITIONS

1. Parks's Textbook of Preventive &Social Medicine
2. Textbook of Community Medicine, Sunderlal
3. Community Medicine with Recent Advances, A.H. Suryakantha,
4. Textbook of Community Medicine, Rajvir Bhalwar

5. Textbook of Biostatistics, B.K.Mahajan

Practical

1. Community Medicine Practical Manual, Rajkumar Patil
2. Competency based practical in Community Medicine, Anjana verma & Jitendra Kr Meena

DEPARTMENT OF COMMUNITY MEDICINE

Suggested Blue print for theory assessment Paper I & II

Paper – I Max Marks 100

	Name of the topic	Suggested weightage / topic	structured essays / (Long Answer Questions - LAQ) , @ 10 Marks / question	Short Answers Questions (SAQ) @ 4 marks / question	Objective type questions (e.g. MCQ) @ 1 Mark each
1	Concepts of health & disease	**10 – 12 M**	**1**		**2**
				3	
				2	**2**
2	Social & behavior sciences as relevant to health and disease	**8 – 10 M**		**2**	
				2	**2**
3	Principles of Health Promotion & Education	**8 – 10 M**		**2**	
				2	**2**
4	Nutrition & health	**12 – 16 M**	**1**	**1**	**2**
				3	**2**
5	Basic Statistics & its applications	**8 – 10 M**		**2**	**2**
				2	

6	Epidemiology & screening tests	**12 – 16 M**	**1**	**1**	**2**
				3	**2**
				4	
7	Epidemiology of communicable Diseases & Related National Health Programs	**12 – 16 M**	**1**	**1**	**2**
				3	**2**
				4	**2**
8	Epidemiology of non communicable diseases & Related Health Programs	**10 – 12 M**	**1**		**2**
				2	**2**
9	AETCOM related competencies	**4 M**		**1**	
	TOTAL (100 M)		**3 * 10 M = 30 M**	**15* 4 M = 60 M**	**10 *1 M = 10M**

Paper – II Max Marks 100

	Name of the topic	**Suggested weightage / topic**	**structured essays / (Long Answer Questions - LAQ) , @ 10 Marks / question**	**Short Answers Questions (SAQ) @ 4 marks / question**	**Objective type questions (e.g. MCQ) @ 1 Mark each**

1	Demography & Vital Statistics	**6 – 8 M**		**2**	
				1	**2**
2	Reproductive Maternal and Child health, Geriatric Services & Relevant National Health Programs	**16 – 18 M**	**1**	**2**	
			1	**1**	**2**
3	Occupational Health	**10 – 12 M**	**1**		
				2	**2**
4	Environmental health problems	**10 – 12 M**	**1**		**2**
				2	**2**
				3	
4	Disaster Management	**5 M**		**1**	**1**
5	Hospital Waste management	**5 M**		**1**	**1**
6	Mental Health	**5 M**		**1**	**1**
7	Health Planning & Management	**8 – 10 M**	**1**		
				2	**2**
8	Health Care of the Community	**12 – 14 M**	**1**	**1**	
				3	**2**
				4	
9	International Health	**5 M**		**1**	**1**
10	Recent advances in			**2**	**2**

	Community Medicine Essential Medicines , Pandemic Module	**8 – 10 M**		**2**	
	TOTAL (100 M)		**3 * 10 M = 30 M**	**15* 4 M = 60 M**	**10 *1 M = 10M**

GITAM Institute of Medical Sciences & Research

Sub : Community Medicine MBBS Phase III Part-I

Max Marks : 100 M TIME : 3 HRS

PAPER I

(Concepts of health & disease, Social & behavior sciences as relevant to health and disease, Principles of Health Promotion & Education, Nutrition & health, Basic Statistics & itsapplications, Epidemiology & screening tests , Epidemiology of Communicable and Non Communicable Diseases & Related National Health Programs , AETCOM related competencies)

Long Answer Questions **3 x 10 = 30 M**

1. List out important nutritional problems in public health in India. Discuss in detail the problem statement, prevention, control and monitoring measures of any important micronutrient in Indian setting. (2 + 2+2+2+2 = 10 M)
2. Define Epidemiology. Classify Epidemiological studies. Discuss advantages and disadvantages of Case Control and Cohort studies. (1 + 2 + 7 = 10 M)
3. Discuss in detail problem statement, epidemiological aspects prevention and control measures of Road Traffic Accidents. (1+3+3+3= 10 M)

Write short notes on **15 x 4 = 60 M**

4. Cultural factors in health and disease
5. Doctor Patient Relationship
6. Barriers in health education
7. Methods of assessment of dietary intake
8. Types of sampling methods
9. Cold Chain equipment for Vaccines
10. National AIDS Control Program IV
11. Warning Signs of Cancer
12. Levels of Prevention with relevant examples

13. Iceberg Phenomenon of Disease
14. Incidence and Prevalence of Disease
15. Acculturation
16. National Tuberculosis Elimination Program.
17. Prevention and containment of Hepatitis B
18. Post exposure Prophylaxis in Rabies

MCQS 10 x 1=10Marks

19. Toxin responsible for Lathyrism is [ ]
    a) Beta Oxalyl Amino Alanine c) Beta Oxidase Amino Acid
    b) Beta Oxy Amino Arginine d) Beta Oxalyl Amino Aspartate
20. Midday meal in schools should be formulated to supply_____ requirement
    a) 1/3 energy and ½ protein b) ½ energy and 1/3 rd protein [ ]
    c) ½ energy and ½ protein d) 1/3rd energy and 1/3 rd protein

21. Which of the following is TRUE regarding Standard Normal curve [ ]
    a) The mean is one b) Area of the curve is one
    c) Curve is skewed to right d) Mean > Median > Mode
22. Extra Calories required for women during pregnancy are [ ]
    a) 600 Kcal / day b) 520 Kcal / day c) 500 Kcal / day d) 350 Kcal / day
23. Diluent used for reconstitution of Measles Vaccine is [ ]
    a) Normal saline b) distilled water
    c) 0.5Normal saline d) double distilled water
24. The number of exposed persons developing the disease within the range of the incubation period, following exposure to primary case is called [ ]

a) Serial Interval b) Secondary Attack Rate

c) Generation Time d) Communicable Period

25. Which of the following index is not related to measurement of Obesity? [ ]

a) Ponderal Index b) Quetelet Index c) Broca's Index d) Chandlers Index

26. Which of the following Cancer can be prevented by Vaccination? [ ]

a) Cervical Cancer b) Breast Cancer c) Colon Cancer d) Stomach Cancer

27. Vector for transmission of Lymphatic Filariasis is [ ]

a) Female Anopheles Mosquito b) Female Aedes Mosquito

c) Female Culex Mosquito d) Any of the above

28. Which of the following is not a measure of central tendency? [ ]

a) Mean b) Median c) Mode d) Range

MBBS Phase III Part-I

Community Medicine

Max Marks: 100 M TIME: 3 HRS

PAPER II

(Demography & Vital Statistics, RCH, Geriatric Services & Relevant National Health Programs, Occupational Health, Environmental health, Disaster Management, Hospital Waste management, Mental Health, Health Planning & Management, Health Care of the Community, International Health, Recent advances in Community Medicine ,Essential Medicines , Pandemic Module)

Long Answer Questions **3 x 10 = 30 M**

1. Define Primary Health Care. Describe the Principles and elements of Primary health care .

1 + 4 +5 = 10 M

2. What is RMNCH A + strategy? What are the measures for decreasing maternal and infant mortality in this strategy? 2 +4+4 = 10 M
3. Discuss in detail the different steps in health planning cycle. 10 M

Write short notes on **15 x 4 = 60 M**

4. Stages in Demographic cycle
5. IMNCI approach
6. Health problems of Old age and measures suggested for healthy aging
7. Occupational hazards of agricultural workers and their prevention
8. Benefits under the ESI act
9. Rehabilitation aspects in post disaster phase
10. Methods of disposal of Biomedical waste
11. National Mental Health Programme
12. Role of IDSP in detection of Pandemics
13. Radiation Hazards and their prevention
14. Modern sewage treatment
15. Prevention and control of air pollution
16. Oral contraceptive pills
17. Roles and responsibilities of ASHA
18. Role of UNICEF in child Health.

MCQS 10 x 1=10Marks

19. Which of the following is included in denominator of Dependency ratio

a) 0-14 yrs b) > 65 yrs c) both a & B d) 15 – 64 yrs [ ]

20. Which of the following indicates excessive exposure to lead [ ]

a) Urine coproporphyrin < 150 microgram/ lit b) ALAU > 5mg /lit
c) Lead levels in blood < 70 microgram / lit d) Lead levels in urine <0.8 mg

21. Which of the following is correct regarding Bagassosis [ ]

a) chronic exposure to cotton fibre dust b) 2 % propionic acid can be used for control

c) control involves limiting moisture levels to < 20 % d) all the above

22. Urine bags are to be discarded in which colour container? [ ]

a) Green b) yellow c) red d) blue

23. Which of the following is correct regarding TRIAGE in disaster management?

a) First come first serve should be followed [ ]

b) Higher priority is given to severely injured patients

c) Green colour code in triage indicates Top prority

d) Triage should be carried out at the site of the disaster

24. The population suggested to be served by a subcentre in tribal areas is [ ]

a) 10000 b) 5000 c) 3000 d) 1000

25. Which of the following is a Millenium Development Goal? [ ]

a) Reduce child mortality b) Universal Primary education

c) Combat HIV/ AIDS, Malaria & Tuberculosis

d) all the above

26. Rockfeller foundation in India is related to control of which disease? [ ]

a) Iodine deficiency b) hookworm infestation c) Guinea worm disease d) endemic florosis

27. Which of the following is excluded under the scope of ESI act? [ ]

a) Railways

b) cinemas and theatres

c) news paper establishments

d) medical institutions with > 20 persons.

28. Internationally, Low Birth Weight has been defines as a birth weight less than [ ]

a) 2500 g b) 2250 g c) 2000g d) 1750 g

DEPARTMENT OF FORENSIC MEDICINE & TOXICOLOGY

CBME CURRICULUM – NEW SYLLABUS

Subject: -

Academic Schedule and assessment procedure for Forensic Medicine & Toxicology subject to MBBS Undergraduates in 2nd Professional (Phase II) and 3rd Professional (Phase III Part I) including University Examinations.

Goal: -

The broad goal of teaching of Forensic Medicine & Toxicology in our country is to produce a physician who is well informed about the medico legal responsibilities in the practice of medicine. The ideal Indian Medical Graduate would be capable of making accurate observations and inferring conclusions by logical implications so as to aid in the administration of justice in all medico-legal problems as well as acquiring knowledge of law in relation to medical practice, Codes of Medical Ethics including medical negligence. He/she would be able to diagnose and manage common acute and chronic poisonings, besides identifying and adequately dealing with the associated medico-legal problems.

Objectives: -

At the end of the course in Forensic Medicine & Toxicology, the student shall be able to:-

- Understand the medico-legal responsibilities of physicians in primary and secondary care settings
- Understand the intellectual approach to the investigation of crime, based on the scientific and legal principles
- Manage medical and legal issues in cases of poisoning / overdose
- Understand the medico-legal framework of medical practice and medical negligence
- Understand the of codes of conduct and medical ethics during medical practice
- Identify, examine and prepare report or certificate in medico-legal cases/situations like sexual assaults, potency/impotency, Road Traffic Accidents, Homicide cases, Death certificates, Age Estimations, Expert opinions in accordance with the law of land

- Perform medico-legal postmortem examination and interpret autopsy findings and results of other relevant investigations to logically conclude the cause, manner and time since death
- Understand the relevant legal/court procedures applicable to the medical practice
- Preserve and proper way of dispatch viscera in medico-legal autopsy cases and other concerned materials to the appropriate Government agencies like Forensic Science laboratories & Center for DNA Finger printing and Diagnostics for necessary examination
- Acquire knowledge in relation to general principles of environmental, occupational and preventive aspects of toxicology

Skills: -

At the end of the course, the student shall be able to: -

- Make observations and logical inferences in order to initiate enquiries in criminal matters and medico legal problems
- Diagnose and treat common emergencies in poisoning and manage chronic toxicity
- Make observations and interpret findings at medico legal autopsy cases
- Observe the principles of medical ethics in the practice of medical profession
- Prepare various medical certificates and medico legal reports
- Attend various Honorable courts to give evidence as an Expert

Guidelines for 2nd Professional (Phase II) and 3rd Professional (Phase III) – Part I MBBS students as per CBME

Integration: -

The teaching should be aligned and integrated horizontally and vertically recognizing the importance of medico-legal, ethical and toxicological issues as they relate to the practice of medicine.

Assessment:

The performance in essential components of training are to be assessed, based on:

(a) Attendance

The student must have 75% attendance in theory and 80% in practical in each 2nd Professional (Phase II) and 3rd Professional (Phase III) - Part I

(b) Internal Assessment:

1. Regular periodic examinations will be conducted throughout 2nd Professional (Phase II) and 3rd Professional (Phase III) - Part I. There shall be five internal assessment examinations consisting of theory and practical including Orals (Two in Phase II & Three in Phase III - Part I. One short answer Question (SAQ) from AETCOM should be reflected in the internal examination. Based on competencies and skills internal examinations will be conducted

2. Day to Day records and findings will be written on log book (including required skill certifications). These findings will be given importance in internal assessment.

3. Students must secure at least 50% marks of the total marks (combined in theory and practical not less than 40 % marks in theory and practical separately) assigned for internal assessment in order to be eligible for appearing at the final University examination. Internal assessment marks are not added to the marks of University examination but will reflect as separate head of passing at the summative examination. Oral (Viva) marks are included in Practicals.

4. Students must have completed the required certifiable competencies for that phase of training and completed the log book appropriate for that phase of training to be eligible for appearing at the final university examination.

Syllabus: -

Total Number of Hours: — 125 hours

Second Professional (Phase II) – 50 hours

Lectures – 15 hours

Small Group Learning (Tutorial / Seminars/ Integrated learning) – 30 hours

Self Directed Learning – 05 hours

Third Professional (Phase III Part I) – 75 hours

Lectures – 25 hours

Small Group Learning (Tutorial / Seminars/ Integrated learning) – 45 hours

Self Directed Learning – 05 hours

Department of Forensic Medicine & Toxicology

New CBME Syllabus – Competencies for 2nd Professional

Number	COMPETENCY The student should be able to	Domain K/S/A /C	Level K/KH /SH/P	Core (Y/N)	Teaching-Learning Methods
Topic: General Information					
FM 1.1	Demonstrate knowledge of basics of Forensic Medicine like definitions of Forensic medicine, Clinical Forensic Medicine, Forensic Pathology, State Medicine, Legal Medicine and Medical Jurisprudence	K	KH	N	Orientation Class
FM 1.2	Describe history of Forensic Medicine	K	KH	N	
Topic: Forensic Pathology					
FM 2.1	Define, describe and discuss death and its types including somatic / Clinical / cellular, molecular and brain-death, Cortical Death and Brainstem Death	K	KH	Y	Lecture – 1 hour
FM 2.2	Describe and discuss natural and unnatural deaths	K	KH	Y	
FM 2.3	Describe and discuss issues related to sudden natural deaths	K	KH	Y	
FM 2.4	Describe salient features of the Organ Transplantation and The Human Organ Transplant (Amendment) Act 2011 and discuss ethical issues regarding organ donation.	K	KH	Y	SDL – 1 hour
FM 2.5	Discuss moment of death, modes of death - coma, asphyxia and syncope.	K	KH	Y	Lecture – 1 hour
FM 2.6	Discuss presumption of death and survivorship.	K	KH	Y	
FM 2.7	Describe and discuss suspended animation.	K	KH	Y	
FM 2.10	Discuss estimation of time since death	K	KH	Y	SGD – 1 hour
FM 2.8	Describe and discuss post- mortem changes including signs of death, cooling of body, post-mortem lividity, rigor mortis, cadaveric spasm, cold stiffening and heat stiffening	K	KH	Y	SGD – 2 hour
FM 2.9	Describe putrefaction, mummification, Adipocere and maceration	K	KH	Y	SGD – 1 hour
FM 2.11	Describe and discuss autopsy procedures including post- mortem examination, different types of autopsies, aims and objectives of post-	K	KH	Y	Lecture – 1 hour

	mortem examination				
FM 2.12	Describe the legal requirements to conduct post-mortem examination and procedures to conduct medico-legal post- mortem examination.	K	K H	Y	
FM 2.13	Describe and discuss obscure autopsy.	K	K H	Y	
FM 2.14	Describe and discuss examination of clothing, preservation of viscera on post-mortem examination for chemical analysis and other medico-legal purposes, post-mortem artifacts.	K	K H	Y	Lecture – 1 hour
FM 2.17	Describe and discuss exhumation.	K	K H	Y	
FM 2.16	Describe and discuss examination of mutilated bodies or fragments, charred bones and bundle of bones.	K	K H	Y	SGD – 2 hour
FM 14.9	Demonstrate examination of & present an opinion after examination of skeletal remains in a simulated/ supervised environment	S	S H	Y	
FM 2.18	Crime scene investigation: describe and discussthe objectives of crime scene visit, the duties & responsibilities of doctors on crime scene and the reconstruction of sequence of events after crime scene investigation.	K	K H	Y	SGD – 1 hour
FM 2.31	Demonstrate ability to work in a team for conduction of medico- legal autopsies in cases of death following alleged negligence medical, dowry death, death in custody or following violation of human rights as per National Human Rights Commission Guidelines on exhumation	A	K H	Y	SGD – 1 hour
FM 2.19	Investigation of anesthetic, operative deaths: describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences.	K	K H	Y	SDL – 1 hour
FM 2.15	Describe special protocols for conduction of medico-legal autopsies in cases of death in custody or following violation of human rights as per national human rights commission guidelines.	K	K H	Y	SDL – 1 hour
FM 14.18	To examine & prepare medico-legal report of a person in police, judicial custody or referred by Court of Law and violation of human rights as requirement of NHRC, who has been brought for medical examination	S	K H	Y	SGD – 1 hour

FM 2.32	Demonstrate ability to exchange information by verbal or nonverbal communication to the peers, family members, law enforcing agency and judiciary	A and C	K H	Y	SGD – 1 hour
FM 2.33	Demonstrate ability to use local resources whenever required like in mass disaster situations	A and C	K H	Y	
FM 2.35	Demonstrate professionalism while conducting autopsy in medico legal situations, interpretation of findings and making inference/opinion, collection, preservation and dispatch of biological or trace evidences.	A and C	K H /S H	Y	
Topic: Clinical Forensic Medicine					
FM 3.1	IDENTIFICATION Define and describe Corpus Delicti, establishment of identity of living persons including race, Sex, religion, complexion,	K	KH	Y	Lecture – 1 hour
	stature, age determination using morphology, teeth- eruption, decay, bite marks, bones- ossification centers, medico legal aspects of age	K	KH	Y	SGD – 2 hour
FM 14.4	Conduct and prepare report of estimation of age of a person for medico-legal and other purposes & prepare medico-legal report in a simulated/ supervised environment	S	K H	Y	SGD – 2 hour (Practical)
FM 3.2	IDENTIFICATION Describe and discuss identification of criminals, unknown persons, dead bodies from the remains- hairs, fibers, teeth, anthropometry, Dactylography, foot prints, scars, tattoos, poroscopy and superimposition	K	KH	Y	SGD – 2 hour
FM 14.6	Demonstrate and interpret medico-legal aspects from examination of hair (human & animal) fibre, semen & other biological fluids	S	K H	Y	SGD – 2 hour (Practical)
FM 14.7	Demonstrate & identify that a particular stain is blood and identify the species of its origin	S	KH	Y	
FM 14.8	Demonstrate the correct technique to perform and identify ABO & Rh blood group of a person.	S	SH	Y	
Topic: General Toxicology					

FM 8.1	Describe the history of Toxicology	K	K/ K H	Y	SDL – 1 hour
FM 8.2	Define the terms Toxicology, Forensic Toxicology, Clinical Toxicology and poison	K	K/ K H	Y	
FM 8.3	Describe the various types of poisons, Toxicokinetics, Toxicodynamics and diagnosis of poisoning in living and dead	K	K/ K H	Y	
FM 8.4	Describe the Laws in relations to poisons including NDPS Act, Medico-legal aspects of poisons	K	K/ K H	Y	Lecture – 1 hour
FM 8.5	Describe Medico-legal autopsy in cases of poisoning including preservation and dispatch of viscera for chemical analysis	K	K/ K H	Y	
FM 8.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India	K	K/ K H	Y	SGD – 1 hour
FM 8.7	Describe simple Bedside clinic tests to detect poison/ drug in a patient's body fluids	K	K/ K H	Y	
FM 8.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination	K	K/ K H	Y	Lecture – 1 hour
FM 8.9	Describe the procedure of intimation of suspicious cases or actual cases of foul play to the police, maintenance of records, preservation and dispatch of relevant samples for laboratory analysis.	K	K/ K H	Y	Lecture – 1 hour
FM 8.10	Describe the general principles of Analytical Toxicology and give a brief description of analytical methods available for toxicological analysis: Chromatography – Thin Layer Chromatography, Gas Chromatography, Liquid Chromatography and Atomic Absorption Spectroscopy	K	K/ K H	Y	
FM 14.2	Demonstrate the correct technique of clinical examination in a suspected case of poisoning & prepare medico-legal report in a simulated/ supervised environment	S	S H	Y	SGD – 2 hour (Skills Lab)
FM 14.3	Assist and demonstrate the proper technique in collecting, preserving and dispatch of the exhibits in a suspected case of poisoning, along with	S	S H	Y	

	clinical examination				
Topic: Chemical Toxicology					
FM 9.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: Caustics Inorganic – sulphuric, nitricand hydrochloric acids; Organic- Carbolic acid (phenol), Oxalic and Acetyl salicylic acids	K	K/ K H	Y	SGD – 2 hour
FM 9.2	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Iodine, Phosphorus, Barium	K	K/ K H	Y	Lecture – 1 hour
FM 9.3	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron, cadmium and thallium	K	K/ K H	Y	Lecture – 2 hour
FM 9.4	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ethanol, methanol, ethylene glycol	K	K/ K H	Y	SGD – 2 hour
FM 14.16	To examine & prepare medico-legal report of drunk person in a simulated/ supervised environment	S	K H	Y	SGD – 2 hour (Practical)
FM 9.5	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/ K H	Y	SGD – 2 hour
FM 9.6	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K / K H	Y	SGD – 2 hour
Topic: Pharmaceutical toxicology					

FM 10.1	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infective (Common antibiotics – an overview) iii. Neuropsycho-toxicology Barbiturates, benzodiazepines, phenytoin, lithium, haloperidol, neuroleptics, tricyclics iv. Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v. Gastro-Intestinal and vi. Endocrinal Drugs – Insulin	K	K/ K H	Y	SDL – 1 hour
	Vii. Cardiovascular Toxicology Cardiotoxic plants – oleander, odollam, aconite, digitalis	K	K / K H	Y	Lecture – 1 hour
Topic: Sociomedical Toxicology					
FM 12.1	Describe features and management of abuse/ poisoning with following chemicals: Tobacco, cannabis, amphetamines, cocaine, hallucinogens, designer drugs & solvent	K	K/ KH	Y	Lecture – 2 hour
FM 14.17	To identify & draw medico- legal inference from common poisons e.g. dhatura, castor, cannabis, opium, aconite copper sulphate, pesticide compounds, marking nut, oleander, Nux vomica, abrus seeds, Snakes, capsicum, calotropis, lead compounds & tobacco.	S	KH	Y	SGD – 2 hour (Practical)
Topic: Environmental toxicology					
FM 13.1	Describe toxic pollution of environment, its medico-legal aspects & toxic hazards of occupation & industry	K	K/ KH	Y	Lecture – 1 hour
FM 13.2	Describe medico-legal aspects of poisoning in Workman's Compensation Act	K	K/ KH	Y	
Topic: Skills in Forensic Medicine & Toxicology					
FM 14.5	Conduct & prepare post- mortem examination report of varied etiologies (at least 15) in a simulated/ supervised environment	S	KH	Y	5 Cases

New CBME Syllabus – Competencies for 3rd Professional Part–I

Number	COMPETENCY The student should be able to	Domain K/S/A /C	Level K/KH/SH/P	Core (Y/N)	Teaching-Learning Methods
Topic: General Information					
FM 1.3	Describe legal procedures including Criminal Procedure Code, Indian Penal Code, Indian Evidence Act, Civil and Criminal Cases, Inquest (Police Inquest and Magistrate's Inquest), Cognizable and Non-cognizable offences	K	KH	N	SDL – 1hour
FM 1.4	Describe Courts in India and their powers: Supreme Court. High Court, Sessions court, Magistrate's Court. Labour Court. Family Court, Executive Magistrate Court and Juvenile Justice Board	K	KH	N	
FM 1.6	Describe the offences in Court including Perjury; Court strictures vis-avis medical officer	K	KH	N	
FM 1.5	Describe Court procedures including issue of summons, conduct money, types of witnesses, recording of evidence: oath, affirmation, examination in chief, cross examination, re- examination & court questions, recording of evidence & conduct of doctor in witness box.	K	KH	N	Lecture – 1 hour
FM 14.22	To give expert medical/ medico-legal evidence in Court of law	S	KH	Y	SGD – 2 Hrs (Moot Court)
FM 1.7	Describe Dying Declaration and Dying Deposition.	K	KH	Y	SGD – 1 hr (Role Play)
FM 14.20	To record and certify dying declaration in a simulated environment	S	KH	Y	
FM 1.8	Describe the latest decisions/ notifications/resolutions/circulars / standing orders related to medico-legal practice issued by Courts/Government authorities etc.	K	KH	Y	Lecture – 1 hr
FM 1.9	Describe the importance of documentation in medical practice in regard to medico legal examinations, Medical certificates & medico legal reports especially - Maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. - Maintenance of medico-legal register like accident register - Documents of issuance of wound certificate - Documents of issuance of drunkenness certificate - Documents of issuance of sickness & fitness certificate - Documents of issuance of death certificate - Documents of issuance of medical certification of cause of death-form no.4, 4A - Documents of estimation of age by physical, dental & radiological examination &	K	KH	Y	Lecture – 1 hr

	issuance of certificate				
FM 1.10	Select appropriate cause of death in a particular scenario by referring ICD 10 code.	K	KH	Y	SGD – 1 hr (Practical)
FM 1.11	Write a correct cause of death certificate as per ICD 10 document	S	SH	Y	
Topic: Forensic Pathology					
FM 2.20	Mechanical asphyxia: Define, classify and describe asphyxia and medico-legal interpretation of post-mortem findings in asphyxial deaths.	K	KH	Y	SGD – 2 hrs
FM 2.21	Mechanical asphyxia: Describe and discuss different types of hanging and strangulation including clinical findings, causes of death, post-mortem findings and medico-legal aspects of death due to hanging and strangulation including examination, preservation and dispatch of ligature material.	K	KH	Y	
FM 2.22	Mechanical asphyxia: Describe and discuss patho-physiology, clinical features, post-mortem findings and medico-legal aspects of traumatic asphyxia, obstruction of nose & mouth, suffocation and sexual asphyxia.	K	KH	Y	SGD – 2 hrs
FM 2.23	Mechanical asphyxia: Describe and discuss types, patho-physiology, clinical features, post- mortem findings and medico- legal aspects of drowning, diatom test and gettler test.	K	KH	Y	SGD – 2 hrs
FM 2.24	Thermal deaths: Describe the clinical features, post-mortem finding and medico legal aspects of injuries due to physical agents like heat (heat-hyper-pyrexia, heat stroke, sun stroke, heat exhaustion/ prostration, heat cramps [miner's cramp] or cold (systemic and localized hypothermia, frostbite, trench foot, immersion foot)	K	KH	Y	SGD –1 hr
FM 2.25	Describe types of injuries, clinical features, Patho-physiology, postmortem findings and medico- legal aspects in cases of burns, scalds, lightening, electrocution and radiations.	K	KH	Y	SGD –1 hr
FM 2.26.	Describe and discuss clinical features, post-mortem findings and medico-legal aspects of death due to starvation and neglect	K	KH	Y	Lecture- 1 hr
FM 2.27	Define and discuss infanticide, foeticide and stillbirth	K	KH	Y	SGD – 3 hrs
FM 2.28	Describe and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP session of ossification centres, Hydrostatic test, Sudden Infant Death syndrome. Munchausen's syndrome by proxy. *[Munchausen's syndrome by proxy is covered in FM 3.29]*	K	KH	Y	
FM 14.13	To estimate the age of foetus by post-mortem examination	S	KH	Y	SGD –1 hr (Practical)
Topic: Clinical Forensic Medicine					

FM 3.3	Mechanical injuries and wounds: Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self-inflicted/ fabricated wounds and their medico-legal aspects.	K	KH	Y	SGD – 4 hrs
FM 3.4	Mechanical injuries and wounds: Define injury, assault & hurt. Describe IPC pertaining to injuries	K	KH	Y	Lecture – 2 hrs
FM 3.5	Mechanical injuries and wounds: Describe accidental, suicidal and homicidal injuries. Describe simple, grievous and dangerous injuries. Describe ante-mortem and post-mortem injuries.	K	K/KH	Y	
FM 3.6	Mechanical injuries and wounds: Describe healing of injury and fracture of bones with its medico- legal importance	K	K/KH	Y	
FM 3.7	Mechanical injuries and wounds: Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary.	K	K/KH	Y	
FM 3.8	Mechanical injuries and wounds: Describe and discuss different types of weapons including dangerous weapons and their examination	K	K/KH	Y	
FM 3.9	Firearm injuries: Describe different types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking	K	K/KH	Y	SGD – 3hrs
FM 3.10	Firearm injuries: Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	
FM 3.11	Regional injuries: Describe and discuss regional injuries to head (Scalp wounds, fracture skull, intracranial haemorrhages, coup and contrecoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and skeleton	K	K/KH	Y	SGD – 4hrs
FM 3.12	Regional injuries: Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine	K	K/KH	Y	
FM 14.1	Examine and prepare Medico-legal report of an injured person with different aetiologies in a simulated/ supervised environment	S	SH/P	Y	SGD – 2 hrs (Practical)

FM 14.10	Demonstrate ability to identify & prepare medico legal inference from specimens obtained from various types of injuries e.g. contusion, abrasion, laceration, firearm wounds, burns, head injury and fracture of bone	S	KH	Y	SGD – 1 hr (Practical)
FM 3.18	Describe anatomy of male and female genitalia, hymen and its types. Discuss the medico-legal importance of hymen. Define virginity, defloration, legitimacy and its medico legal importance				Lecture – 2hrs
FM 3.19	Discuss the medico legal aspects of pregnancy and delivery, signs of pregnancy, precipitate labour, superfoetation, superfecundation and signs of recent and remote delivery in living and dead.				
FM 3.20	Discuss disputed paternity and maternity	K	K/K H	Y	
FM 3.21	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC&PNDT)-Prohibition of Sex Selection Act 2003 and Domestic Violence Act 2005	K	K/K H	Y	SGD – 1 hr
FM 3.22	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female.	K	K/K H	Y	Lecture – 2hrs
FM 3.23	Discuss sterilization of male and female, artificial insemination, Test tube baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws	K	K/K H	Y	
FM 3.26	Discuss the National Guidelines for accreditation, supervision & regulation of ART Clinics in India	K	K/K H	Y	
FM 3.24	Discuss the relative importance of surgical methods of contraception (vasectomy and tubectomy) as methods of contraception in the National Family Planning Programme	K	K/K H	N	SDL – 1 hr
FM 3.25	Discuss the major results of National Family Health Survey	K	K/K H	N	
FM 3.13	**Sexual offences**: Describe different types of sexual offences. Describe various sections of IPC regarding rape including definition of rape (Section 375 IPC), Punishment for Rape (Section 376 IPC) and recent amendments notified till date	K	K/K H	Y	Lecture – 1hr
FM 3.14	**Sexual offences:** Describe and discuss the examination of the victim of an alleged case of rape, and the preparation of report, framing the opinion and preservation and dispatch of trace evidences in such cases.	K	K/K H	Y	Lecture – 1hr
FM 3.15	**Sexual offences:** Describe and discuss examination of accused and victim of sodomy, preparation of report, framing of opinion, preservation and despatch of trace evidences in such cases.	K	K/K H	Y	SGD – 3hrs

FM 3.16	**Sexual offences**:Describe and discuss adultery and unnatural sexual offences, sodomy, incest, lesbianism, buccal coitus, bestiality, indecent assault and preparation of report, framing the opinion and preservation and dispatch of trace evidences in such cases	K	K/KH	Y	
FM 3.17	Sexual offences: Describe and discuss the sexual perversions fetishism, transvestism, voyeurism, sadism, necrophagia, masochism, exhibitionism, frotteurism, Necrophilia.	K	K/KH	Y	
FM 14.15	To examine and prepare medico-legal report of a victim of sexual offence/ unnatural sexual offence in a simulated/ supervised environment	S	KH	Y	SGD – 2hrs (Practical)
FM 14.14	To examine & prepare report of an alleged accused in rape/ unnatural sexual offence in a simulated/ supervised environment	S	KH	Y	SGD – 2hrs (Practical)
FM 3.27	Define, classify and discuss abortion, methods of procuring MTP and criminal abortion, MTP Act 1971	K	K/KH	Y	Lecture – 2hrs
FM 3.28	Describe evidence of abortion – living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	
FM 3.29	Describe and discuss child abuse and battered baby syndrome	K	K/KH	Y	SGD -1 hr
FM 3.30	Describe and discuss issues relating to torture, identification of injuries caused by torture and its sequalae, management of torture survivors	K	K/KH	Y	Lecture- 1 hr
FM 3.31	Torture and Human rights: Describe and discuss guidelines & protocols of National human rights commission regarding torture	K	K/KH	N	SDL – 1hr
FM 3.32	Demonstrate the Professionalism while preparing reports in medico legal situations, interpretation of findings and making inference/opinion, collection, preservation and dispatch of biological or trace evidences	A and C	SH	Y	SGD – 1 hr
FM 3.33	Should be able to demonstrate the professionalism while dealing with victims of torture and human right violations, sexual assaults-psychological consultation, rehabilitation	A and C	K/KH/ SH	Y	
Topic: Medical Jurisprudence (Medical Law and Ethics)					
FM 4.1	Describe Medical Ethics and explain its historical emergence.	K	KH	Y	Lecture – 3hrs
FM 4.2	Describe the Code of Medical Ethics 2002 conduct, Etiquette and Ethics in medical practice and unethical practices & the dichotomy.	K	KH	Y	
FM 4.3	Describe the functions and role of Medical Council of India and State Medical Councils	K	KH	Y	
FM 4.4	Describe the Indian Medical Register	K	KH	Y	
FM 4.5	Rights/privileges of a medical practitioner, infamous	K	KH	Y	

	conduct, disciplinary Committee, disciplinary procedures, warning notice and penal erasure.				
FM 4.6	Describe the Laws in Relation to medical practice and the duties of a medical practitioner towards patients and society	K	K/KH	Y	
FM 4.7	Describe and discuss the ethics related to HIV patients	K	K/KH	Y	SGD- 1hr
FM 4.12	Discuss legal and ethical issues in relation to stem cell research	K	KH	Y	
FM 4.13	Describe social aspects of Medico-legal cases with respect to victims of assault, rape, attempted suicide, homicide, domestic violence, dowry- related cases	K	KH	Y	
FM 4.8	Describe the Consumer Protection Act-1986 (Medical Indemnity Insurance, Civil Litigations and Compensations), Workman's Compensation Act & ESI Act	K	KH	Y	Lecture – 1hr
FM 4.9	Describe the medico - legal issues in relation to family violence, violation of human rights, NHRC and doctors	K	KH	N	SGD – 2hrs
FM 4.10	Describe communication between doctors, public and media	K	KH	Y	
FM 4.14	Describe & discuss the challenges in managing medico-legal cases including development of skills in relationship management – Human behaviour, communication skills, conflict resolution techniques	K	KH	Y	
FM 4.15	Describe the principles of handling pressure – definition, types, causes, sources and skills for managing the pressure while dealing with medico-legal cases by the doctor	K	KH	Y	
FM 4.16	Describe and discuss Bioethics	K	KH	Y	Lecture – 1hr
FM 4.17	Describe and discuss ethical Principles: Respect for autonomy, non-malfeasance, beneficence & justice	K	KH	Y	
FM 4.11	Describe and discuss euthanasia	K	KH	Y	
FM 4.18	Describe and discuss medical negligence including civil and criminal negligence, contributory negligence, corporate negligence, vicarious liability, Res Ipsa Loquitor, prevention of medical negligence and defenses in medical negligence litigations	K	KH	Y	SGD – 2hrs
FM 4.19	Define Consent. Describe different types of consent and ingredients of informed consent. Describe the rules of consent and importance of consent in relation to age, emergency situation, mental illness and alcohol intoxication	K	KH	Y	SGD – 1hr
FM 4.20	Describe therapeutic privilege, Malingering, Therapeutic Misadventure (refer FM 4.18), Professional Secrecy (refer FM 4.24), Human Experimentation (refer FM 4.25)	K	KH	Y	SGD – 1hr
FM 4.21	Describe Products liability and Medical Indemnity	K	KH	Y	Lecture –

	Insurance				1hr
FM 4.24	Enumerate rights, privileges and duties of a Registered Medical Practitioner. Discuss doctor- patient relationship: professional secrecy and privileged communication	K	KH	Y	
FM 4.22	Explain Oath – Hippocrates, Charaka and Sushruta and procedure for administration of Oath	K	KH	Y	SDL – 1hr
FM 4.23	Describe the modified Declaration of Geneva and its relevance	K	KH	Y	
FM 4.25	Clinical research & Ethics Discuss human experimentation including clinical trials	K	KH	N	Lecture – 1hr
FM 4.26	Discuss the constitution and functions of ethics committee	K	KH	Y	
FM 4.27	Describe and discuss Ethical Guidelines for Biomedical Research on Human Subjects & Animals	K	KH	N	
FM 4.28	Demonstrate respect to laws relating to medical practice and Ethical code of conduct prescribed by Medical Council of India and rules and regulations prescribed by it from time to time.	A and C	SH	Y	SGD – 1hr (Role play)
FM 4.29	Demonstrate ability to communicate appropriately with media, public and doctors	A and C	KH/ SH	Y	
FM 4.30	Demonstrate ability to conduct research in pursuance to guidelines or research ethics	A and C	KH/ SH	Y	
Topic: Forensic Psychiatry					
FM 5.1	Classify common mental illnesses including post-traumatic stress disorder (PTSD)	K	K/KH	Y	Lecture – 1hr
FM 5.2	Define, classify and describe delusions, hallucinations, illusion, lucid interval and obsessions with exemplification	K	K/K H	Y	
FM 5.3	Describe Civil and Criminal responsibilities of a mentally ill person	K	K/K H	Y	SGD – 1hr
FM 5.4	Differentiate between true insanity from feigned insanity	K	K/K H	Y	Lecture – 1hr
FM 5.5	Describe & discuss Delirium tremens	K	K/K H	Y	
FM 5.6	Describe the Indian Mental Health Care Act, 2017 with special reference to admission, care and discharge of a mentally ill person	K	K/K H	N	SDL – 1hr
Topic: Forensic laboratory investigation in medico legal practice					
FM 6.1	Describe different types of specimen and tissues to be collected both in the living and dead: Body fluids (blood, urine, semen, faeces, saliva), Skin, Nails, tooth pulp, vaginal smear, viscera, skull,	K	K/K H	Y	Lecture – 1hr

	specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Fingerprinting. Describe Locard's Exchange Principle				
FM 6.2	Describe the methods of sample collection, preservation, labeling, dispatch, and interpretation of reports	K	K/KH	Y	
FM 6.3	Demonstrate professionalism while sending biological or trace evidences to Forensic Science lab, specifying the required tests to be carried out, objectives of preservation of evidences sent for examination, personal discussions on interpretation of findings	A and C	KH/SH	Y	SGD – 1hr
FM 14.21	To collect, preserve, seal and dispatch exhibits for DNA-Finger printing using various formats of different laboratories.	S	KH	Y	
Topic: Emerging technologies in Forensic Medicine					
FM 7.1	Enumerate the indications and describe the principles and appropriate use for: - DNA profiling - Facial reconstruction - Polygraph (Lie Detector) - Narcoanalysis, - Brain Mapping, - Digital autopsy, - Virtual Autopsy, - Imaging technologies	K	K/KH	N	Lecture – 1hr
Topic: Toxicology : Biotoxicology					
FM 11.1	Describe features and management of Snake bite, scorpion sting, bee and wasp sting and spider bite	K	K/KH	Y	SGD – 2hrs
Topic: Skills in Forensic Medicine & Toxicology					
FM 14.5	Conduct & prepare post- mortem examination report of varied etiologies (at least 15) in a simulated/ supervised environment	S	KH		
FM 14.11	To identify & describe weapons of medico legal importance which are commonly used e.g. lathi, knife, kripan, axe, gandasa, gupti, farsha, dagger, bhalla, razor, stick. Able to prepare report of the weapons brought by police and to give opinion regarding injuries present on the person as described in injury report/ PM report so as to connect weapon with the injuries. (Prepared injury report/ PM report must be provided to connect the weapon with the injuries)	S	KH		SGD – 2hrs
FM 14.12	Describe the contents and structure of bullet and cartridges used & to provide medico-legal interpretation	S	KH		

	from these				
FM 14.19	To identify & prepare medico-legal inference from histopathological slides of myocardial Infarction, pneumonitis, tuberculosis, brain infarct, liver cirrhosis, brain haemorrhage, bone fracture, pulmonary oedema, brain oedema, soot particles, diatoms & wound healing.	S	KH		SGD – 1hr

Integrated teaching

With clinical departments (Radiology, Casualty, Pharmacology, Pathology, Medicine, Gynaecology, Psychiatry)

Recommended books: -

1. Review of Forensic Medicine & Toxicology – Dr. Gowtham Biswas
2. Principles of Forensic Medicine & Toxicology – Dr Rajesh Bandale
3. Forensic Medicine and Toxicology – Dr P V Guharaj
4. Text book of Forensic Medicine & Toxicology, Dr.V.V.Pillay

Reference books: -

1. Essentials of Forensic Medicine & Toxicology, Dr. K.S.Narayana Reddy
2. Principles of Forensic Medicine, Dr. Apurba Nandy
3. Textbook of Forensic Medicine and Toxicology: Principles and Practice, KRISHAN VIJ
4. Text Book of Forensic Medicine & Toxicology, Nagesh Kumar Rao G
5. Medical Jurisprudence & Toxicology, C.K.Parikh
6. Modern Medical Toxicology, Dr.V.V.Pillay
7. Pathology of Homicide, Bernard Knight

DEPT. OF FORENSIC MEDICINE & TOXICOLOGY

GIMSR, GITAM (Deemed to be University)

University Examination Pattern

Theory: -

Number of papers - One paper

Time – 3 hours

Distribution of marks –	2 Long Answer Questions - 2x 10	**= 20 Marks**
	10 Short Answer Questions - 10 x 5	**= 50Marks**
	10 Brief Answer Questions - 10 x 2	**= 20Marks**
	10 MCQ's - 10x1	= 1**0 marks**
		Total = 100 Marks

Practical: -

Distribution of marks – **Spotters (10 x 2) = 20 Marks**

Age estimation either by Mandible or X rays =**10 Marks**

Clinical case = **10 Marks**

(Injury certificate

Drunkenness certificate

Potency/Impotency certificate

Certificate of examination of victim of sexual assault (Rape))

Autopsy exercise =**10 Marks**

Examination of Skeletal remains **=10 Marks**

Medical certificates **=10 Marks**

(Certification of cause of death (Form 4))/

Sickness/ fitness certificate/ consent forms

Viva =2**0 Marks**

Record **=10 Marks**

Total = 100 Marks

Total Marks = 200 Marks

Eligibility criteria to appear for university examination:

Marks Requirement

- 50% marks combined in theory and practical marks (not less than 40% in each) in any internal assessment examination for eligibility to appear for University Examinations. The student have to attend 5th Internal assessment examination (Pre Final) without fail.

Attendance requirements

– 75% in theory and 80% in practical /clinical in 2nd Professional (Phase II)

– 75% in theory and 80% in practical /clinical in 3rd Professional (Phase III) - Part I

Eligibility criteria to pass (Final) university examination:

A candidate shall obtain 50% marks in University conducted examination separately in Theory and Practical (practical includes: practical and viva) in order to be declared as passed.

DEPARTMENT OF FORENSIC MEDICINE & TOXICOLLOGY

THEORY EXAMINATION-BLUE PRINT

ONE PAPER OF 100 MARKS

Type of questions	Marks per question	Number of questions	Total marks
Long Answer Questions (LAQ)(Essay) (Structured Type)	10	2	20
Short Answer Questions (SAQ)	5	10	50
Brief Answer Questions(BAQ)	2	10	20
(MCQ)	1	10	10

Long answer questions (LAQ):

The question should make the students to apply higher cognitive skills. The question should be structured and marks breakup should be provided.

Short answer questions (SAQ):

These structured questions provide opportunity to answer in specific within in a short time

Brief answer questions (BAQ):

These questions are based on applied aspects and require answer to be given very precisely.

Multiple choice questions (MCQs):

Analytical

Distribution of marks for the question paper (Theory) for university examinations

Guidelines for setting Forensic Medicine & Toxicology question paper:

9. Blueprinting with respect to allocation of marks to each topic must be followed in the question paper

10. Long essay and short essay questions should be structured. It is essential to allocate marks to individual parts of the question.

11. The systems assigned to the different papers are generally evaluated under those sections. However, a strict division of the subject may not be possible and some overlapping of systems is inevitable. Students should be prepared to answer overlapping systems.

12. Maximum marks allocated to each topic in the blueprint may vary by $\pm$ 2 marks in the question paper to accommodate 5 and 3 markers and making the total of 100 marks.

13. All questions must be given within the prescribed competencies by CBME

Blueprinting for Question Paper

Maximum marks: 100 including MCQs

Sl No.	Topic	Weightage	Marks	Type of questions
1	Medical Jurisprudence	10%	10	LAQ, SAQ, BAQ,MCQ
2	Sexual Jurisprudence	10%	10	LAQ, SAQ, BAQ,MCQ
3	All Injuries	20%	20	LAQ, SAQ, BAQ, MCQ
4	Thantology	10%	10	SAQ, BAQ,MCQ
5	Forensic Psychiatry & Forensic Science	5%	5	SAQ, BAQ,MCQ
6	Mechanical Asphyxial deaths	10%	10	LAQ, SAQ, BAQ,MCQ
7	Identification	10%	10	SAQ, BAQ,MCQ

8	Toxicology	20%	20	LAQ, SAQ, BAQ,MCQ
8	Miscellaneous	5%	5	SAQ, BAQ,MCQ
	Total	**100%**	**100**	----------

LAQ: Long Answer Question, SAQ: Short Answer Question, BAQ: Brief Answer Question

MCQ: Multiple Choice Questions

Two Long Answer Questions (2 x10 = 20 Marks) can be from the following topics. Among these One Long Answer question must be given from Toxicology

- Mechanical Injuries
- Mechanical Asphyxia
- Medical Law & Ethics
- Toxicology
- Sexual Offences

Note: Please assign the numbers to MCQs from No 23 to 32, not 1 to 10

Department of Forensic Medicine & Toxicology

Time: 3.00 hours MODEL QUESTION PAPER Max. Marks: 100

Answer all questions

Long Answer Questions: **2 X 10 = 20 M**

1) Define Professional Negligence. Describe the components of Medical negligence. Describe types of medical negligence in detail with examples. Mention the precautionary measures to be taken to avoid medical negligence and add a note on various defences for a doctor in medical negligence cases.

(1+2+3+2+2=10M)

2) Define poison. Classify the poisons. Describe the duties of a doctor in case of suspected poisoning. Discuss about Narcotic drugs & Psychotropic substance Act. 1985

(1+2+4+3 = 10M)

Short Answer Questions: **10 X 5 = 50M**

3) Describe the salient futures of Human Organ Transplantation act, 1994 along with ethical and legal issues related to organ donation
4) Classify the postmortem changes. Discuss about Adipocere in detail with its medico legal importance.
5) Define Inquest. Describe the types of inquest which are followed in India in detail
6) Classify the unnatural sexual offences and discuss about Bestiality
7) Exhumation
8) Describe the procedure of declaring death with specific reference to brain stem death
9) Postmortem lividity with its medico legal importance
10) Define Drowning, describe the types of drowning and discuss about postmortem findings in case of death due to drowning.

11) Abrasions and its medico legal importance

12) Battered baby syndrome

Brief Answer Questions: **10 X 2 = 20M**

13) Vitriolage

14) Intersex

15) Powers of Sessions court

16) Negative autopsy

17) Carboluria

18) Positive signs of Pregnancy

19) Delusions

20) Joule burn

21) Casper's dictum

22) Sec 304B IPC

Multiple Choice Questions – 10x1=10 Marks

23) The following are the preparations of Cannabis, **Except**

A) Opium B) Bhang C) Majun D) Ganja

24) Xanthoproteic reaction is seen in

A) H_2So_4 poisoning B) HCL Poisoning

C) Carbolic acid Poisoning D) Nitric acid Poisoning

25) Leading questions are permitted in

a) Dying declaration b) Examination in chief

c) Cross examination d) Re-examination

26) The following are the immediate complications of criminal abortion, **Except**

A) Acute Renal Failure B) Hemorrhage

C) Perforation D) Embolism

27) All the following are the defenses available for a doctor against allegation of negligence, **Except**

A) Therapeutic misadventure B) No fee accepted

C) Complaint lodge after limitation period D) Res judicata

28) Section 84 IPC deals with

A) Durham's rule B) Curren's rule C) Mc Naughten's Rule D) American law institute test

29) For toxicological examination, the viscera are preserved in

A) 10 % Formalin B) 20 % alcohol

C) Saturated solution of sodium chloride D) 5 % potassium oxalate

30) What is the time limit for exhumation in India

A) 5 years B) 10 years C) 20 years D) No time limit

31) At what age, a person can give consent for routine physical examination on himself

A) 12 years B) 16 years C) 18 years D) 21 years

32) All are components of black powder, **Except**

A) Potassium Nitrate B) Charcoal

C) Sulphar D) Magnesium

THIRD PROFESSIIONAL PART – 2

Competency based medical education(CBME)

Department of General Medicine

Goal:

The broad goal of the teaching of under graduate students in the medicine is to have the knowledge, skills and behavioural attributes to function effectively as the first contact physician.

Objectives:

KNOWLEDGE:

At the end of the course, the student shall be able to:

(1) Diagnose common clinical disorders with special reference to infectious diseases and nutritional disorders, tropical and environmental diseases.

(2) Outline various modes of management including drug therapeutics especially dosage, side effects, toxicity, interactions, indications and contraindications.

(3) Propose diagnostic and investigative procedures and ability to interpret them

(4) Provide first level management of acute emergencies promptly and efficiently and decide the timing and level of referral, if required.

(5) Recognise geriatric disorders and their management.

Skills:

At the end of the course, the student shall be able to:

1. Develop clinical skills (history taking, clinical examination) to diagnose various common medical disorders and emergencies.

2. Refer a patient to secondary and/or tertiary level of health care after having instituted primary care.

3. Perform simple routine investigations like haemogram, stool, urine, sputum and biological fluid examinations.

4. Assist the common bedside investigative procedures like pleural fluid paracentesis, lumbar puncture and bone marrow aspiration/biopsy.

Departmental Objectives:

At the end of clinical postings in General Medicine, the medical student shall

• Be able to evaluate each patient as a person in society and not merely as a collection of organ systems.

• Have developed an interest in and care for all types of patients.

• Be able to discern the hopes and fears of patients, which inevitably underlie the symptom complexes and know how to handle these emotions, both in himself and in others.

• Possess adequate knowledge in the sciences of Medicines

• Elicit a good clinical history, and physical findings, elucidate the clinical problems based on these and discuss the means of solving the problems by the use of differential diagnosis.

• Requisition for relevant tests and perform common bed side laboratory procedures.

• Outline the principles of management of various diseases.

• Have an open attitude to the developments in medicine so as to be aware of the need to keep abreast of new knowledge.

• Learn to be adaptable to new ideas and new situations where resources may be limited.

• Possess knowledge of and perform certain procedures.

• Understand the ethical and legal implications of his medical decisions.

Competencies:

The student must demonstrate ability to do the following in relation to common medical problems of the adult in the community:

1. Demonstrate understanding of the patho-physiologic basis, epidemiological profile, signs and symptoms of disease and their investigation and management.

2. Competently interview and examine an adult patient and make a clinical diagnosis.

3. Appropriately order and interpret laboratory tests.

4. Initiate appropriate cost-effective treatment based on an understanding of the rational drug prescriptions, medical interventions required and preventive measures.

5. Follow up of patients with medical problems and refer whenever required.

6. Communicate effectively, educate and counsel the patient and family.

7. Manage common medical emergencies and refer when required, 8. Independently perform common medical procedures safely and understand patient safety issues.

Integration:

The teaching should be aligned and integrated horizontally and vertically in order to provide sound biologic basis and incorporating the principles of general medicine into a holistic and comprehensive approach to the care of thepatient.

TEACHING METHODS AND HOURS:

Professional Year	Duration (months)	Teaching hours (hours)	Tutorials/ seminars/ Integrated Teaching (hours)	Self-Directed Learning (hours)	Total (hours)
Second Professional MBBS	12	25	-	-	25
Third Professional Part I	13	25	35	5	65
Third Professional Part II	13	70	125	15	210

25% of allotted time of third professional shall be utilized for integrated learning with pre- and para- clinical subjects and shall be assessed during the clinical subjects examination. This allotted time will be utilized as integrated teaching by para-clinical subjects with clinical subjects (as Clinical Pathology, Clinical Pharmacology and Clinical Microbiology).

CLINICAL POSTINGS:

	Period of Training in weeks			
Subject	Second Professional MBBS	Third Professional Part I	Third Professional Part II	Total
General Medicine	4	4	8+4	20

The clinical postings in the second professional shall be 15 hours per week (3 hrs per day from Monday to Friday). The clinical postings in the third professional part I and part II shall be 18 hours per week (3 hrs per day from Monday to Saturday). This posting includes Laboratory Medicine (Para-clinical) & Infectious Diseases (Phase III Part I). Hours from clinical postings can also be used for AETCOM modules. At least 3 hours of clinical instruction each week must be allotted to training in clinical and procedural skill laboratories. Hours may be distributed weekly or as a block in each posting based on institutional logistics. There should be end of posting examination in each phase of instruction.

Scheme of Internal assessment:

There shall be at least 2 internal assessments during second professional, 2 internal assessments during third professional part I and 2 internal assessments during third professional II. Last internal assessment in third professional should be pre-final examination. Learners must secure at least 50% marks of the total marks (combined in theory and practical / clinical; not less than 40 % marks in theory and practical separately) assigned for internal assessment in a particular subject in order to be eligible for appearing University examination. Internal assessment marks will reflect as separate head of passing at the summative examination.

UNIVERSITY EXAMINATION:

Third professional part II	Marks	Pass Criteria
Theory – Paper I	100	Mandatory 50% marks separately in theory and practical (clinical + viva)
Theory – Paper II	100	
Practical/orals	200	
Total	**400**	

The discipline of Psychiatry and Dermatology, Venereology and Leprosy (DVL), Respiratory Medicine including Tuberculosis will constitute 25% of the total theory marks in General Medicine incorporated as a separate section in paper II of General Medicine.

DISTRIBUTION OF TOPICS IN PAPER I & II IN UNIVERSITY EXAMINATION:

Paper	Topics
I	Anaemia, Rheumatologic problems, Envenomation, Poisoning, Diabetes Mellitus, Thyroid dysfunction, Obesity, Acute Kidney Injury and Chronic Renal Failure, Liver Disease, GI bleeding, Diarrheal disorder, Mineral, Fluid, Electrolyte and Acid base Disorder
	Heart Failure, Acute Myocardial Infarction, Hypertension, Headache,

II	Cerebrovascular accident, Movement Disorders, Fever and Febrile syndromes, HIV, Pneumonia Common Malignancies, Geriatrics, Miscellaneous Infections, The role of the physician in the community, Dermatology, Psychiatry Respiratory Medicine

Text Books(latest edition) Recommended:

a. Davidson's Principles and practice of Medicine.

b. Kumar&Clark's Clinical Medicine.

c. Parasitology in relation to Clinical Medicine by KD Chatterjee.

Clinical Methods Books recommended:

1) Hutchison's Clinical Method.

2) Macleod's Clinical Examination

3) Clinical examination by Nicholas J Talley

4) Chamberlain's Clinical Methods.

Reference Books:

1) Harrison's Principles of Medicine

2) Cecil's Test book of Medicine

3) CURRENT Medical Diagnosis and Treatment

3) Oxford text book of Medicine

4) Brain’s Neurology, Cardiology ‘HURST’, API Text Book of Medicine.

GENERAL MEDICINE SYLLABUS FOR 2ND MBBS - CBME BATCH (2019-2020 ADMITTED BATCH)

Number	COMPETENCY	Domain	Level	Core	Teaching-Learning	Integration
	The student should be able to	K/S/A/C	K/KH/SH/P	(Y/N)	Methods	
Topic : Heart Failure		**Number of Competencies : 30**				
Number of procedures that require certification : (01)						
IM 1.1	Describe and discuss the epidemiology, pathogenesis clinical evolutio and courses of common causes of heart disease including: rheumatic/valvular, ischemic, hypertrophic, inflammatory	K	KH	Y	Lecture, Small group discussion	Pathology, Physiology
IM 1.2	Describe and discuss the genetic basis of some forms of heart failure	K	KH	N	Lecture, Small group discussion	Pathology, Physiology
IM 1.3	Describe and discuss the aetiology microbiology pathogenies and clinical evolution of rheumatic fever, criteria, degree of rheumatic activity and rheumatic valvular heart disease and its complications including infective endocarditis.	K	KH	Y	Lecture, Small group discussion	Pathology, Physiology, Microbiology
IM 1.4	Stage heart failure	K	KH	Y	Lecture, Small group discussion	Pathology, Physiology
IM 1.5	Describe ,discuss and differentiate the processes involved in R Vs L heart failure, systolic vs diastolic failure	K	KH	Y	Lecture, Small group discussion	Pathology, Physiology
IM 1.6	Describe and discuss the	K	KH	Y	Lecture,	Pathology,

	compensatory mechanisms involved in heart failure including cardiac remodelling and neurohormonal adaptations				Small group discussion	Physiology
IM 1.7	Enumerate, describe and discuss the factors that exacerbate heart failure including ischemia, arrythmias, anemia, thyrotoxicosis, dietary factors drugs etc.	K	KH	Y	Lecture, Small group discussion	Pathology, Physilology
IM 1.8	Describe and discuss the pathogenesis and development of common arrythmias involved in heart failure particularly atrial fibrillation	K	KH	Y	Lecture, Small group discussion	Pathology, Physilology
IM 1.9	Describe and discuss the clinical presentation and features diagnosis, recognition and management of acute rheumatic fever	K	KH	Y	Lecture, Small group discussion	Pathology, Microbilogy
IM 1.19	Enumerate the indications for and describe the findings of heart failure with the following conditions inluding : 2D echocardiography, brain natriuretic peptide, exercise testing, nuclear medicine testing and coronary angiogram	S	KH	N	Lecture, Small group discussion, Bedside clinic	Radiodiagnosis
IM 1.20	Determine the severity of valvular heart disease based on the clinical and laboratory and imaging features and determine the level of intervention required including surgery	C	SH	Y	Small group discussion, Lecture, Bedside clinic	
IM 1.21	Describe and discuss and identify the clinical features of acute and subacute endocarditis, echocardiographic findings, blood culture and sensitivity and therapy	K	KH/SH	Y	Bedside clinic, Small group discussion, Lecture	
IM 1.23	Describe, prescribe and communicate non pharmacologic management of	S/C	SH	Y	Lecture, Small group	

	heart failure including sodium restriction, physical activity and limitations				discussio n	
IM 1.24	Describe and discuss the pharmacology of drugs including indications, contraindications in the management of heart failure including diuretics. ACE inhibitors, Beta blockers, aldosterone antagonists and cardiac glycosides	K	KH	Y	Lecture, Small group discussio n	
IM 1.25	Enumerate the indications for valvuloplasty, valvotomy, coronary revascularization and cardiac transplantation	K	KH	Y	Lecture, Small group discussio n, Bedside clinic	
Topic : Acute Myocardial Infarction/IHD Number of Competencies : (24) **Number of procedures that require certification : (02)**						
IM 2.1	Discuss the describe the epidemiology, antecendents and risk factors for atherosclerosis and ischemic heart disease	K	KH	Y	Lecture, Small group discussion	Patholog y, Physiolog y, Communi ty Medicine
IM 2.2	Discuss the aetiology of risk factors both modifiable and non modifiable of atherosclerosis and IHD	K	KH	Y	Lecture, Small group discussion	Patholog y, Physiolog y
IM 2.3	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atheroscierosis	K	KH	Y	Lecture, Small group discussion	Physiolog y, Biochemi stry
IM 2.4	Discuss and the describe the pathogenesis natural history, evolution and complications of atherosclerosis	K	KH	Y	Lecture, Small group	Patholog y, Physiolog

	and IHD				discussion	y
IM 2.5	Define the various acute coronary syndromes and describe their avolution, natural history and outcomes	K	KH	Y	Lecture, Small group discussion	Patholog y
IM 2.13	Discuss and enumerate the indications for and findings on echocardiogram, stress testing and coronary angiogram	K	KH	Y	Lecture, Small group discussion	
IM 2.14	Discuss and describe the indications for admission to a coronary care unit and supportive therapy for a patient with acute coronary syndrome	K	KH	Y	Lecture, Small group discussion	
IM 2.15	Discuss and describe the medications used in patients with an acute coronary syndrome based on the clinical presentation	K	KH	Y	Lecture, Small group discussion	Pharmac ology
IM 2.16	Discuss and describe the indications for acute thrombolysis, PTCA and CABG	K	KH	Y	Lecture, Small group discussion	
IM2.17	Discuss and describe the indications and methods of cardiac rehabilitation	K	KH	Y	Lecture, Small group discussion	
IM2.18	Discuss and describe the indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia	K	KH	Y	Lecture, Small group discussion	Pharmac ology, Biochemi stry
IM2.19	Discuss and describe the pathogenesis, recognition and management of complications of acute coronary syndromes including arrhythmias, shock, LV dysfunction, papillary muscle rupture and pericarditis	K	KH	Y	Lecture, Small group discussion	
IM2.20	Discuss and describe the assessment and relief of pain in acute coronary syndromes	K	KH	Y	Lecture, Small group discussion	Pharmacol ogy
IM2.23	Describe and discuss the indications for nitrates, anti platelet agents, gpIIb IIIa inhibitors, beta blockers, ACE inhibitors etc in the management of coronary syndromes	K	KH	Y	Lecture, Small group discussion	Pharmac ology
Topic : Pneumonia **Number of Competencies : (19)** **Number of procedures that require certification : (NIL)**						

IM3.1	Define, discuss, describe and distinguish community acquired pneumonia, nosocomial pneumonia and aspiration pneumonia	K	K	Y	Lecture, Small group discussion	Human Anatomy, Pathology, Microbiology
IM3.2	Discuss and describe the aetiologies of various kinds of pneumonia and their microbiology depending on the setting and immune status of the host	K	K	Y	Lecture, Small group discussion	Microbiology
IM3.3	Discuss and describe the pathogenesis, presentation, natural history and complications of pneumonia	K	K	Y	Lecture, Small group discussion	Pathology, Microbiology
IM3.15	Describe and enumerate the indications for hospitalisation in patients with pneumonia	K	K	Y	Lecture, Small group discussion	
IM3.16	Describe and enumerate the indications for isolation and barrier nursing in patients with pneumonia	K	K	Y	Lecture, Small group discussion	
IM3.17	Describe and discuss the supportive therapy in patients with pneumonia including oxygen use and indications for ventilation	K	K	Y	Lecture, Small group discussion	
IM3.19	Discuss, describe, enumerate the indications and communicate to patients on pneumococcal and influenza vaccines	S/C	K	Y	Lecture, Small group discussion	Microbiology
Topic : Fever and febrile syndromes Number of competencies : (26) Number of procedures that require certification : (NIL)						
IM4.1	Describe and discuss the febrile response and the influence of host immune status, risk factors and comorbidities on the febrile response	K	K	Y	Lecture, Small group discussion	Microbiology
IM4.2	Describe and discuss the influence of special populations on the febrile response including: the elderly, immune suppression, malignancy and neutropenia, HIV and travel	K	K	Y	Lecture, Small group discussion	Microbiology
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India including bacterial, parasitic and viral causes (e.g.Dengue, Chikungunya, Typhus)	K	K	Y	Lecture, Small group discussion	Microbiology, Community Medicine
IM4.4	Describe and discuss the pathophysiology and manifestations of inflammatory causes of fever	K	KH	Y	Lecture, Small group discussion	Microbiology
IM4.5	Describe and discuss the pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies	K	KH	Y	Lecture, Small group discussion	Pathology, Microbiology

IM4.6	Discuss and describe the pathophysiology and manifestations of malaria	K	KH	Y	Lecture, Small group discussion	Microbiology
IM4.7	Discuss and describe the pathophysiology and manifestations of the sepsis syndrome	K	K	Y	Lecture, Small group discussion	
IM4.8	Discuss and describe the pathophysiology, aetiology and clinical manifestations of fever of unknown origin (FUO) including in a normal host, neutropenic host, nosocomial host and a host with HIV disease	K	K	Y	Lecture, Small group discussion	Microbiology
IM4.16	Enumerate the indications and describe the findings in tests of inflammation and specific rheumatologic tests, serologic testing for pathogens including HIV, bone marrow aspiration and biopsy	K	KH	N	Lecture, Small group discussion	Pathology
IM4.18	Enumerate the indications for use of imaging in the diagnosis of febrile syndromes	K	KH	N	Lecture, Small group discussion	
IM4.22	Describe and discuss the pharmacology, indications, adverse reactions, interactions of antimalarial drugs and basis of resistance	K	KH	Y	Lecture, Small group discussion	Pharmacology
Topic : Liver Disease **Number of Competencies : (18)** **Number of Procedures that require certification : (NIL)**						
IM5.1	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	K	K	Y	Lecture, Small group discussion	Pathology, Physiology
IM5.2	Describe and discuss the aetiology and pathophysiology of liver injury	K	K	Y	Lecture, Small group discussion	Pathology, Physiology
IM5.3	Describe and discuss the pathologic changes in various forms of liver disease	K	K	Y	Lecture, Small group discussion	Pathology
IM5.4	Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis	K	K	Y	Lecture, Small group discussion	Pathology, Microbiology
IM5.5	Describe and discuss the pathophysiology and clinical evolution of alcoholic liver disease	K	K	Y	Lecture, Small group discussion	Pathology
IM5.6	Describe and discuss the pathophysiology, clinical evolution and complications of cirrhosis and portal hypertension including ascites, spontaneous bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy	K	K	Y	Lecture, Small group discussion	Pathology

BED SIDE CLINICS FOR 2ND MBBS (2019 - 2020 ADMITTED BATCH)			
Duration 4 Weeks			**Vertical Integration**
Week I	**IM 1.10**	Elicit document and present an appropriate history that will establish the diagnosis, cause and severity of heart failure including: presenting complaints, precipitating and exacerbating factors, risk factors exercise tolerance, changes in sleep patterns, features suggestive of infective endocarditis	
	IM 2.6	Elicit document and present an appropriate history that includes onset evolution, presentation risk factors, family history, comorbid conditions, complications, medication, history of atherosclerosis, IHD and coronary syndromes	
	IM 2.9	Distinguish and differentiate between stable and unstable angina and AMI based on the clinical presentation	
	IM 3.4	Elicit document and present an appropriate history including the evolution, risk factors including immune status and occupational risk	
	IM 4.9	Elicit document and present a medical history that helps delineate the aetiology of fever that includes the evolution and pattern of fever, associated symptoms, immune status, comorbidities, risk factors, exposure through occupation, travel and environment and medication use	Microbiology
	IM 5.9	Elicit document and present a medical history that helps delineate the aetiology of the current presentation and includes clinical presentation, risk factors, drug use, sexual history, vaccination history and family history	
Week II	**IM 7.11**	Elicit document and present a medical history that will differentiate the aetiologies of disease	

	IM 8.9	Elicit document and present a medical history that includes: duration and levels, symptoms, comorbidities, lifestyle, risk factors, family history, psychosocial and environmental factors, dietary assessment, previous and concomitant therapy	
	IM 9.3	Elicit document and present a medical history that includes symptoms, risk factors including GI bleeding, prior history, medications, menstrual history, and family history	
	IM 11.7	Elicit document and present a medical history that will differentiate the aetiologies of diabetes including risk factors, precipitating factors, lifestyle, nutritional history, family history, medication history, co-morbidities and target organ disease	
	IM 12.5	Elicit document and present an appropriate history that will establish the diagnosis cause of thyroid dysfunction and its severity	
	IM 13.7	Elicit document and present a history that will help establish the aetiology of cancer and includes the appropriate risk factors, duration and evolution	
	IM 14.6	Elicit and document and present an appropriate history that includes the natural history, dietary history, modifiable risk factors, family history, clues for secondary causes and motivation to lose weight	
	IM 15.4	Elicit and document and present an appropriate history that identifies the route of bleeding, quantity, grade, volume loss, duration, etiology, comorbid illnesses and risk factors	
Week III	**IM 16.4**	Elicit and document and present an appropriate history that includes the natural history, dietary history, travel , sexual history and other concomitant illnesses	Microbiology, Pathology
	IM 17.2	Elicit and document and present an appropriate history including aura, precipitating aggravating and relieving factors, associated symptoms that help identify the cause of headaches	

	IM 18.3	Elicit and document and present an appropriate history including onset, progression, precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the cerebrovascular accident	Pathology
	IM 25.4	Elicit document and present a medical history that helps delineate the aetiology of these diseases that includes the evolution and pattern of symptoms, risk factors, exposure through occupation and travel	Community Medicine
	IM 26.20	Demonstrate ability to communicate to patients in a patient, respectful, non threatening, non judgemental and empathetic manner	
	IM 26.21	Demonstrate respect to patient privacy	
	IM 1.11	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and estimate its severity including: measurement of pulse, blood pressure and respiratory rate, jugular venous forms and pulses, peripheral pulses, conjunctiva and fundus, lung, cardiac examination including palpation and auscultation with identification of heart sounds and murmurs, abdominal distension and splenic palpation	
	IM 1.12	Demonstrate peripheral pulse, volume, character, quality and variation in various causes of heart failure	
	IM 1.13	Measure the blood pressure accurately, recognise and discuss alterations in blood pressure in valvular heart disease and other causes of heart failure and cardiac tamponade	
Week IV	**IM 4.10**	Perform a systematic examination that establishes the diagnosis and severity of presentation that includes: general skin mucosal and lymph node examination, chest and abdominal examination (including examination of the liver and spleen)	

	IM 9.4	Perform a systematic examination that includes : general examination for pallor, oral examination, DOAP session of hyper dynamic circulation, lymph node and splenic examination	
	IM 11.8	Perform a systematic examination that establishes the diagnosis and severity that includes skin, peripheral pulses, blood pressure measurement, fundus examination, detailed examination of the foot (pulses, nervous and deformities and injuries)	
	IM 12.6	Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and severity including systemic signs of thyrotoxicosis and hypothyroidism, palpation of the pulse for rate and rhythm abnormalities, neck palpation of the thyroid and lymph nodes and cardiovascular findings	
	IM 12.7	Demonstrate the correct technique to palpate the thyroid	
	IM 14.7	Perform, document and demonstrate a physical examination based on the history that includes general examination, measurement of abdominal obesity, signs of secondary causes and comorbidities	
	IM 15.5	Perform, demonstrate and document a physical examination based on the history that includes general examination, volume assessment and appropriate abdominal examination	
	IM 16.5	Perform, document and demonstrate a physical examination based on the history that includes general examination, including an appropriate abdominal examination	
	IM 25.5	Perform a systematic examination that establishes the diagnosis and severity of presentation that includes: general skin, mucosal and lymph node examination, chest and abdominal examination (including examination of the liver and spleen)	

GENERAL MEDICINE SYLLABUS FOR FINAL MBBS PART - I
CBME BATCH (2019-2020 ADMITTED BATCH)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Teaching-Learning Methods	Integration
Topic : Liver Disease	**Number of Competencies : (18)**			**Number of Procedures that require certification : (NIL)**		
IM5.7	Enumerate and describe the causes and pathophysiology of drug induced liver injury	K	K	Y	Lecture, Small group discussion	Pathology, Pharmacology
IM5.8	Describe and discuss the pathophysiology, clinical evolution and complications cholelithiasis and cholecystitis	K	K	Y	Lecture, Small group discussion	General Surgery
IM5.16	Describe and discuss the management of hepatitis, cirrhosis, portal hypertension, ascites spontaneous, bacterial peritonitis and hepatic encephalopathy	K	KH	Y	Written, Small group discussion	Pharmacology
IM5.17	Enumerate the indications, precautions and counsel patients on vaccination for hepatitis	K/C	SH	Y	Written, Small group discussion	Microbiology
IM5.18	Enumerate the indications for hepatic transplantation	K	K	Y	Written, Small group discussion	
Topic : HIV	**Number of Competencies : (23)**			**Number of Procedures that require certification : (NIL)**		
IM6.1	Describe and discuss the symptoms and signs of acute HIV seroconversion	K	KH	Y	Lecture, Small group	Microbiology

					discussion	
IM6.2	Define and classify HIV AIDS based on the CDC criteria	K	KH	Y	Lecture, Small group discussion	Microbiology
IM6.3	Describe and discuss the relationship between CDC count and the risk of opportunistic infections	K	KH	Y	Lecture, Small group discussion	Microbiology
IM6.4	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related opportunistic infections	K	KH	Y	Lecture, Small group discussion	Microbiology
IM6.5	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related malignancies	K	KH	Y	Lecture, Small group discussion	Pathology, Microbiology
IM6.6	Describe and discuss the pathogenesis, evolution and clinical features of common HIV related skin and oral lesions	K	KH	Y	Lecture, Small group discussion	Pathology, Microbiology
IM6.11	Enumerate the indications and describe the findings for CT of the chest and brain and MRI	K	K	N	Small group discussion, Lecture, Bedside clinic	Radiodiagnosis
IM6.13	Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhea	K	K	Y	Lecture, Small group discussion	Pharmacology, Microbiology
IM6.16	Discuss and describe the principles of HAART, the classes of antiretrovirals used, adverse reactions and interactions	K	K	Y	Lecture, Small group discussion	Microbiology, Pharmacology

IM6.17	Discuss and describe the principles and regimens used in post exposure prophylaxis	K	K	Y	Lecture, Small group discussion	Microbiology, Pharmacology
IM6.18	Enumerate the indications and discuss prophylactic drugs used to prevent HIV related opportunistic infections	K/C	K	Y	Lecture, Small group discussion	Pathology, Microbiology
IM6.23	Demonstrate a non-judgemental attitude to patients with HIV and to their lifestyles	A	SH	Y	Small group discussion	AETCOM
Topic : RHEUMATIC PROBLEMS	**Number of Competencies : (27)**			**Number of Procedures that require certification : (NIL)**		
IM7.1	Describe the pathophysiology of autoimmune disease	K	KH	Y	Lecture, Small group discussion	Pathology
IM7.2	Describe the genetic basis of autoimmune disease	K	KH	N	Lecture, Small group discussion	Pathology
IM7.3	Classify cause of joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	
IM7.4	Develop a systematic clinical approach to joint pain based on the pathophysiology	K	KH	Y	Lecture, Small group discussion	
IM7.5	Describe and discriminate acute, subacute and chronic causes of joint pain	K	KH	Y	Lecture, Small group discussion	
IM7.6	Discriminate, describe and discuss arthralgia from arthritis and mechanical from inflammatory causes of joint pain	K	KH	Y	Lecture, Small group discussion	

IM7.7	Discriminate, describe and discuss distinguishing articular from periarticular complaints	K	KH	Y	Lecture, Small group discussion	
IM7.8	Determine the potential causes of join pain based on the presenting features of joint involvement	K	KH	Y	Lecture, Small group discussion	
IM7.9	Describe the common signs and symptoms of articular and periarticular diseases	K	KH	Y	Lecture, Small group discussion	
IM7.10	Describe the systemic manifestations of rheumatologic disease	K	KH	Y	Lecture, Small group discussion	
IM7.16	Enumerate the indications for arthrocentesis	K	K	Y	Small group discussion, Lecture	
IM7.27	Determine the need for specialist consultation	K	K	Y	Small group discussion, Lecture	
Topic : HYPERTENSION	**Number of Competencies : (20)**			**Number of Procedures that require certification : (NIL)**		
IM8.1	Describe and discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Pathology, Physiology
IM8.2	Describe and discuss the pathophysiology of hypertension	K	KH	Y	Lecture, Small group discussion	Pathology, Physiology
IM8.3	Describe and discuss the genetic basis of hypertension	K	KH	N	Lecture, Small group	Pathology

					discussion	
IM8.4	Define and classify hypertension	K	KH	Y	Lecture, Small group discussion	Pathology
IM8.5	Describe and discuss the differences between primary and secondary hypertension	K	KH	Y	Lecture, Small group discussion	Pathology
IM8.6	Define, describe and discuss and recognise hypertensive urgency and emergency	K	KH	Y	Lecture, Small group discussion	
IM8.7	Describe and discuss the clinical manifestations of the various aetiologies of secondary causes of hypertension	K	KH	Y	Lecture, Small group discussion	Pathology
IM8.8	Describe, discuss and identify target organ damage due to hypertension	K	KH	Y	Lecture, Small group discussion	Pathology
IM8.12	Describe the appropriate diagnostic work up based on the presumed aetiology	K	KH	Y	Small group discussion	
IM8.13	Enumerate the indications for and interpret the results of : CBC, Urine routine, BUN, Cr, Electrolytes, Uric acid, ECG	K	KH	Y	Small group discussion	
IM8.14	Develop an appropriate treatment plan for essential hypertension	K	KH	Y	Small group discussion	Pharmacology
IM8.20	Determine the need for specialist consultation	K	KH	Y	Lecture, Small group discussion	
Topic : ANEMIA	**Number of Competencies : (21)**				**Number of Procedures that require certification :**	

(NIL)						
IM9.1	Define, describe and classify anemia based on red blood cell size and reticulocyte count	K	KH	Y	Lecture, Small group discussion	Pathology
IM9.2	Describe and discuss the morphological characteristics, aetiology and prevalence of each of the causes of anemia	K	KH	Y	Lecture, Small group discussion	Pathology
IM9.7	Describe and discuss the meaning and utility of various components of the hemogram	K	KH	Y	Lecture, Small group discussion	Pathology
IM9.8	Describe and discuss the various tests for iron deficiency	K	KH	Y	Lecture, Small group discussion	Pathology
IM9.11	Describe the indications and interpret the results of a bone marrow aspirations and biopsy	K	KH	Y	Lecture, Small group discussion	Pathology
IM9.12	Describe, develop a diagnostic plan to determine the aetiology of anemia	K	KH	Y	Lecture, Small group discussion	Pathology
IM9.14	Describe the national programs for anemia prevention	K	KH	Y	Lecture, Small group discussion	Pharmacology, Community Medicine
IM9.17	Describe the indications for blood transfusion and the appropriate use of blood components	K	KH	Y	Lecture, Small group discussion	Pathology
IM9.18	Describe the precautions required necessary when performing a blood transfusion	K	KH	Y	Lecture, Small group discussion	

IM9.21	Determine the need for specialist consultation	K	KH	Y	Lecture, Small group discussion	Written
Topic : ACUTE KIDNEY INJURY AND CHRONIC RENAL FAILURE Number of Competencies : (31)Number of Procedures that require certification : (NIL)						
IM10.1	Define, describe and differentiate between acute and chronic renal failure	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.2	Classify, describe and differentiate the pathophysiologic causes of acute renal failure	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.3	Describe the pathophysiology and causes of pre renal ARF, renal and post renal ARF	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.4	Describe the evolution, natural history and treatment of ARF	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.5	Describe and discuss the aetiology of CRF	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.6	Stage Chronic Kidney Disease	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.7	Describe and discuss the pathophysiology and clinical findings of uraemia	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.8	Classify, describe and discuss the significance of proteinuria in CKD	K	KH	Y	Lecture, Small group discussion	Pathology

IM10.9	Describe and discuss the pathophysiology of anemia and hyperparathyroidism in CKD	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.10	Describe and discuss the association between CKD glycemia and hypertension	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.11	Describe and discuss the relationship between CAD risk factors and CKD and in dialysis	K	KH	Y	Lecture, Small group discussion	Pathology
IM10.14	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	KH	Y	DOAP session, Small group discussion	
IM10.15	Describe the appropriate diagnostic work up based on the presumed aetiology	K	SH	Y	DOAP session, Small group discussion	
IM10.16	Enumerate the indications for and interpret the results of : renal function tests, calcium, phosphorus, PTH, urine electrolytes, osmolality, Anion gap	K	KH	Y	DOAP session, Small group discussion	Pathology
IM10.17	Describe and calculate indices of renal function based on available laboratories including FENa (Fractional Excretion of Sodium) and CrCl (Creatinine Clearance)	S	SH	Y	DOAP session, Small group discussion	Pathology
IM10.18	Identify the ECG findings in hyperkalemia	S	SH	Y	DOAP session, Small group discussion	
IM10.19	Enumerate the indications and describe the findings in renal ultrasound	K	KH	N	Lecture, Small group discussion	Radiodiagnosis

IM10.20	Describe and discuss the indications to perform arterial blood gas analysis: interpret the data	S	P	Y	DOAP session	
IM10.25	Identify and describe the priorities in the management of ARF including diet, volume management, alteration in doses of drugs, monitoring and indications for dialysis	K/C	KH	Y	Lecture, Small group discussion	Pharmacology
IM10.26	Describe and discuss supportive therapy in CKD including diet, anti hypertensives, glycemic therapy, dyslipidemia, anemia, hyperkalemia, hyperphosphatemia and secondary hyperparathyroidism	K	KH	Y	Lecture, Small group discussion	
IM10.27	Describe and discuss the indications for renal dialysis	C/A	KH	Y	Lecture, Small group discussion	
IM10.28	Describe and discuss the indications for renal replacement therapy	C	KH	Y	Lecture, Small group discussion	
IM10.29	Describe discuss and communicate the ethical and legal issues involved in renal replacement therapy	C/A	KH	Y	Lecture, Small group discussion	
IM10.30	Recognise the impact of CKD on patient's quality of life well being work and family	A	K	Y	Lecture, Small group discussion, Bedside clinic	
IM10.31	Incorporate patient preferences in to the care of CKD	A/C	KH	Y	Lecture, Small group discussion, Bedside clinic	
Topic : DIABETUS MILLETUS		**Number of Competencies : (24)**			**Number of Procedures that require certification : (02)**	

IM11.1	Define and classify diabetes	K	KH	Y	Lecture, Small group discussion	
IM11.2	Describe and discuss the epidemiology and pathogenesis and risk factors and clinical evolution of type 1 diabetes	K	KH	Y	Lecture, Small group discussion	Pathology
IM11.3	Describe and discuss the epidemiology and pathogenesis and risk factors economic impact and clinical evolution of type 2 diabetes	K	KH	Y	Lecture, Small group discussion	Pathology
IM11.4	Describe and discuss the genetic background and the influence of the environment on diabetes	K	KH	N	Lecture, Small group discussion	
IM11.5	Describe and discuss the pathogenesis and temporal evolution of microvascular and macrovascular complications of diabetes	K	KH	Y	Lecture, Small group discussion	Pathology
IM11.6	Describe and discuss the pathogenesis and precipitating factors, recognition and management of diabetic emergencies	K	KH	Y	Lecture, Small group discussion	
IM11.9	Describe and recognise the clinical features of patients who present with a diabetic emergency	K	KH	Y	Small group discussion, Lecture	
IM11.10	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	K	KH	Y	Small group discussion, Lecture	
IM11.14	Recognise the presentation of hypoglycaemia and outline the principles on its therapy	K	KH	Y	Small Group discussion, Lecture	

IM11.22	Enumerate the causes of hypoglycaemia and describe the counter hormone response and the initial approach and treatment	K	KH	Y	Lecture, Small group discussion	Pathology, Physiology
IM11.15	Recognise the presentation of diabetic emergencies and outline the principles of therapy	K	KH	Y	Small Group discussion, Lecture	
IM11.16	Discuss and describe the pharmacologic therapies for diabetes their indications, contraindications, adverse reactions and interactions	K	KH	Y	Small Group discussion, Lecture	Pharmacology
IM11.17	Outline a therapeutic approach to therapy of T2Diabetes based on presentation, severity and complications in a cost effective manner	K	KH	Y	Small Group discussion, Lecture	
IM11.18	Describe and discuss the pharmacology, indications, adverse reactions and interactions of drugs used in the prevention and treatment of target organ damage and complications of Type II Diabetes including neuropathy, nephropathy, retinopathy, hypertension, dyslipidemia and cardiovascular disease	K	KH	Y	Lecture, Small group discussion	Pharmacology
IM11.23	Describe the precipitating causes, pathophysiology, recognition, clinical features, diagnosis, stabilisation and management of diabetic ketoacidosis	K	KH	Y	Lecture, Small group discussion	
IM11.24	Describe the precipitating causes, pathophysiology, recognition, clinical features, diagnosis, stabilisation and management of Hyperosmolar non ketotic state	K	KH	N	Lecture, Small group discussion	
Topic : THYROID DISFUNCTION	**Number of Competencies : (15)**			**Number of Procedures that require certification : (NIL)**		
IM12.1	Describe the epidemiology and pathogenesis of hypothyroidism and hyperthyroidism including the influence of iodine deficiency and autoimmunity in the pathogenesis of thyroid disease	K	K	Y	Lecture, Small group discussion	Pathology, Physiology

IM12.2	Describe and discuss the genetic basis of some forms of thyroid dysfunction	K	K	N	Lecture, Small group discussion	
IM12.3	Describe and discuss the physiology of the hypothalamopituitary - thyroid axis, principles of thyroid function testing and alterations in physiologic function	K	K	Y	Lecture, Small group discussion	Pathology, Physiology
IM12.4	Describe and discuss the principles of radio iodine uptake in the diagnosis of thyroid disorders	K	KH	Y	Lecture, Small group discussion	
IM12.12	Describe and discuss the iodisation programs of the government of India	K	KH	Y	Lecture, Bedside clinic	Community Medicine
IM12.13	Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs	K	KH	Y	Lecture, Small group discussion	Pharmacology
Topic : COMMON MALIGNANCIES		**Number of Competencies : (19)**		**Number of Procedures that require certification : (NIL)**		
IM13.1	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	Lecture, Small group discussion	Pathology, Biochemistry
IM13.2	Describe the genetic basis of selected cancers	K	K	N	Lecture, Small group discussion	Pathology
IM13.3	Describe the relationship between infection and cancers	K	K	Y	Lecture, Small group discussion	Pathology, Microbiology
IM13.4	Describe the natural history, presentation, course, complications and cause of death for common cancers	K	K	Y	Lecture, Small group discussion	Pathology

IM13.5	Describe the common issues encountered in patients at the end of life and principles of management	K	K	N	Lecture, Small group discussion	
IM13.6	Describe and distinguish the difference between curative and palliative care in patients with cancer	K	K	N	Lecture, Small group discussion	Pharmacology
Topic : OBESITY	**Number of Competencies : (15)**			**Number of Procedures that require certification : (NIL)**		
IM14.1	Define and measure obesity as it relates to the Indian population	K	K	Y	Lecture, Small group discussion	
IM14.2	Describe and discuss the aetiology of obesity including modifiable and non-modifiable risk factors and secondary causes	K	K	Y	Lecture, Small group discussion	Pathology
IM14.3	Describe and discuss the monogenic forms of obesity	K	K	N	Lecture, Small group discussion	Pathology
IM14.4	Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity	K	K	Y	Lecture, Small group discussion	Pathology, Community Medicine
IM14.5	Describe and discuss the natural history of obesity and its complications	K	K	Y	Lecture, Small group discussion	Pathology
IM14.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for obesity	K	K	Y	Lecture, Small group discussion	Pharmacology
IM14.14	Describe and enumerate the indications and side effects of bariatric surgery	K	K	Y	Lecture, Small group	

					discussion	
IM14.15	Describe and enumerate and educate patients, health care workers and the public on measures to prevent obesity and promote a healthy lifestyle	K	K	Y	Lecture, Small group discussion	
GI BLEEDING	**Number of Competencies : (18)**			**Number of Procedures that require certification : (NIL)**		
IM15.1	Enumerate, describe and discuss the aetiology of upper and lower GI bleeding	K	KH	Y	Lecture, Small group discussion	Pathology
IM15.2	Enumerate, describe and discuss the evaluation and steps involved in stabilizing a patient who presents with acute volume loss and GI bleed	S	SH	Y	DOAP session, Small group discussion, Lecture	Pathology
IM15.3	Describe and discuss the physiologic effects of acute blood and volume loss	K	K	Y	Lecture, Small group discussion	Pathology, Physiology
IM15.4	Elicit and document and present an appropriate history that identifies the route of bleeding, quantity, grade, volume loss, duration, etiology, comorbid illnesses and risk factors	S	SH	Y	Bedside clinic	
IM15.5	Perform, demonstrate and document a physical examination based on the history that includes general examination, volume assessment and appropriate abdominal examination	S	SH	Y	Bedside clinic, Skills lab	
IM15.6	Distinguish between upper and lower gastrointestinal bleeding based on the clinical features	S	KH	Y	Lecture, Small group discussion	
IM15.10	Enumerate the indications for endoscopy, colonoscopy and other imaging procedures in the investigation of Upper GI bleeding	K	KH	Y	Lecture, Small group discussion	

IM15.11	Develop, document and present a treatment plan that includes fluid resuscitation, blood and blood component transfusion, and specific therapy for arresting blood loss	S	KH	Y	Lecture, Small group discussion	Pathology
IM15.12	Enumerate the indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion	K	K	Y	Lecture, Small group discussion	Pathology
IM15.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of pressors used in the treatment of Upper GI bleed	K	K	Y	Lecture, Small group discussion	Pharmacology
IM15.15	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy of acid peptic disease including Helicobacter pylori	K	K	Y	Lecture, Small group discussion	Pharmacology, Microbiology
IM15.16	Enumerate the indications for endoscopic interventions and Surgery	K	K	Y	Lecture, Small group discussion	
IM15.17	Determine appropriate level of specialist consultation	S	K	Y	Small group discussion	
Topic : DIARRHEAL DISORDER		**Number of Competencies : (17)**		**Number of Procedures that require certification : (NIL)**		
IM16.1	Describe and discuss the aetiology of acute and chronic diarrhea including infectious and non infectious causes	K	K	Y	Lecture, Small group discussion	Microbiology
IM16.2	Describe and discuss the acute systemic consequences of diarrhea including its impact on fluid balance	K	K	Y	Lecture, Small group discussion	
IM16.3	Describe and discuss the chronic effects of diarrhea including malabsorption	K	K	Y	Lecture, Small group discussion	

IM16.6	Distinguish between diarrhea and dysentery based on clinical features	S	KH	Y	Lecture, Small group discussion	
IM16.11	Enumerate the indications for stool cultures and blood cultures in patients with acute diarrhea	K	KH	Y	Lecture, Small group discussion	Microbiology
IM16.12	Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhea	K	KH	Y	Lecture, Small group discussion	Pathology
IM16.13	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhea	K	K	Y	Lecture, Small group discussion	Pharmacology, Microbiology
IM16.14	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial and viral diarrhea	K	K	Y	Lecture, Small group discussion	Pharmacology, Microbiology
IM16.15	Distinguish based on the clinical presentation Crohn's disease from Ulcerative Colitis	S	SH	Y	Lecture, Small group discussion	Pathology
IM16.16	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy including immunotherapy	K	K	Y	Lecture, Small group discussion	Pharmacology
IM16.17	Describe and enumerate the indications for surgery in inflammatory bowel disease	K	K	Y	Lecture, Small group discussion	
Topic : HEADACHE	**Number of Competencies : (14)**			**Number of Procedures that require certification : (NIL)**		
IM17.1	Define and classify headache and describe the presenting features, precipitating factors, aggravating and relieving factors of various kinds of headache	K	KH	Y	Lecture, Small group	Human Anatomy

					discussion	
IM17.6	Choose and interpret diagnostic testing based on the clinical diagnosis including imaging	S	SH	Y	Lecture, Small group discussion, Bedside clinic	
IM17.10	Enumerate the indications for emergency care admission and immediate supportive care in patients with headache	K	K	Y	Lecture, Small group discussion	
IM17.11	Describe the indications, pharmacology, dose, side effects of abortive therapy in migraine	K	KH	Y	Lecture, Small group discussion	Pharmacology
IM17.12	Describe the indications, pharmacology, dose, side effects of prophylactic therapy in migraine	K	KH	Y	Lecture, Small group discussion	Pharmacology
IM17.13	Describe the pharmacology, dose, adverse reactions and regimens of drugs used in the treatment of bacterial, tubercular and viral meningitis	K	KH	Y	Lecture, Small group discussion	Pharmacology
Topic : CEREBROVASCULAR ACCIDENT		**Number of Competencies : (17)**		**Number of Procedures that require certification : (NIL)**		
IM18.1	Describe the functional and the vascular anatomy of the brain	K	KH	Y	Lecture, Small group discussion	Human Anatomy
IM18.2	Classify cerebrovascular accidents and describe the aetiology, predisposing genetic and risk factors pathogenesis of hemorrhagic and non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	Pathology
IM18.10	Choose and interpret the appropriate diagnostic testing in young patients with a cerebrovascular accident (CVA)	S	SH	Y	Lecture, Small group discussion	

IM18.11	Describe the initial supportive management of a patient presenting with a cerebrovascular accident (CVA)	K	KH	Y	Lecture, Small group discussion	
IM18.12	Enumerate the indications for and describe acute therapy of non hemorrhagic stroke including the use of thrombolytic agents	K	KH	Y	Lecture, Small group discussion	
IM18.13	Enumerate the indications for and describe the role of anti platelet agents in non hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	
IM18.14	Describe the initial management of a hemorrhagic stroke	K	KH	Y	Lecture, Small group discussion	
IM18.15	Enumerate the indications for surgery in a hemorrhagic stroke	K	K	Y	Lecture, Small group discussion	
IM18.16	Enumerate the indications describe and observe the multidisciplinary rehabilitation of patients with a CVA	S	KH	Y	Lecture, Small group discussion	
Topic : MOVEMENT DISORDERS		**Number of Competencies : (09)**		**Number of Procedures that require certification : (NIL)**		
IM19.1	Describe the functional anatomy of the locomotor system of the brain	K	KH	Y	Lecture, Small group discussion	Human Anatomy, Physiology
IM19.2	Classify movement disorders of the brain based on distribution, rhythm, repetition, exacerbating and relieving factors	K	KH	Y	Lecture, Small group discussion	
IM19.8	Discuss and describe the pharmacology, dose, side effects and interactions used in the drug therapy of Parkinson's syndrome	K	KH	Y	Lecture, Small group	Pharmacology

					discussion	
IM19.9	Enumerate the indications for use of surgery and botulinum toxin in the treatment of movement disorders	K	KH	Y	Lecture, Small group discussion	Pharmacology
Topic : ENVENOMATION	**Number of Competencies : (09)**			**Number of Procedures that require certification : (NIL)**		
IM20.1	Enumerate the local poisonous snakes and describe the distinguishing marks of each	K	KH	Y	Lecture, Small group discussion	Forensic Medicine, Pharmacology
IM20.3	Describe the initial approach to the stabilisation of the patient who presents with snake bite	K	KH	Y	Lecture, Small group discussion	Forensic Medicine
IM20.6	Choose and interpret the appropriate diagnostic testing in patients with snake bites	S	SH	Y	Small group discussion	
IM20.7	Enumerate the indications and describe the pharmacology, dose, adverse reactions, hypersensitivity reactions of anti snake venom	K	KH	Y	Lecture, Small group discussion	Pharmacology
IM20.8	Describe the diagnosis, initial approach stabilisation and therapy of scorpion envenomation	K	KH	N	Lecture, Small group discussion	Pharmacology
IM20.9	Describe the diagnosis initial approach stabilisation and therapy of bee sting allergy	K	KH	N	Lecture, Small group discussion	Pharmacology
Topic : POISONING	**Number of Competencies : (08)**			**Number of Procedures that require certification : (NIL)**		

IM21.1	Describe the initial approach to the stabilisation of the patient who presents with snake bite	K	KH	Y	Lecture, Small group discussion	Pharmacology
IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific approach to detoxification	K	KH	Y	Lecture, Small group discussion	Forensic Medicine, Pharmacology
IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Forensic Medicine, Pharmacology
IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	K	KH	Y	Lecture, Small group discussion	Forensic Medicine, Pharmacology
IM21.6	Describe the medico legal aspects of suspected suicidal or homicidal poisoning and demonstrate the correct procedure to write a medico legal report on a suspected poisoning	S	KH	Y	Lecture, Small group discussion, DOAP session	Forensic Medicine, Pharmacology

BED SIDE CLINICS FOR FINAL MBBS -PART I (2019 - 2020 ADMITTED BATCH)			
Duration 4 Weeks			**Vertical Integration**
Week I	**IM 1.14**	Demonstrate and measure jugular venous distension	
	IM 1.15	Identify and describe the timing, pitch quality conduction and significance of precordial murmurs and their variations	
	IM 1.28	Enumerate the causes of adult presentations of congenital heart disease and describe the distinguishing features between cyanotic and acyanotic heart disease	
	IM 1.29	Elicit document and present an appropriate history, demonstrate correctly general examination, relevant clinical findings and formulate document and present a management plan for an adult patient presenting with a common form of congenital heart disease	
	IM 2.7	Perform, demonstrate and document a physical examination including a vascular and cardiac examination that is appropriate for the clinical presentation	
	IM 3.5	Perform, document and demonstrate a physical examination including general examination and appropriate examination of the lungs that establishes the diagnosis, complications and severity of disease	
Week II	**IM 5.10**	Perform a systematic examination that establishes the diagnosis and severity that includes nutritional status, mental status, jaundice, abdominal distension ascites, features of portosystemic hypertension and hepatic encephalopathy	
	IM 5.14	Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	Radiodiagnosis
	IM 5.15	Assist in the performance and interpret the findings of an ascitic fluid analysis	
	IM 7.12	Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease	
	IM 7.19	Develop an appropriate treatment plan for patients with rheumatologic diseases	
	IM 7.20	Select, prescribe and communicate appropriate medications for relief of joint pain	Pharmacology
Week	**IM**	Select, prescribe and communicate preventive therapy for crystalline arthropathies	Pharmacology

III	**7.21**		
	IM 7.22	Select, prescribe and communicate treatment option for systemic rheumatologic conditions	Pharmacology
	IM 7.23	Describe the basis for biologic and disease modifying therapy in rheumatologic diseases	Pharmacology
	IM 8.10	Perform a systematic examination that includes : an accurate measurement of blood pressure, fundus examination, examination of vasculature and heart	
	IM 8.16	Develop and communicate to the patient lifestyle modification including weight reduction, moderation of alcohol intake, physical activity and sodium intake	
	IM 8.18	Incorporate patient preferences in the management of HTN	
Week IV	**IM 8.19**	Demonstrate understanding of the impact of Hypertension on quality of life, well being, work and family	
	IM 10.13	Perform a systematic examination that establishes the diagnosis and severity including determination of volume status, presence of edema and heart failure, features of uraemia and associated systemic disease	
	IM 12.11	Interpret thyroid function tests in hypo and hyperthyroidism	
	IM 13.8	Perform and demonstrate a physical examination that includes an appropriate general and local examination that excludes the diagnosis, extent spread and complications of cancer	
	IM 14.10	Describe the indications and interpret the results of tests for secondary causes of obesity	
	IM 14.11	Communicate and counsel patient on behavioural, dietary and lifestyle modifications	
	IM 14.12	Demonstrate an understanding of patient's inability to adhere to lifestyle instructions and counsel them in a non - judgemental way	

GENERAL MEDICINE SYLLABUS FOR FINAL MBBS PART - II
CBME BATCH (2019-2020 ADMITTED BATCH)

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Teaching-Learning Methods	Integration
Topic : Mineral, Fluid Electrolyte and Acid Based Disroder Number of Competencies : (13) Number of Procedures that require certification : (NIL)						
IM22.1	Enumerate the causes of hypercalcemia and distinguish the features of PTH vs non PTH mediated hypercalcemia	K	KH	N	Lecture, Small group discussion	Pathology, Physiology
IM22.2	Describe the aetiology, clinical manifestations, diagnosis and clinical approach to primary hyperparathyroidism	K	KH	N	Lecture, Small group discussion	Pathology
IM22.3	Describe the approach to the management of hypercalcemia	K	KH	N	Lecture, Small group discussion	Pharmacology
IM22.4	Enumerate the components and describe the genetic basis of the multiple endocrine neoplasia syndrome	K	KH	N	Lecture, Small group discussion	Pathology
IM22.5	Enumerate the causes and describe the clinical features and the correct approach to the diagnosis and management of the patient with hyponatremia	K	KH	Y	Lecture, Small group discussion	
IM22.6	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hyponatremia	K	KH	Y	Lecture, Small group discussion	

IM22.7	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hypokalemia	K	KH	Y	Lecture, Small group discussion	
IM22.8	Enumerate the causes and describe the clinical and laboratory features and the correct approach to the diagnosis and management of the patient with hyperkalemia	K	KH	Y	Lecture, Small group discussion	
IM22.9	Enumerate the causes and describe the clinical and laboratory features of metabolic acidosis	K	KH	N	Lecture, Small group discussion	Physiology
IM22.10	Enumerate the causes of describe the clinical and laboratory features of metabolic alkalosis	K	KH	N	Lecture, Small group discussion	Physiology
IM22.11	Enumerate the causes and describe the clinical and laboratory features of respiratory acidosis	K	KH	N	Lecture, Small group discussion	Physiology
IM22.12	Enumerate the causes and describe the clinical and laboratory features of respiratory alkalosis	K	KH	N	Lecture, Small group discussion	Physiology
IM22.13	Identify the underlying acid based disorder based on an ABG report and clinical situation	S	KH	N	Lecture, Small group discussion	Physiology
Topic : Nutritional and Vitamin Deficiencies	**Number of Competencies : (05)**		**Number of Procedures that require certification : (NIL)**			
IM23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture, Small group discussion	Physiology, Biochemistry
IM23.2	Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	K	KH	Y	Lecture, Small group discussion	Physiology, Biochemistry

IM23.3	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	K	KH	Y	Lecture, Small group discussion	Physiology, Biochemistry
IM23.4	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	K	KH	Y	Lecture, Small group discussion	Physiology, Biochemistry
Topic : Geriatrics	**Number of Competencies : (22)**			**Number of Procedures that require certification : (NIL)**		
IM24.1	Describe and discuss the epidemiology, pathogenesis, clinical evolution, presentation and course of common diseases in the elderly	K	KH	Y	Lecture, Small group discussion	
IM24.3	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of acute confusional states	K	KH	Y	Lecture, Small group discussion	
IM24.4	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vascular events in the elderly	K	KH	Y	Lecture, Small group discussion	
IM24 5	Describe and discuss the aetiopathogenesis clinical presentation identification, functional changes, acute care, stabilization, management and rehabilitation of depression in the elderly	K	KH	Y	Lecture Small group discussion	
IM24.6	Describe and discuss the aetiopathogenesis causes, clinical presentation, difference in discussion presentation identification, functional changes, acute care, stabilization, management and rehabilitation of dementia in the elderly	K	KH	Y	Lecture, Small group discussion	
IM24.7	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of personality changes in the elderly	K	KH	N	Lecture, Small group discussion	
IM24.8	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of	K	KH	Y	Lecture, Small group	

	osteoporosis in the elderly				discussion	
IM24.9	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of CVA in the elderly	K	KH	Y	Lecture, Small group discussion	
IM24.10	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of COPD in the elderly	K	KH	Y	Lecture, Small group discussion	
IM24.11	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	K	KH	Y	Lecture, Small group discussion	
IM24.12	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of degenerative joint disease	K	KH	Y	Lecture, Small group discussion	
IM24.13	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of falls in the elderly	K	KH	Y	Lecture, Small group discussion	
IM24.14	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of common fractures in the elderly	K	KH	Y	Lecture, Small group discussion	
IM24.15	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly	K	KH	Y	Lecture, Small group discussion	
IM24.16	Describe and discuss the principles of physical and social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly	K	KH	Y	Lecture, Small group discussion	
IM24.17	Describe and discuss the aetiopathogenesis,clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of	K	KH	Y	Lecture, Small group	

	hearing loss in the elderly				discussion	
IM24.18	Describe the impact of the demographic changes in ageing on the population	K	KH	Y	Lecture, Small group discussion	Community Medicine
IM24.19	Enumerate and describe the social problems in the elderly including isolation, abuse, change in family structure and their impact on health.	K	KH	Y	Lecture, Small group discussion	
IM24.20	Enumerate and describe social interventions in the care of elderly including domiciliary discussion services, rehabilitation facilities, old age homes and state interventions	K	KH	Y	Lecture, Small group discussion	
IM24.21	Enumerate and describe ethical issues in the care of the elderly	K	KH	Y	Lecture, Small group discussion	
IM24.22	Describe and discuss the aetiopathogenesis, clinical presentation, complications, assessment and management of nutritional disorders in the elderly	K	KH	Y	Lecture, Small group discussion	Physiology, Biochemistry
Topic : Miscellaneous infections		**Number of Competencies : (13)**		**Number of Procedures that require certification : (NIL)**		
IM25.1	Describe and discuss the response and the influence of host immune status, risk factors and comorbidities on zoonotic diseases (e.g. Leptospirosis, Rabies) and non-febrile infectious disease (e.g. Tetanus)	K	K	Y	Lecture, Small group discussion	Microbiology, Community Medicine
IM25.2	Discuss and describe the common causes, pathophysiology and manifestations of these diseases	K	K	Y	Lecture, Small group discussion	Microbiology, Community Medicine
IM25.3	Describe and discuss the pathophysiology and manifestations of these diseases	K	KH	Y	Lecture, Small group discussion	Microbiology

IM25.8	Enumerate the indications for use of newer techniques in the diagnosis of these infections	K	KH	N	Lecture, Small group discussion	
Topic : The role of the Physician in the Community Number of Competencies : (49) Number of Procedures that require certification : (NIL)						
IM26.1	Enumerate and describe professional qualities and roles of a physician	K	KH	Y	Small group discussion	
IM26.2	Describe and discuss the commitment to lifelong learning as an important part of physician growth	K	KH	Y	Small group discussion	
IM26.3	Describe and discuss the role of non maleficence as a guiding principle in patient care	K	KH	Y	Small group discussion	
IM26.4	Describe and discuss the role of autonomy and shared responsibility as a guiding principle in patient care	K	KH	Y	Small group discussion	
IM26.5	Describe and discuss the role of beneficence of a guiding principle in patient care	K	KH	Y	Small group discussion	
IM26.6	Describe and discuss the role of a physician in health care system	K	KH	Y	Small group discussion	
IM26.7	Describe and discuss the role of justice as a guiding principle in patient care	K	KH	Y	Small group discussion	
IM26.8	Identify discuss medicolegal, socioeconomic and ethical issues as it pertains to organ donation	K	KH	Y	Small group discussion	
IM26.9	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as it pertains to rights, equity and justice in access to health care	K	KH	Y	Small group discussion	
IM26.10	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to confidentiality in patient care	K	KH	Y	Small group discussion	
IM26.11	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to patient autonomy, patient rights and shared responsibility in health	K	KH	Y	Small group discussion	

	care					
IM26.12	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to decision making in health care including advanced directives and surrogate decision making	K	KH	Y	Small group discussion	
IM26.13	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to decision making in emergency care including situations where patients do not have the capability or capacity to give consent	K	KH	Y	Small group discussion	
IM26.14	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to research in human subjects	K	KH	Y	Small group discussion	
IM26.15	Identify, discuss and defend, medicolegal,socio-cultural and ethical issues as they pertain to consent for surgical procedures	K	KH	Y	Small group discussion	
IM26.16	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues as it pertains to the physician patient relationship (including fiduciary duty)	K	KH	Y	Small group discussion	
IM26.17	Identify, discuss physician's role and responsibility to society and the community that she/ he serves	K	KH	Y	Small group discussion	
IM26.18	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues in physician- industry relationships	K	KH	Y	Small group discussion	
IM26.23	Demonstrate a commitment to continued learning	S	SH	Y	Small group discussion	
IM26.26	Demonstrate ability to maintain required documentation in health care (including correct use of medical records)	S	SH	Y	Small group discussion	
IM26.27	Demonstrate personal grooming that is adequate and appropriate for health care responsibilities	S	SH	Y	Small group discussion	
IM26.28	Demonstrate adequate knowledge and use of information technology that permits appropriate patient care and continued learning	S	SH	Y	Small group discussion	

IM26.32	Demonstrate appropriate respect to colleagues in the profession	S	SH	N	Small group discussion	
IM26.33	Demonstrate an understanding of the implications and the appropriate procedures and response to be followed in the event of medical errors	S	SH	N	Small group discussion	
IM26.34	Identify conflicts of interest in patient care and professional relationships and describe the correct response to these conflicts	S	SH	Y	Small group discussion	
IM26.36	Demonstrate ability to balance personal and professional priorities	S	SH	N	Small group discussion	
IM26.37	Demonstrate ability to manage time appropriately	S	SH	Y	Small group discussion	
IM26.38	Demonstrate ability to form and function in appropriate professional networks	S	SH	N	Small group discussion	
IM26.39	Demonstrate ability to pursue and seek career advancement	S	SH	N	Small group discussion	
IM26.40	Demonstrate ability to follow risk management and medical error reduction practices where appropriate	S	SH	N	Small group discussion	
IM26.41	Demonstrate ability to work in a mentoring relationship with junior colleagues	S	SH	N	Small group discussion	
IM26.42	Demonstrate commitment to learning and scholarship	S	SH	N	Small group discussion	
IM26.43	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as they pertain to in vitro fertilisation donor insemination and surrogate motherhood	K	KH	N	Small group discussion	Obstetrics & Gynaecology
IM26.44	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues pertaining to medical negligence	K	KH	N	Small group discussion	
IM26.45	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues pertaining to malpractice	K	KH	N	Small group discussion	

IM26.46	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues in dealing with impaired physicians	K	KH	N	Small group discussion	
IM26.47	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as they pertain to refusal of care including do not resuscitate and withdrawal of life support	K	KH	Y	Small group discussion	
IM26.48	Demonstrate altruism	S	SH	Y	Small group discussion	

BED SIDE CLINICS FOR FINAL MBBS -PART II (2019 - 2020 ADMITTED BATCH)			
Duration 8 + 4 Weeks			**Vertical Integration**
HEART FAILURE			
Week - 1	**IM 1.16**	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	
	IM 1.17	Order and interpret diagnostic testing based on the clinical diagnosis including 12 lead ECG, Chest radiograph, blood cultures	
	IM 1.18	Perform and interpret a 12 lead ECG	
	IM 1.22	Assist and demonstrate the proper technique in collecting specimen for blood culture	Microbiology
	IM 1.26	Develop document and present a management plan for patients with heart failure based on type of failure, underlying aetiology	
	IM 1.27	Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease	Microbiology, Pharmacology
	IM 1.30	Administer an intramuscular injection with an appropriate explanation to the patient	Pharmacology
ACUTE MYOCARDIAL INFARCTION/IHC (ACUTE MI)			
Week - 2	**IM 2.8**	Generate document and present a differential diagnosis based on the clinical presentation and prioritise based on “cannot miss”, most likely diagnosis and severity	
	IM 2.10	Order, perform and interpret an ECG	
	IM 2.11	Order and interpret a Chest X-ray and markers of acute myocardial infarction	
	IM 2.12	Choose and interpret a lipid profile and identify the desirable lipid profile in the clinical context	Biochemistry
	IM 2.21	Observe and participate in a controlled environment an ACLS program	
	IM 2.22	Perform and demonstrate in a mannequin BLS	
	IM 2.24	Counsel and communicate to patients with empathy lifestyle changes in atherosclerosis / post coronary syndromes	AETCOM
HYPERTENSION			
Week - 3	**IM 8.11**	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	
	IM 8.15	Recognise, prioritise and manage hypertensive emergencies	Pharmacology
	IM 8.17	Perform and interpret a 12 lead ECG	

ANEMIA			
Week - 4	**IM 9.5**	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	Pathology
	IM 9.6	Describe the appropriate diagnostic work up based on the presumed aetiology	Pathology
	IM 9.9	Order and interpret tests for anemia including hemogram, red cell indices, reticulocyte count, iron studies, B12 and folate	Pathology
	IM 9.10	Describe, perform and interpret a peripheral smear and stool occult blood	Pathology
	IM 9.13	Prescribe replacement therapy with iron, B12, folate	Pharmacology
	IM 9.15	Communicate the diagnosis and the treatment appropriately to patients	
	IM 9.16	Incorporate patient preferences in the management of anemia	
	IM 9.19	Assist in a blood transfusion	
	IM 9.20	Communicate and counsel patients with methods to prevent nutritional anemia	
PNEUMONIA			
Week - 5	**IM 3.6**	Generate document and present a differential diagnosis based on the clinical features, and prioritise the diagnosis based on the presentation	
	IM 3.7	Order and interpret diagnostic tests based on the clinical presentation including: CBC, Chest X ray PA view, Mantoux, sputum gram stain, sputum culture and sensitivity, pleural fluid examination and culture, HIV testing and ABG	Radiodiagnosis Microbiology
	IM 3.8	Demonstrate in a mannequin and interpret results of an arterial blood gas examination	
	IM 3.9	Demonstrate in a mannequin and interpret results of a pleural fluid aspiration	
	IM 3.10	Demonstrate the correct technique in a mannequin and interpret results of a blood culture	Microbiology
	IM 3.11	Describe and enumerate the indications for further testing including HRCT, Viral cultures, PCR and specialised testing	Radiodiagnosis Microbiology
	IM 3.12	Select, describe and prescribe based on the most likely aetiology, an appropriate empirical antimicrobial based on the pharmacology and antimicrobial spectrum	Pharmacology Microbiology
	IM 3.13	Select, describe and prescribe based on culture and sensitivity appropriate empaling antimicrobial based on the pharmacology and antimicrobial spectrum.	Pharmacology Microbiology
	IM 3.14	Perform and interpret a sputum gram stain and AFB	Microbiology
	IM 3.18	Communicate and counsel patient on family on the diagnosis and	

		therapy of pneumonia	
LIVER DISEASE			
WEEK - 6	**IM 5.11**	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology for the presenting symptom	
	IM 5.12	Choose and interpret appropriate diagnostic tests including: CBC, bilirubin, function tests, Hepatitis serology and ascitic fluid examination in patient with liver diseases.	Pathology
	IM 5.13	Enumerate the indications for ultrasound and other imaging studies including MRCP and ERCP and describe the findings in liver disease	Radiodiagnosis
GI BLEEDING			
WEEK - 6	**IM 15.7**	Demonstrate the correct technique to perform an anal and rectal examination in a mannequin or equivalent	
	IM 15.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	
	IM 15.9	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, PT and PTT, stool examination, occult blood, liver function tests, H.pylori test.	Pathology
	IM 15.13	Observe cross matching and blood / blood component transfusion	Pathology
	IM 15.18	Counsel the family and patient in an empathetic non-judgmental manner on the diagnosis and therapeutic options	
DIARRHEAL DISORDER			
WEEK - 6	**IM16.7**	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	
	IM16.8	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination	Microbiology, Pathology
	IM16.9	Identify common parasitic causes of diarrhea under the microscope in a stool specimen	Microbiology
	IM16.10	Identify vibrio cholera in a hanging drop specimen	Microbiology
HEADACHE			
WEEK - 7	**IM 17.3**	Classify migraine and describe the distinguishing features between classical and non classical forms of migraine	
	IM 17.4	Perform and demonstrate a general neurologic examination and a focused examination for signs of intracranial tension including neck signs of meningitis	
	IM 17.5	Generate document and present a differential diagnosis based on the clinical features, and prioritise the diagnosis based on the presentation	

	IM 17.7	Enumerate the indications and describe the findings in the CSF in patients with meningitis	Microbiology Pathology
	IM 17.8	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	Microbiology Pathology
	IM 17.9	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	Microbiology Pathology
	IM 17.14	Counsel patients with migraine and tension headache on lifestyle changes and need for prophylactic therapy	Pharmacology
CEREBROVASCULAR ACCIDENT (CVA)			
WEEK - 7	**IM 18.4**	Identify the nature of the cerebrovascular accident based on the temporal evolution and resolution of the illness	
	IM 18.5	Perform, demonstrate & document physical examination that includes general and a detailed neurologic examination as appropriate, based on the history	
	IM 18.6	Distinguish the lesion based on upper vs lower motor neuron, side, site and most probable nature of the lesion	Physiology
	IM 18.7	Describe the clinical features and distinguish, based on clinical examination, the various disorders of speech	Physiology
	IM 18.8	Describe and distinguish, based on the clinical presentation, the types of bladder dysfunction seen in CNS disease	Physiology
	IM 18.9	Choose and interpret the appropriate diagnostic and imaging test that will delineate the anatomy and underlying cause of the lesion	Radiodiagnosis
	IM 18.17	Counsel patient and family about the diagnosis and therapy in an empathetic manner	
MOVEMENT DISORDERS			
WEEK - 7	**IM 19.3**	Elicit and document and present an appropriate history including onset, progression precipitating and aggravating relieving factors, associated symptoms that help identify the cause of the movement disorders	
	IM 19.4	Perform, demonstrate and document a physical examination that includes a general examination and a detailed neurologic examination using standard movement rating scales	
	IM 19.5	Generate document and present a differential diagnosis and prioritise based on the history and physical examination	
	IM 19.6	Make a clinical diagnosis regarding on the anatomical location, nature and cause of the lesion based on the clinical presentation and findings	
	IM 19.7	Choose and interpret diagnostic and imaging tests in the diagnosis of movement disorders	Radiodiagnosis
FEVER AND FEBRILE SYNDROMES			

WEEK - 8	**IM 4.11**	Generate a differential diagnosis and prioritise based on clinical features that help distinguish between infective, inflammatory, malignant and rheumatologic causes	
	IM 4.12	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	Pathology Microbiology
	IM 4.13	Perform and interpret a sputum gram stain	Microbiology
	IM 4.14	Perform and interpret a sputum AFB	Microbiology
	IM 4.15	Perform and interpret a malarial smear	Microbiology
	IM 4.19	Assist in the collection of blood and wound cultures	Microbiology
	IM 4.20	Interpret a PPD (Mantoux)	Microbiology
	IM 4.21	Develop and present an appropriate diagnostic plan based on the clinical presentation, most likely diagnosis in a prioritised and cost effective manner	
	IM 4.24	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	
	IM 4.25	Communicate to the patient and family the diagnosis and treatment	AETCOM
	IM 4.26	Counsel the patient on malarial prevention	Microbiology Pharmacology
HIV			
WEEK - 8	**IM 6.7**	Elicit document and present a medical history that helps delineate the aetiology of the current presentation and includes risk factors for HIV, mode of infection, other sexually transmitted diseases, risks for opportunistic infections and nutritional status	
	IM 6.8	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology for the presenting symptom	
	IM 6.9	Choose and interpret appropriate diagnostic tests to diagnose and classify the severity of HIV-AIDS including specific tests of HIV, CDC	Pathology Microbiology
	IM 6.10	Choose and interpret appropriate diagnostic tests to diagnose opportunistic infections including CBC, sputum examination and cultures, blood cultures, stool analysis, CSF analysis and Chest radiographs	
	IM 6.12	Enumerate the indications for and interpret the results of: pulse oximetry, ABG, Chest Radiograph	
	IM 6.14	Perform and interpret AFB sputum	Microbiology
	IM 6.19	Counsel patients on prevention of HIV transmission	AETCOM

	IM 6.20	Communicate diagnosis, treatment plan and subsequent follow up plan to patients	AETCOM
	IM 6.21	Communicate with patients on the importance of medication adherence	AETCOM
	IM 6.22	Demonstrate understanding of ethical and legal issues regarding patient confidentiality and disclosure in patients with HIV	AETCOM
RHEUMATOLOGIC PROBLEMS			
WEEK - 9	**IM 7.13**	Generate a differential diagnosis and prioritise based on clinical features that suggest a specific aetiology	
	IM 7.14	Describe the appropriate diagnostic work up based on the presumed aetiology	
	IM 7.15	Enumerate the indications for and interpret the results of : CBC, anti-CCP, RA, ANA, DNA and other tests of autoimmunity	Pathology
	IM 7.17	Enumerate the indications and interpret plain radiographs of joints	Radiodiagnosis, Orthopedics
	IM 7.18	Communicate diagnosis, treatment plan and subsequent follow up plan to patients	
	IM 7.24	Communicate and incorporate patient preferences in the choice of therapy	AETCOM
	IM 7.25	Develop and communicate appropriate follow up and monitoring plans for patients with rheumatologic conditions	
	IM 7.26	Demonstrate an understanding of the impact of rheumatologic conditions on quality of life, well being, work and family	
ACUTE KIDNEY INJURY AND CHRONIC RENAL FAILURE			
WEEK - 9	**IM 10.12**	Elicit document and present a medical history that will differentiate the aetiologies of disease, distinguish acute and chronic disease, identify predisposing conditions, nephrotoxic drugs and systemic causes	
	IM 10.21	Describe and discuss the indications for and insert a peripheral intravenous catheter	
	IM 10.22	Describe and discuss the indications, demonstrate in a model and assist in the insertion of a central venous or a dialysis catheter	
	IM 10.23	Communicate diagnosis treatment plan and subsequent follow up plan to patients	
	IM 10.24	Counsel patients on a renal diet	
DIABETES MELLITUS			

WEEK - 10	IM11.11	Order and interpret laboratory tests to diagnose diabetes and its complications including: glucoses, glucose tolerance test, glycosylated hemoglobin, urinary micro albumin, ECG, electrolytes, ABG, ketones, renal function tests and lipid profile	Pathology
	IM11.12	Perform and interpret a capillary blood glucose test	Pathology, Biochemistry
	IM11.13	Perform and interpret a urinary ketone estimation with a dipstick	Pathology, Biochemistry
	IM11.19	Demonstrate and counsel patients on the correct technique to administer insulin	Pharmacology
	IM11.20	Demonstrate to and counsel patients on the correct technique of self monitoring of blood glucose	
	IM11.21	Recognise the importance of patient preference while selecting therapy for diabetes	
OBESITY			
WEEK - 10	IM 14.8	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	
	IM 14.9	Order and interpret diagnostic tests based on the clinical diagnosis including blood glucose, lipids, thyroid function tests etc.	
THYROID DYSFUNCTION			
WEEK - 10	IM 12.8	Generate a differential diagnosis based on the clinical presentation and prioritise it based on the most likely diagnosis	General Surgery
	IM 12.9	Order and interpret diagnostic testing based on the clinical diagnosis including CBC, thyroid function tests and ECG and radio iodine uptake and scan	General Surgery
	IM 12.10	Identify atrial fibrillation, pericardial effusion and bradycardia on ECG	
	IM 12.15	Describe and discuss the indications of thionamide therapy, radio iodine therapy and surgery in the management of thyrotoxicosis	Pharmacology,General Surgery
ENVENOMATION			
WEEK - 11	IM 20.2	Describe, demonstrate in a volunteer or a mannequin and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	Forensic Medicine
	IM 20.4	Elicit and document and present an appropriate history, the circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite	Forensic Medicine
	IM 20.5	Perform a systematic examination, document and present a physical examination that includes general examination, local examination, appropriate cardiac and neurologic examination	

POISONING			
WEEK - 11	**IM 21.5**	Observe and describe the functions and role of a poison center in suspected poisoning	Forensic Medicine, Pharmacology
	IM 21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	Forensic Medicine, Pharmacology
	IM 21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	Forensic Medicine, Psychiatry
NUTRITIONAL AND VITAMIN DEFICIENCIES			
WEEK - 11	**IM 23.5**	Counsel and communicate to patients in a simulated environment with illness on an appropriate balanced diet	
GERIATRICS			
WEEK - 11	**IM 24.2**	Perform multidimensional geriatric assessment that includes medical, psycho-social and functional components	Psychiatry
MISCELLANEOUS INFECTIONS			
WEEK - 11	**IM 25.6**	Generate a differential diagnosis and prioritise based on clinical features that help distinguish between infective, inflammatory, malignant and rheumatologic causes	
	IM 25.7	Order and interpret diagnostic tests based on the differential diagnosis including: CBC with differential, blood biochemistry, peripheral smear, urinary analysis with sediment, Chest X ray, blood and urine cultures, sputum gram stain and cultures, sputum AFB and cultures, CSF analysis, pleural and body fluid analysis, stool routine and culture and QBC	Pathology, Microbiology
	IM 25.9	Assist in the collection of blood and other specimen cultures	Microbiology
	IM 25.10	Develop and present an appropriate diagnostic plan based on the clinical presentation, most likely diagnosis in a prioritised and cost effective manner	
	IM 25.11	Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis	Microbiology, Pharmacology
	IM 25.12	Communicate to the patient and family the diagnosis and treatment of identified infection	AETCOM
	IM 25.13	Counsel the patient and family on prevention of various infections due to environmental issues	Community Medicine, General Medicine
COMMON MALIGNANCIES			
WEEK -	**IM 13.9**	Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap	Human Anatomy,General

12		smear	Surgery
	IM 13.10	Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritise based on the most likely diagnosis	General Surgery
	IM 13.11	Order and interpret diagnostic testing based on the clinical diagnosis including CBC and stool occult blood and prostate specific antigen	
	IM 13.12	Describe the indications and interpret the results of Chest X Ray, mammogram, skin and tissue biopsies and tumor markers used in common cancers	Radiodiagnosis
	IM 13.13	Describe and assess pain and suffering objectively in a patient with cancer	Pharmacology,General Surgery
	IM 13.14	Describe the indications for surgery, radiation and chemotherapy for common malignancies	Pharmacology,General Surgery
	IM 13.15	Describe the need, tests involved, their utility in the prevention of common malignancies	Pathology
	IM 13.16	Demonstrate an understanding and needs and preferences of patients when choosing curative and palliative therapy	AETCOM
	IM 13.17	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	Pharmacology,Anesthesiology
	IM 13.18	Describe and discuss the ethical and the medico legal issues involved in end of life care	AETCOM
	IM 13.19	Describe the therapies used in alleviating suffering in patients at the end of life	AETCOM
THE ROLE OF THE PHYSICIAN IN THE COMMUNITY			
WEEK - 12	**IM26.22**	Demonstrate ability to maintain confidentiality in patient care	
	IM26.24	Demonstrate respect in relationship with patients, fellow team members, superiors and other health care workers	
	IM26.25	Demonstrate responsibility and work ethics while working in the health care team	
	IM26.29	Communicate diagnostic and therapeutic opitons to patient and family in a simulated environment	
	IM26.30	Communicate care options to patient and family with a terminal illness in a simulated environment	
	IM26.31	Demonstrate awareness of limitations and seeks help and consultations appropriately	
	IM26.35	Demonstrate empathy in patient encounters	
	IM26.49	Administer informed consent and approriately adress patient queries to a patient being enrolled in a research protocol in a simulated	

		environment	

FINAL MBBS PART – II UNIVERSITY EXAMINATION

GENERAL MEDICINE (PAPER – I)

Time: 3 hours **Max. Marks: 100**

Answer all questions and draw diagrams wherever necessary.

(2 x 10 = 20 M)

(2 + 2 + 2 + 4 = 10 M)

1. A 65-year-old man was brought to casualty in an unconscious state. He is diabetic for 10 years and stopped his medications a week back. He also had vomiting & abdominal pain for 2 days. On examination, Kussmaul's breathing was present. He was drowsy and dehydrated, with a pulse rate of 110/min and BP of 90/60 mm of Hg. His blood glucose was 585 mg/dl.

a) What is the most likely diagnosis?

b) What is the pathogenesis of this condition?

c) How do you investigate this case?

d) How do you treat this case?

2. A 23-year-old female presented with progressive lethargy andexertional dyspnoea. On examination, severe pallor present but no icterus. On auscultation of chest, S1S2+, systolic murmur of grade 2/6heard at aortic and pulmonary area, no gallop. No organomegaly in examination of abdomen. Investigations revealed Haemoglobin: 6gm/dl, MCV – 58 FL, MCH: 19 pg/cell. Peripheral smear showed microcytic hypochromic RBCs with anisocytosis and occasional targetcells. ECG and echocardiogram showed normal study.

(3 + 3 + 4 = 10 M)

a) What is the differential diagnosis of this condition?

b) How do you investigate this condition?

c) Describe briefly about treatment of this condition.

SECTION- B

I. Short answer questions: **(10 × 5 = 50 M)**

3. Management of scorpion envenomation.
4. Write about seronegative spondyloarthritis
5. Management of organophosphorus poisoning.
6. Describe dialysis and write indications for dialysis
7. Describe the indications of thionamide therapy, radio iodine therapy and surgery in the management of thyrotoxicosis
8. Metabolic syndrome
9. How should a doctor deal with the emotions of patients and family facing death? Can doctors assist death?
10. Write a stepwise approach (clinical/biochemical parameters) in evaluation of hypokalemia.
11. Compare and contrast clinical features and management of Ulcerative colitis and Crohn's disease.
12. What are the triggers of hepatic encephalopathy and add a note on its management.

II. Very Short answer questions: **(5 X 2 = 10 M)**

13. SAAG and its clinical significance
14. Causes of high anion gap metabolic acidosis
15. Pre-renal causes of acute kidney injury

16. Drugs used in treatment of obesity

17. Biologics in Rheumatoid arthritis

SECTION – C : Multiple Choice Questions (20 × 1 = 20 M)

Note: 1. Use only blue or black ball point pen to fill the circles.

2. Use of pencil is strictly prohibited.

3. Select the appropriate answer and circle should be darkened completely and properly in the OMR sheet given.

18. Ideal investigation for adrenal insufficiency is

(A) 8AM Serum ACTH levels (B) 8 AM Serum cortisol

(C) Dexamethasone suppression test (D) 24-hour Urinary cortisol

19. Maddrey discriminantion score is used for determining mortality due to

(A) Alcoholic hepatitis (B) Viral hepatitis

(C) Cryptogenic hepatitis (D) Hepatic encephalopathy

20. A young girl is admitted with joint pains and butterfly rash and positive urine proteinuria. The best test for diagnosis is

(A) Anti ds – DNA anibody (B) Anti-centromere antibody

(C) Antimitochondrial antibody (D) Antibodies to RNA synthetase

21. All are features of haemolytic uremic syndrome except

(A) Hyperkalemia (B) Anemia

(C) Renal microthrombi (D) Neuropsychiatric disturbance

22. Which of the following features is unlikely to be seen in irritable bowel syndrome

(A) Weight loss (B) Constipation

(C) Diffuse pain abdomen (D) Diarrhea

23. Bed side, 20 minute whole blood clotting test (WBCT) is useful in the management of which snake bite?

(A) Cobra. (B) Russell's Viper.

(C) Krait . (D) All the above.

24. Which of the following is specific test for diagnosis of acute pancreatitis?

(A) Serum amylase. (B) Serum lipase.

(C) Alkaline phosphatase. (D) Gamma glutamyl transpeptidase.

25. A 20-year-old man was found positive of HBsAg, accidentally during screening of blood donation. On evaluation, liver function tests are normal. What should you do next?

(A) Start antiviral treatment. (B) Observation

(C) Liver biopsy. D) HBV DNA & HBeAg testing.

26. All of the following are used for treatment of H.pylori except

(A) Gentamycin. (B) Clarithromycin.

(C) Metronidazole. (D) Amoxicillin.

27. Which of the following drugs is preferred for the weight reduction in the treatment of obesity?

A) Gabapentin B) Pioglitazone

C) Liraglutide D) Duloxetine

28. Reticulocytosis is not seen in

(A) Aplastic anemia. (B) Treatment of iron deficiency.

(C) Hemolytic anemia. (D) Acute blood loss.

29. Hepatitis B can be spread by all the following **EXCEPT**

(A) Faeco-oral (B) IV drugs use

(C) Heterosexual (D) Vertical transmission

30. A 45-year-old female presents with symmetric polyarthritis, elevated rheumatoid factor and ANA levels. Which of the following features help in differentiating RA from SLE?

(A) Soft tissue swelling in PIP joint.

(B) Juxta-articular osteoporosis on X-Ray.

(C) Articular erosions on X-Ray.

(D) Elevated ESR.

31. A 27-year-old female with Grave's disease who required anti-thyroid drugs becomes pregnant. Which of the following anti-thyroid drugs is preferred for her in the first trimester?

A) Methimazole B) Potassium iodide

C) Propylthiouracil D) Radioiodine

32. A 40-year-old man with alcoholic liver disease was admitted with anupper GI bleed secondary to esophageal varices. The patient undergoes endoscopic variceal banding. Which of the following medications would prevent rebleed from esophageal varices?

A) Spiranolactone B) Propranolol

C) Frusemide D) Amlodipine

33. A patient presented with severe hyperkalemia and peaked T waves in ECG. Which of the following measures rapidly decreases serum potassium level?

A) I.V. Calcium gluconate B) oral potassium binding resins

C) Insulin+Glucose infusion D) IV sodium bicarbonate

34. Which of the following anti-diabetic drug acts by decreasing the amount of glucose produced by liver?

A) Sulfonylureas B) Meglitinides

C) Biguanides D) alpha-glucosidase inhibitors

35. A previously unvaccinated health care worker incurs a needle stick from a patient with known active hepatitis B infection. What is the appropriate management for the health care worker who tested negative for HBsAg?

A) Hepatitis B immunoglobulin B) Hepatitis B vaccine

C) Hepatitis B vaccine plus Hepatitis B immunoglobulin

D) Hepatitis B vaccine plus Lamivudine

36. A 40-year-old female gives history of weight gain and hoarseness of voice. On examination, her pulse is 58 per minute and skin is pale, coarse and dry. The most important investigation to find diagnosis is

A) Prolactin level B) Gonadotrophin level

C) Insulin like growth factor D) Thyroid function test

37. Pre-renal azotemia is associated with which one of the following characteristic features

A) Urinary sodium < 10 mmol/L B) Renal failure index >1

C) urine osmolality <500

D) Urinary creatinine/plasma creatinine ratio <20

FINAL MBBS PART – II UNIVERSITY EXAMINATION

GENERAL MEDICINE (PAPER – II)

Time: 3 hours **Max. Marks: 100**

Answer all questions and draw diagrams wherever necessary.

SECTION - A

(2 x 10 = 20 M)

1. A 25-year-old male was admitted with fever and headache for 10 days. He had history of recurrent episodes of vomiting. On clinical examination, he was disoriented, had diplopia and neck stiffness.

(1 + 3+ 4+2 = 10 M)

a) What is the most probable diagnosis?
b) What are the relevant tests you order to confirm your diagnosis?
c) Describe briefly about treatment of this condition.
d) What are the complications of this condition

2. A 25-year-old female presented with history of progressive exertional shortness of breath in the past two years. Physical examination revealed an opening snap, a loud first heart sound, loud P2 and mid diastolic murmur in mitral area with regular pulse rate of 86 per minute and blood pressure of 110/80 mmHg. JVP is elevated and a wave is prominent. Rest of the examination is unremarkable.

(2 + 2 + 2 + 4 = 10 M)

a) What is the most likely diagnosis of this condition?
b) What is the differential diagnosis?
c) What are the relevant tests you order to confirm your diagnosis?

d) Describe briefly about treatment of this condition.

SECTION - B

(10 × 5 = 50 M)

I. Short answer questions:

3. How will you confirm and manage a patient who presented with a hypopigmented, anaesthetic patch on his forearm?
4. What are the diseases which can mimic schizophrenia? Explain some of the antipsychotics used in schizophrenia with their side effects.
5. Dengue hemorrhagic fever.
6. Management of status epilepticus
7. Define tremor and describe various types of tremors.
8. Enumerate the environmental factors that predispose to cancer and add a note on tumour markers
9. Describe the management of acute coronary syndrome
10. Describe appropriate diagnostic testing of stroke in young.
11. Describe management of acute exacerbation of bronchial asthma.
12. Fall in elderly.

II. Very Short answer questions: (5 X 2 = 10 M)

13. Post exposure prophylaxis of HIV.
14. Secondary causes of Hypertension.
15. Treatment of acute migraine.
16. Enumerate roles of a physician in the community.
17. Treatment of scabies.

SECTION – C : Multiple Choice Questions **(20 × 1 = 20 M)**

Note: 1. Use only blue or black ball point pen to fill the circles.

2. Use of pencil is strictly prohibited.

3. Select the appropriate answer and circle should be darkened completely and properly in the OMR sheet given.

18. A 3-year-old child has eczematous dermatitis on extensor surfaces. His mother has a history of bronchial asthma during her childhood. The likely diagnosis should be

(A) Contact dermatitis (B) Atopic dermatitis

(C) Seborrheic dermatitis (D) Infantile eczema

19. Bleeding spots seen on removal of scales in psoriasis is called as

(A) Darrier sign (B) Tzanck sign

(C) Nikolsky's sign (D) Auspitz sign

20. A 50-year-old male, chronic alcoholic presented with pruritus, sharply demarcated erythematous rashes over the anterior chest and forearms. The most likely vitamin deficiency in this patient is:

(A) Riboflavin (B) Thiamine

(C) Vitamin C (D) Niacin

21. Which of the following is **NOT** included in CURB-65 score

(A) Confusion (B) Coagulopathy

(C) Tachypnea (D) Hypotension

22. Which of the following statements is true for Mantoux test

(A) The degree of induration is directly proportional to disease activity

(B) A positive test does not indicate that the person is suffering from disease

(C) All cases of latent tuberculosis infection should be treated

(D) New cases are more likely to occur in tuberculin test negative persons than those who already are tuberculin reactors.

23. Which of the following pulmonary function test is used to assess broncho dilator reversibility for diagnosis of asthma?

(A) FEV1 (B) FVC (C) FEV1/FVC (D) DLCO

24. Most common postpartum psychiatric condition is:

(A) Mania (B) Depression

(C) Bipolar Disorder (D) Schizophrenia

25. The following are disorders of thought **EXCEPT**

(A) Delusions (B) Phobias

(C) Obsessions (D) Hallucinations

26. Non-fluent aphasia with preserved comprehension with impaired repetition is

(A) Broca's aphasia (B) Anomic aphasia

(C) Wernicke's aphasia (D) Transcortical motor aphasia

27. Most common cause of cerebrovascular accident is

(A) Arterial thrombosis (B) Venous thrombosis

(C) Embolism (D) Hemorrhage

28. A 64-year-old lady complains of severe unilateral headache on the right side and blindness for 2 days. On examination there is thick cord like structure on the lateral side of the head. The ESR is 88 mmHg in the first hour. The most likely diagnosis is:

(A) Giant cell arteritis (B) Migraine

(C) Cluster headache (D) Sinusitis

29. A young patient presented with blood pressure of 190/120 mmHg without any clinical symptom and fundus examination is normal, treatment of choice is

(A) Oral Nitroglycerine (B) I.V. Nitroglycerine

(C) Oral enalapril (D) I.V. Enalapril

30. Tropical pulmonary eosinophilia is caused because of

(A) Occult Filariasis (B) Cerebral Malaria

(C) Pneumonic Plague (D) Asthmatic Bronchitis

31. Most common viral infection in transplant recipient

(A) Herpes simplex virus (HSV) (B) Cytomegalo virus (CMV)

(C) JC Virus (D) BK Virus

32. A middle aged man presents with episodes of fever with chills and rigors for last 1 year. Blood film shows-ring from plasmodium with schuffner's dots in RBC. What is the drug used to eradicate this infection?

(A) Mefloquine (B) Primaquine

(C) Quinine (D) Artesunate

33. A 58-year-old male, known diabetic since 10 years, presented to emergency with acute epigastric discomfort, for the past 1 day.ECG shows ST segment elevation in inferior leads. What is the immediate Intervention?

(A) Aspirin (B) Streptokinase

(C) Pantoprazole (D) Metoprolol

34. A 60-year-old hypertensive male presented with sudden onset of severe headache, vomiting and neck stiffness. On examination, he did not have any neurological deficit. No history of fever. CT scan showed blood in the Sylvian Fissure. The most likely diagnosis is:

(A) Bacterial meningitis (B) Hemorrhagic stroke

(C) Subarachnoid hemorrhage

(D) Hypertensive bleed

35. Which of the following is wrong in relation to infection and malignancies

(A) Hepatitis B virus- Hepatocellular carcinoma

(B) Human papilloma virus- Genital tumors

(C) Cytomegalo virus- Kaposi sarcoma

(D) Epstein-Barr virus- Burkitt's lymphoma

36. A 28-year-old man presents with 1 week history of shortness of breath, dry cough and fever. He mentions that he has been HIV positive for 5 years. On examination, there are fine crackles throughout both lung fields. Chest x-ray demonstrates bilateral perihilar interstitial shadowing. What is the most likely causative organism?

A) Mycoplasma pneumoniae B) Streptococcus pneumoniae

C) Herpes simplex virus D) Pneumocystis jiroveci

37. Infective endocarditis is least likely to occur in

A) Atrial septal defect B) ventricular septal defect

C) patent ductus arteriosus D) Mitral regurgitation

DEPARTMENT OF GENERAL SURGERY

CBME BASED CURRICULUM

Subject: Academic schedule and assessment procedure for General Surgery, subject to MBBS Undergraduate in 2nd professional year (Phase II) and 3rd Professional year (Phase III – Part I& Part II) including University Examination

Goal:

The broad goal of the teaching of under graduate students in the Surgery is to have the basic knowledge, skills and behavioural attributes towards surgical patient for quality care.

Objectives:

KNOWLEDGE:

At the end of the course, the student shall be able to:

(1) Diagnose common surgical problems with good clinical examination.

(2) Outline various modes of managements including conservative, damage control surgeries and definitive and palliative surgical treatments.

(3) Propose diagnostic and investigative procedures and ability to interpret them

(4) Provide first level management of acute emergencies promptly and efficiently and decide the timing and level of referral, if required.

(5) Pre and post operative care in surgical patient.

Skills:

At the end of the course, the student shall be able to:

1. Develop clinical skills (history taking, clinical examination) to diagnose various common surgical disorders and emergencies.

2. Refer a patient to secondary and/or tertiary level of health care after having instituted primary care.

3. Perform simple routine investigations like Pus for c/s, FNAC, Biopsy etc.

4. Perform the common minor surgical procedures like Dressings, Debridement, Drainage of abscess, suturing, First aid and Excision of small swellings.

5. Able to assist the various Surgical procedures in the operation theatre.

Departmental Objectives:

At the end of clinical postings in General Surgery, the medical student shall

• Have developed an interest in patient care.

• Be able to discern the hopes and fears of patients, which inevitably underlie the symptom complexes and know how to handle these emotions, himself and in others.

• Possess adequate knowledge in the sciences of Medicines.

• Elicit a good clinical history, and physical findings, making a probable diagnosis and discuss the management keeping in mind all the differential diagnosis.

• Requisition for relevant tests and perform common bed side procedures.

• Outline the principles of management of various diseases.

• Have an open attitude to the developments in medicine so as to be aware of the need to keep abreast of new knowledge.

• Learn to be adaptable to new ideas and new situations where resources may be limited.

• maintain interpersonal communication with other branches of medicine

• Understand the ethical and legal implications in the surgical care.

(a) **Competencies**: The student must demonstrate:

1. Understanding of the structural and functional basis, principles of diagnosis and management of commonsurgical problems in adults and children,
2. Ability to choose, calculate and administer appropriately intravenous fluids, electrolytes, blood and bloodproducts based on the clinical condition,
3. Ability to apply the principles of asepsis, sterilization, disinfection, rational use of prophylaxis, therapeuticutilities of antibiotics and universal precautions in surgical practice,
4. Knowledge of common malignancies in India and their prevention, early detection and therapy,
5. Ability to perform common diagnostic and surgical procedures at the primary care level,
6. Ability to recognize, resuscitate, stabilize and provide Basic & Advanced Life Support to patients followingtrauma,
7. Ability to administer informed consent and counsel patient prior to surgical

procedures,

8. Commitment to advancement of quality and patient safety in surgical practice.

(b) **Integration**: The teaching will be aligned and integrated horizontally and vertically in order to provide a sound biologic basis and a holistic approach to the care of the surgical patient.

TEACHING METHODS & HOURS

Phase of MBBS	**Large group Teaching**	**Small group teaching/Practical/Tutorials**	**SDL/ AETCOM**	**Total**	**Clinical/Field Posting**
2nd	25hours			25hours	4 week
3rdpart 1	40hours	42hours	5hours	87hours	4 week
3rdpart2	70hours	125hours	16hours	211hours	12week
Total	**135hours**	**167hours**	**21hours**	**323hours**	**20 week**

CLINICAL POSTINGS:

Subject	Period of Training in weeks			
	Second Professional MBBS	Third Professional Part I	Third Professional Part II	Total
General Surgery	4	4	8+4	20

The clinical postings in the second professional shall be 15 hours per week (3 hrs per day from Monday to Friday). The clinical postings in the third professional part I and part II shall be 18 hours per week (3 hrs per day from Monday to Saturday). In these postings students attend Out-patient department, Operation theatres one day each per week, Remaining days students will see the clinical cases, take history and do clinical examinationwith the guidance of faculty, followed by clinical discussion. Few hours will be allotted to skill lab teaching and AETCOM modules. Hours may be distributed weekly or as a block in each posting based on institutional logistics. Students maintain the log book and frequently evaluated by the faculty and feedback will be given. There will be end of posting ward examination.

Assessment

Total marks	University Examination Marks			Internal Assessment	
	Theory	clinical	Viva	Theory	Practical + Viva
Theory=200 Practical + Viva = 200	Paper 1=100 Paper 2=100	Long Case & Short case-120 Practical =30 Log Book & Record =10	40 One external & one Internal in each Group	200	200
Pass marks	Mandatory 50% in theory and Practical (Practical= Practical +Viva)				
Eligibility for University Exams	Internal Assessment Marks			Attendance	
				Theory	Clinics
	50% combined in theory and Practical (not less than 40% ineach) for eligibility of appearing the University Examination			75%	80%

Scheme of Internal assessment

Timing	Month	Theory	Practical &Viva
2nd Professional Year	July December	200 200	200 200
3rd Professional Year part I	July December	200 200	200 200
3rd Professional Year part II	July December(Pre-final)	200 200	200 200

There shall be at least 2 internal assessments during second professional, 2 internal assessments during third professional part I and 2 internal assessments during third professional II. Last internal assessment in third professional should be pre-final examination

SYLABUS FOR GENERAL SURGERY & BLUEPRINTING FOR QUESTION PAPER

Paper – I (100 Marks)			
Topic	**Weightage %**	**Marks allotted**	**Type of questions**
Basics of General Surgery 1. Metabolic response to injury 2. Shock 3. Blood and blood components 4. Wound healing and wound care 5. Surgical Audit and Research 6. Ethics 7. Investigation of surgical patient 8. Pre, intra and post- operative management 9. Basic Surgical Skills 10. Surgical infections 11. Nutrition and fluid therapy 12. Biohazard disposal 13. Skin and subcutaneous tissue	**20-30%**	**20-30**	**EQ, SAQ, BAQ, MCQ**
Head and Neck 15.Developmental anomalies of face, mouth and jaws	**10-15%**	**10-15**	**EQ, SAQ, BAQ, MCQ**

16. Oropharyngeal cancer 17. Disorders of salivary glands			
Endocrine Surgery 15. Endocrine General Surgery: Thyroid and parathyroid 16. Breast 17. Adrenal gland	**10-20%**	**10-20**	**EQ, SAQ, BAQ, MCQ**
Abdomen 18. Abdomen, Esophagus, Stomach, Small intestine, Large intestine, Appendix, Rectum, Anus 19.Liver, Gall bladder, Pancreas, spleen, 20. Minimally invasive General Surgery	**40-50%**	**40-50**	**EQ, SAQ, BAQ, MCQ**

EQ- Essay Question, SAQ- Short Answer Question, BAQ- Brief Answer Question, MCQ- Multiple Choice Question

Paper – II (100 Marks)			
Part – A (50 Marks)			
Topic	**Weightage %**	**Marks allotted**	**Type of questions**
1. Transplantation	**2 - 20%**	**1-10**	**EQ, SAQ, BAQ, MCQ**
2. Urinary System 3. Penis, Testis and scrotum	**20-40%**	**10-20**	**EQ, SAQ, BAQ, MCQ**
4. Trauma & Neuro surgery	**2-20%**	**1-10**	**EQ, SAQ, BAQ, MCQ**
5. Cardio-thoracic General Surgery- Chest - Heart and Lungs	**2 - 20%**	**1-10**	**EQ, SAQ, BAQ, MCQ**
6. Burns, Plastic surgery	**2 - 20%**	**1-10**	**EQ, SAQ, BAQ, MCQ**
7. Pediatric surgery	**2 - 20%**	**1-10**	**EQ, SAQ, BAQ, MCQ**

8. Vascular diseases	10-20%	5-10	EQ, SAQ, BAQ, MCQ
Part – B (50 Marks)			
1. Orthopaedics	70%	35	EQ, SAQ, BAQ, MCQ
2. Anaesthesia and pain management	10%	5	SAQ
3. Radio diagnosis & Imagiology in surgery	10%	5	SAQ
4. Dentistry	10%	5	SAQ

EQ- Essay Question, SAQ- Short Answer Question, BAQ- Brief Answer Question, MCQ- Multiple Choice Question

COMPETENCY BASED UNDERGRADUATE CURRICULUM
DEPARTMENT OF GENERAL SURGERY, GIMSR - Visakhapatnam

GENERAL SURGERY MBBS Phase-II

No.	COMPETENCY	Domain	Level	Core	Suggested Teaching learning method					
		K/S/A/C	K/KH/SH/P	(Y/N)	Lectures	Integration	Tutorials	Seminars	SDL	Duration
Topic: Metabolic response to injury										
SU1.1	Describe Basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators.	K	KH	Y	Lecture-1hr					
SU1.2	Describe the factors that affect the metabolic response to injury.	K	KH	Y	Lecture - 1hr					
SU1.3	Describe basic concepts of perioperative care.	K	KH	Y						
Topic: Shock										
SU2.1	Describe Pathophysiology of shock, types of shock & principles of resuscitation including fluid replacement and monitoring.	K	KH	Y	Lecture - 2hrs					
SU2.2	Describe the clinical features of shock and its appropriate treatment.	K	KH	Y	Lecture - 1hr					
Topic: Blood and blood components										
SU3.1	Describe the Indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Y	Lecture 1 hr					

Topic: Wound healing and wound care										
SU5.1	Describe normal wound healing and factors affecting healing.	K	KH	Y	Lecture - 1 hr					
SU5.3	Differentiate the various types of wounds, plan and observe management of wounds.	K	KH	Y	Lecture - 1 hr					
SU5.4	Discuss medico legal aspects of wounds	K	KH	Y						
Topic: Surgical infections										
SU6.1	Define and describe the aetiology and pathogenesis of surgical Infections	K	KH	Y	Lecture - 2hs					
SU6.2	Enumerate Prophylactic and therapeutic antibiotics Plan appropriate management	K	KH	Y	Lecture - 1hr					
Topic: Surgical Audit and Research										
SU7.1	Describe the Planning and conduct of Surgical audit	K	KH	Y	Lecture - 1hr					
SU7.2	Describe the principles and steps of clinical research in Genera Surgeryl	K	KH	Y	Lecture - 1hr					
Topic: Ethics										
SU8.1	Describe the principles of Ethics as it pertains to General Surgery	K	KH	Y	Lecture- 1hr					
Topic: Pre, intra and post- operative management.										
SU10.1	Describe the principles of perioperative management of common surgical procedures	K	KH	Y	Lecture- 2hrs					
Topic: Nutrition and fluid therapy										
SU12.1	Enumerate the causes and consequences of malnutrition in the surgical patient	K	KH	Y	Lecture- 1hr					
SU12.2	Describe and discuss the methods of estimation and replacement of the fluid and electrolyte requirements in the surgical patient	K	KH	Y	Lecture- 2hrs					

SU12.3	Discuss the nutritional requirements of surgical patients, the methods of providing nutritional support and their complications	K	KH	Y	Lecture - 1hr					
Topic: Transplantation										
SU13.1	Describe the immunological basis of organ transplantation	K	KH	Y	Lecture- 2hrs					
SU13.2	Discuss the Principles of immunosuppressive ther apy.Enumerate Indications, describe surgical principles, management of organ transplantation	K	KH	Y	Lecture- 2hrs					
SU13.3	Discuss the legal and ethical issues concerning organ donation	K	KH	Y	Lecture - 1hr					
			TOTAL		25HRS	0	0	0	0	

BED SIDE CLINICS FOR Phase II MBBS

Duration 4 Weeks

S.No	Number	Competancy	Teaching method
1	SU5.2	Elicit, document and present a history in a patient presenting with wounds.	Small group teaching/DOAP
2	SU10.3	Observe common surgical procedures and assist in minor surgical procedures; Observe emergency lifesaving surgical procedures.	CLINICS(OT)
3	SU18.3	Describe and demonstrate the clinical examination of surgical patient including swelling and order relevant investigation for diagnosis. Describe and discuss appropriate treatment plan.	Small group teaching/DOAP
4	SU22.3	Demonstrate and document the correct clinical examination of thyroid swellings and discus the differential diagnosis and their management	Small group teaching/DOAP
5	SU25.5	Demonstrate the correct technique to palpate the breast for breast swelling in a mannequin or equivalent	Small group teaching/DOAP
6	SU27.2	Demonstrate the correct examination of the vascular system and enumerate and describe the investigation of vascular disease	Small group teaching/DOAP
7	SU27.8	Demonstrate the correct examination of the lymphatic system	Small group teaching/DOAP
8	SU28.2	Demonstrate the correct technique to examine the patient with hernia and identify different types of hernias.	Small group teaching/DOAP
9	SU28.9	Demonstrate the correct technique of examination of a patient with disorders of the stomach	Small group teaching/DOAP
10	SU28.18	Describe and demonstrate clinical examination of abdomen. Order relevant investigations. Describe and discuss appropriate treatment plan	Small group teaching/DOAP

11	SU10.2	Describe the steps and obtain informed consent in a simulated environment	SKILL LAB(DOAP/Small group discussion
12	SU10.4	Perform basic surgical Skills such as First aid including suturing and minor surgical procedures in simulated environment	SKILL LAB(DOAP/Small group discussion
13	SU11.3	Demonstrate maintenance of an airway in a mannequin or equivalent	SKILL LAB(DOAP/Small group discussion
14	SU29.10	Demonstrate a digital rectal examination of the prostate in a mannequin or equivalent	SKILL LAB(DOAP/Small group discussion
15	SU14.4	Demonstrate the techniques of asepsis and suturing in a simulated environment	SKILL LAB(DOAP/Small group discussion
16	SU17.1	Describe the Principles of FIRST AID	SKILL LAB(DOAP/Small group discussion
17	SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	SKILL LAB(DOAP/Small group discussion
18	SU17.10	Demonstrate Airway maintenance. Recognize and manage tension pneumothorax, hemothorax and flail chest in simulated environment.	SKILL LAB(DOAP/Small group discussion
19	SU2.3	Communicate and counsel patients and families about the treatment and prognosis of shock demonstrating empathy and care	TUTORIAL/AETCOM
20	SU3.2	Observe blood transfusions.	
21	SU3.3	Counsel patients and family/ friends for blood transfusion and blood donation.	TUTORIAL/AETCOM
22	SU4.4	Burns - Communicate and counsel patients and families on the outcome and rehabilitation demonstrating empathy and care.	TUTORIAL/AETCOM
23	SU8.2	Demonstrate Professionalism and empathy to the patient undergoing General Surgery	TUTORIAL/AETCOM
24	SU8.3	Discuss Medico-legal issues in surgical practice	TUTORIAL/AETCOM
25	SU9.1	Choose appropriate biochemical, microbiological, pathological,imaging investigations and interpret the investigative data in a surgical patient	TUTORIAL/AETCOM
26	SU9.3	Communicate the results of surgical investigations and counsel the patient appropriately	TUTORIAL/AETCOM
27	SU13.4	Counsel patients and relatives on organ donation in a simulated environment	TUTORIAL/AETCOM
28	SU25.4	Counsel the patient and obtain informed consent for treatment of malignant conditions of the breast	TUTORIAL/AETCOM

These competencies will be taught to the students according to the institutional logistics and availability of clinical material. Students will attend Out-patient department, Operation theatres one day each per week.

GENERAL SURGERYMBBS phase-III, PART – I

Number	COMPETENCY	Domain	Level	Core	Suggested Teaching learning method				
		K/S/A/C	K/KH/SH/P	(Y/N)	Lectures	Integration	Tutorials	Seminars	SDL
Topic: Blood and blood components									
SU3.1	Describe the Indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Y				1hr	
SU3.2	Observe blood transfusions.	S	SH	Y			BEDSIDE CLINICS		
SU3.3	Counsel patients and family/ friends for blood transfusion and blood donation.	A/C	SH	Y		Pathology(Blood bank) 1hr	DOAP session-1hr		
Topic: Burns									
SU4.1	Elicit document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.	K	KH	Y		Physiology - 1hr		1hr	
SU4.2	Describe Clinical features, Diagnose type and extent of burns and plan appropriate treatment.	K	KH	Y	2hrs				1hr
SU4.3	Discuss the Medicolegal aspects in burn injuries.	K	KH	Y		FMT-1hr			
SU4.4	Communicate and counsel patients and families on the outcome and rehabilitation demonstrating empathy and care.	A /C	SH	Y			1hr		
Topic: Wound healing and wound care									
SU5.2	Elicit, document and present a history in a patient presenting with wounds.	C	SH	Y			BEDSIDE CLINICS/ Tutorial-1hr		
Topic: Skin and subcutaneous tissue									
SU18.1	Describe the pathogenesis, clinical features and	K	KH	Y	1hr				

	management of various cutaneous and subcutaneous infections.								
SU18.2	Classify skin tumors Differentiate different skin tumors and discuss their management.	K	KH	Y	2hrs	Pathology- 1hrs		1hr	
SU18.3	Describe and demonstrate the clinical examination of surgical patient including swelling and order relevant investigation for diagnosis. Describe and discuss appropriate treatment plan.	S	SH	Y			BEDSIDE CLINICS/ Tutorial - 1hr		
Topic: Investigation of surgical patient									
SU9.1	Choose appropriate biochemical, microbiological, pathological,imaging investigations and interpret the investigative data in a surgical patient	C	KH	Y	1hr	Lecture 4hr (Biochemistry,Microbiology, Pathology, Radiology)			
SU9.2	Biological basis for early detection of cancer and multidisciplinary approach in management of cancer	C	KH	Y	2hrs	Pathology- 1hr			1hr
SU9.3	Communicate the results of surgical investigations and counsel the patient appropriately	C	SH	Y			1hr		
Topic: Pre, intra and post- operative management.									
SU10.2	Describe the steps and obtain informed consent in a simulated environment	S/A/C	SH	Y			1hr		
Topic: Anaesthesia and pain management									
SU11.1	Describe principles of Preoperative assessment.	K	KH	Y	2hrs				
SU11.2	Enumerate the principles of general, regional, and local Anaesthesia.	K	KH	Y		Anaesthesia - 1hr			
SU11.4	Enumerate the indications and principles of day care General Surgery	K	KH	Y	1hr				
SU11.5	Describe principles of providing post-operative pain relief and management of chronic pain.	K	KH	Y		Anaesthesia - 1hr			
SU11.6	Describe Principles of safe General Surgery	K	KH	Y	1hr			1hr	
Topic: Transplantation									

SU13.4	Counsel patients and relatives on organ donation in a simulated environment	S	SH	Y			DOAP session- 1hr		1hr
Topic: Cardio-thoracic General Surgery- Chest - Heart and Lungs									
SU26.1	Outline the role of surgery in the management of coronary heart disease, valvular heart diseases and congenital heart diseases	K	K	Y	1hr	General medicine - 1hr			
SU26.3	Describe the clinical features of mediastinal diseases and the principles of management	K	K	Y	1hr			1hr	
SU26.4	Describe the etiology, pathogenesis, clinical features of tumors of lung and the principles of management	K	K	Y	1hr				1hr
Topic: Vascular diseases									
SU27.1	Describe the etiopathogenesis, clinical features, investigations and principles of treatment of occlusive arterial disease.	K	KH	Y	3hrs				
SU27.2	Demonstrate the correct examination of the vascular system and enumerate and describe the investigation of vascular disease	S	SH	Y			Bedside clinic 1hr		
SU27.3	Describe clinical features, investigations and principles of management of vasospastic disorders	K	KH	Y	1hr				
SU27.4	Describe the types of gangrene and principles of amputation	K	KH	Y	1hrs				
SU27.5	Describe the applied anatomy of venous system of lower limb	K	K	Y		Anatomy- 1hr			
SU27.6	Describe pathophysiology, clinical features, Investigations and principles of management of DVT and Varicose veins	K	KH	Y	3hrs				
SU27.7	Describe pathophysiology, clinical features, investigations and principles of management of Lymph edema, lymphangitis and Lymphomas	K	KH	Y	2hrs				
SU27.8	Demonstrate the correct examination of the lymphatic system	S	SH	Y			Bedside clinic		
Topic: Urinary System									

SU29.1	Describe the causes, investigations and principles of management of Hematuria	K	KH	Y	1hr			1hr	
SU29.2	Describe the clinical features, investigations and principles of management of congenital anomalies of genitourinary system	K	KH	Y	1hr	Anatomy- 1hr			
SU29.3	Describe the Clinical features, Investigations and principles of management of urinary tract infections	K	KH	Y	1hr	Microbiology- 1hr			
SU29.4	Describe the clinical features, investigations and principles of management of hydronephrosis	K	KH	Y	1hr			1hr	
SU29.5	Describe the clinical features,investigations and principles of management of renal calculi	K	KH	Y	1hr			1hr	
SU29.6	Describe the clinical features, investigations and principles of management of renal tumours	K	KH	Y	1hr			1hr	
SU29.7	Describe the principles of management of acute and chronic retention of urine	K	KH	Y	1hr				1hr
SU29.8	Describe the clinical features, investigations and principles of management of bladder cancer	K	KH	Y	1hr			1hr	
SU29.9	Describe the clinical features, investigations and principles of management of disorders of prostate	K	KH	Y	1hr	Anatomy- 1hr			
SU29.11	Describe clinical features, investigations and management of urethral strictures	K	KH	Y	1hr				
Topic: Penis, Testis and scrotum									
SU30.1	Describe the clinical features, investigations and principles of management of phimosis, paraphimosis and carcinoma penis.	K	KH	Y	2hrs	Anatomy- 1hr		1hr	
SU30.2	Describe the applied anatomy clinical features, investigations and principles of management of undescended testis.	K	KH	Y	1hr	Anatomy- 1hr			
SU30.3	Describe the applied anatomy clinical features, investigations and principles of management of epididymo-orchitis	K	KH	Y	1hr			1hr	

SU30.4	Describe the applied anatomy clinical features, investigations and principles of management of varicocele	K	KH	Y				1hr	
SU30.5	Describe the applied anatomy, clinical features, investigations and principles of management of Hydrocele	K	KH	Y	1hr			1hr	
SU30.6	Describe classification, clinical features, investigations and principles of management of tumours of testis	K	KH	Y	1hr	Pathology-1hr		1hr	
				Total	40hrs	19hrs	8hrs	15hrs	5hrs
									Total: 87hrs

BED SIDE CLINICS FOR Phase III MBBS PART I

Duration 4 Weeks

S.No	Number	Competancy	Teaching method
1	SU5.2	Elicit, document and present a history in a patient presenting with wounds.	Small group teaching/DOAP
2	SU10.3	Observe common surgical procedures and assist in minor surgical procedures; Observe emergency lifesaving surgical procedures.	CLINICS(OT)
3	SU18.3	Describe and demonstrate the clinical examination of surgical patient including swelling and order relevant investigation for diagnosis. Describe and discuss appropriate treatment plan.	Small group teaching/DOAP
4	SU22.3	Demonstrate and document the correct clinical examination of thyroid swellings and discus the differential diagnosis and their management	Small group teaching/DOAP
5	SU25.5	Demonstrate the correct technique to palpate the breast for breast swelling in a mannequin or equivalent	Small group teaching/DOAP
6	SU27.2	Demonstrate the correct examination of the vascular system and enumerate and describe the investigation of vascular disease	Small group teaching/DOAP
7	SU27.8	Demonstrate the correct examination of the lymphatic system	Small group teaching/DOAP
8	SU28.2	Demonstrate the correct technique to examine the patient with hernia and identify different types of hernias.	Small group teaching/DOAP
9	SU28.9	Demonstrate the correct technique of examination of a patient with disorders of the stomach	Small group teaching/DOAP
10	SU28.18	Describe and demonstrate clinical examination of abdomen. Order relevant investigations. Describe and discuss appropriate treatment plan	Small group teaching/DOAP
11	SU10.2	Describe the steps and obtain informed consent in a simulated environment	SKILL LAB(DOAP/Small

			group discussion
12	SU10.4	Perform basic surgical Skills such as First aid including suturing and minor surgical procedures in simulated environment	SKILL LAB(DOAP/Small group discussion
13	SU11.3	Demonstrate maintenance of an airway in a mannequin or equivalent	SKILL LAB(DOAP/Small group discussion
14	SU29.10	Demonstrate a digital rectal examination of the prostate in a mannequin or equivalent	SKILL LAB(DOAP/Small group discussion
15	SU14.4	Demonstrate the techniques of asepsis and suturing in a simulated environment	SKILL LAB(DOAP/Small group discussion
16	SU17.1	Describe the Principles of FIRST AID	SKILL LAB(DOAP/Small group discussion
17	SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	SKILL LAB(DOAP/Small group discussion
18	SU17.10	Demonstrate Airway maintenance. Recognize and manage tension pneumothorax, hemothorax and flail chest in simulated environment.	SKILL LAB(DOAP/Small group discussion
19	SU2.3	Communicate and counsel patients and families about the treatment and prognosis of shock demonstrating empathy and care	TUTORIAL/AETCOM
20	SU3.2	Observe blood transfusions.	
21	SU3.3	Counsel patients and family/ friends for blood transfusion and blood donation.	TUTORIAL/AETCOM
22	SU4.4	Burns - Communicate and counsel patients and families on the outcome and rehabilitation demonstrating empathy and care.	TUTORIAL/AETCOM
23	SU8.2	Demonstrate Professionalism and empathy to the patient undergoing General Surgery	TUTORIAL/AETCOM
24	SU8.3	Discuss Medico-legal issues in surgical practice	TUTORIAL/AETCOM
25	SU9.1	Choose appropriate biochemical, microbiological, pathological,imaging investigations and interpret the investigative data in a surgical patient	TUTORIAL/AETCOM
26	SU9.3	Communicate the results of surgical investigations and counsel the patient appropriately	TUTORIAL/AETCOM
27	SU13.4	Counsel patients and relatives on organ donation in a simulated environment	TUTORIAL/AETCOM
28	SU25.4	Counsel the patient and obtain informed consent for treatment of malignant conditions of the breast	TUTORIAL/AETCOM

These competencies will be taught to the students according to the institutional logistics and availability of clinical material. Students will attend Out-patient department, Operation theatres one day each per week.

GENERAL SURGERY MBBS phase-III, PART – II

Number	COMPETENCY	Domain	Level	Core	Suggested Teaching learning method				
		K/S/A/C	K/KH/SH/P	(Y/N)	Lectures	Integration	Tutorials	Seminars	SDL/AETCOM
Topic: Metabolic response to injury									
SU1.1	Describe Basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators.	K	KH	Y				2hrs	
SU1.2	Describe the factors that affect the metabolic response to injury.	K	KH	Y					
SU1.3	Describe basic concepts of perioperative care.	K	KH	Y					
Topic: Shock									
SU2.1	Describe Pathophysiology of shock, types of shock & principles of resuscitation including fluid replacement and monitoring.	K	KH	Y				2hrs	
SU2.3	Communicate and counsel patients and families about the treatment and prognosis of shock demonstrating empathy and care	A/C	SH	Y					AETCOM
Topic: Blood and blood components									
SU3.1	Describe the Indications and appropriate use of blood and blood products and complications of blood transfusion.	K	KH	Y				2hrs	
Topic: Wound healing and wound care									
SU5.1	Describe normal wound healing and factors affecting healing.	K	KH	Y				2hrs	
Topic: Ethics									
SU8.2	Demonstrate Professionalism and empathy to the patient undergoing General Surgery	A/C	SH	Y		FMT 1hr			FMT-AETCOM
SU8.3	Discuss Medico-legal issues in surgical practice	A/C	KH	Y		FMT 1hr			FMT-AETCOM
Topic: Pre, intra and post- operative management.									
SU10.2	Describe the steps and obtain informed consent in a simulated environment	S/A/C	SH	Y			Tutorial- 2hr		
SU10.3	Observe common surgical procedures and assist in minor surgical procedures; Observe emergency lifesaving surgical procedures.	S	KH	Y			BEDSIDE CLINICS, Operative procedures-tutorial-2hrs		
SU10.4	Perform basic surgical Skills such as First aid including suturing and minor surgical procedures in	S	P	Y			Skill Lab-2hrs		

	simulated environment								
Topic: Anaesthesia and pain management									
SU11.3	Demonstrate maintenance of an airway in a mannequin or equivalent	S	SH	Y		Anaesthesia - 2hr Skill Lab			
Topic: Nutrition and fluid therapy									
SU12.1	Enumerate the causes and consequences of malnutrition in the surgical patient	K	KH	Y				2hrs	
SU12.2	Describe and discuss the methods of estimation and replacement of the fluid and electrolyte requirements in the surgical patient	K	KH	Y					
SU12.3	Discuss the nutritional requirements of surgical patients, the methods of providing nutritional support and their complications	K	KH	Y					
Topic: Transplantation									
SU13.1	Describe the immunological basis of organ transplantation	K	KH	Y				2hrs	
SU13.2	Discuss the Principles of immunosuppressive therapy.Enumerate Indications, describe surgical principles, management of organ transplantation	K	KH	Y					
Topic: Basic Surgical Skills									
SU14.1	Describe Aseptic techniques, sterilization and disinfection.	K	KH	Y	1hr	Microbiology- 2hr			
SU14.2	Describe Surgical approaches, incisions and the use of appropriate instruments in Surgery in general.	K	KH	Y	1hr				
SU14.3	Describe the materials and methods used for surgical wound closure and anastomosis (sutures, knots and needles)	K	KH	Y	2hrs				1hr
SU14.4	Demonstrate the techniques of asepsis and suturing in a simulated environment	S	SH	Y			Skill Lab-4hrs		
Topic: Biohazard disposal									
SU15.1	Describe classification of hospital waste and appropriate methods of disposal.	K	KH	Y	1hr	Microbiology- 2hr			1hr
Topic: Minimally invasive General Surgery									
SU16.1	Minimally invasive General Surgery: Describe indications advantages and disadvantages of	K	K	Y	2hrs				1hr

	Minimally invasive General Surgery								
Topic: Trauma									
SU17.1	Describe the Principles of FIRST AID	S	KH	Y	1hr		Tutorial- 2hr		
SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	S	SH	Y		Anaesthesia- 2hr	Skill Lab- 2hrs		
SU17.3	Describe the Principles in management of mass casualties	K	KH	Y	1hr				1hr
SU17.4	Describe Pathophysiology, mechanism of head injuries	K	KH	Y	1hr				
SU17.5	Describe clinical features for neurological assessment and GCS in head injuries	K	KH	Y	1hr				1hr
SU17.6	Chose appropriate investigations and discuss the principles of management of head injuries	K	KH	Y	2hr	Radiology- 2hr			
SU17.7	Describe the clinical features of soft tissue injuries. Chose appropriate investigations and discuss the principles of management.	K	KH	Y	1hr			2hrs	
SU17.8	Describe the pathophysiology of chest injuries.	K	KH	Y	1hr				
SU17.9	Describe the clinical features and principles of management of chest injuries.	K	KH	Y	1hr				1hr
SU17.10	Demonstrate Airway maintenance. Recognize and manage tension pneumothorax, hemothorax and flail chest in simulated environment.	S	SH	Y		Anaesthesia- 2hr	Skill Lab- 2hrs		
Topic: Developmental anomalies of face, mouth and jaws									
SU19.1	Describe the etiology and classification of cleft lip and palate	K	KH	Y	1hr	Anatomy- 2hrs		2hrs	
SU19.2	Describe the Principles of reconstruction of cleft lip and palate	K	KH	Y	1hr				
Topic: Oropharyngeal cancer									
SU20.1	Describe etiopathogenesis of oral cancer symptoms and signs of oropharyngeal cancer.	K	KH	Y	2hr	ENT- 2hr			1hr
SU20.2	Enumerate the appropriate investigations and discuss the Principles of treatment.	K	K	Y	1hr				
Topic: Disorders of salivary glands									
SU21.1	Describe surgical anatomy of the salivary glands, pathology, and	K	KH	Y	1hr	Anatomy- 2hrs		2hrs	

	clinical presentation of disorders of salivary glands								
SU21.2	Enumerate the appropriate investigations and describe the Principles of treatment of disorders of salivary glands	K	KH	Y	1hr				1hr
Topic: Endocrine General Surgery: Thyroid and parathyroid									
SU22.1	Describe the applied anatomy and physiology of thyroid	K	KH	Y	1hr	Anatomy-2hr		2hrs	
SU22.2	Describe the etiopathogenesis of thyroidal swellings discussion	K	KH	Y		Pathology-2hr			
SU22.3	Demonstrate and document the correct clinical examination of thyroid swellings and discus the differential diagnosis and their management	S	SH	Y			Bedside clinic, Tutorial- 2hr		1hr
SU22.4	Describe the clinical features, classification and principles of management of thyroid cancer	K	KH	Y	3hrs				
SU22.5	Describe the applied anatomy of parathyroid	K	KH	Y	1hr	Anatomy-2hr			
SU22.6	Describe and discuss the clinical features of hypo - and hyperparathyroidism and the principles of their management	K	KH	Y	1hr	General Medicine-2hr			
Topic: Adrenal glands								1hr	
SU23.1	Describe the applied anatomy of adrenal glands	K	KH	Y		Anatomy-2hr			
SU23.2	Describe the etiology, clinical features and principles of management of disorders of adrenal gland	K	KH	Y	1hr	General Medicine-2hr			
SU23.3	Describe the clinical features, principles of investigation and management of Adrenal tumors Demonstration	K	KH	Y	1hr				1hr
Topic: Pancreas									
SU24.1	Describe the clinical features, principles of investigation, prognosis and management of pancreatitis.	K	KH	Y	2hrs	General Medicine-2hr			
SU24.2	Describe the clinical features, principles of investigation, prognosis and management of pancreatic endocrine tumours	K	KH	Y	1hr				1hr
SU24.3	Describe the principles of investigation and management of Pancreatic disorders including pancreatitis and endocrine tumors.	K	KH	Y	1hr	Radiology-2hr		1hr	
Topic: Breast									

SU25.1	Describe applied anatomy and appropriate investigations for breast disease	K	KH	Y		Anatomy- 2hr		2hrs	
SU25.2	Describe the etiopathogenesis, clinical features and principles of management of benign breast disease including infections of the breast	K	KH	Y	2hrs				1hr
SU25.3	Describe the etiopathogenesis, clinical features, Investigations and principles of treatment of benign and malignant tumours of breast.	K	KH	Y	3hrs	Radiology- 2hr, Pathology 2hrs			
SU25.4	Counsel the patient and obtain informed consent for treatment of malignant conditions of the breast	A/ C	SH	Y			1hr		AETCOM
SU25.5	Demonstrate the correct technique to palpate the breast for breast swelling in a mannequin or equivalent	S	SH	Y			DOAP session- skill lab 2hrs		
Topic: Vascular diseases									
SU27.2	Demonstrate the correct examination of the vascular system and enumerate and describe the investigation of vascular disease	S	SH	Y			Bedside clinic, Tutorial- 2hr		
SU27.8	Demonstrate the correct examination of the lymphatic system	S	SH	Y			Bedside clinic, Tutorial- 2hr		
Topic: Abdomen									
SU28.1	Describe pathophysiology, clinical features, Investigations and principles of management of Hernias	K	KH	Y	2hrs			2hrs	
SU28.2	Demonstrate the correct technique to examine the patient with hernia and identify different types of hernias.	S	SH	Y			Bedside clinic, Tutorial- 2hr		
SU28.3	Describe causes, clinical features, complications and principles of mangament of peritonitis	K	K	Y	1hr				1hr
SU28.4	Describe pathophysiology, clinical features, investigations andprinciples of management of Intra-abdominal abscess, mesentericcyst, and retroperitoneal tumors	K	K	Y	2hrs			2hrs	
SU28.5	Describe the applied Anatomy and physiology of esophagus	K	K	Y		Anatomy, Physiology - 2hr			
SU28.6	Describe the clinical features, investigations and principles of management of benign and malignant disorders of esophagus	K	K	Y	3hrs			2hrs	

SU28.7	Describe the applied anatomy and physiology of stomach	K	KH	Y		Anatomy-2hr			
SU28.8	Describe and discuss the aetiology, the clinical features, investigations and principles of management of congenital hypertrophic pyloric stenosis, Peptic ulcer disease, Carcinoma stomach	K	KH	Y	3hrs				1hr
SU28.9	Demonstrate the correct technique of examination of a patient with disorders of the stomach	S	SH	Y			Bedside cliniC, Tutorial 2hrs		
SU28.10	Describe the applied anatomy of liver. Describe the clinical features, Investigations and principles of management of liver abscess, hydatid disease, injuries and tumors of the liver	K	KH	Y	4hrs	Anatomy-2hr		2hrs	
SU28.11	Describe the applied anatomy of spleen. Describe the clinical features, investigations and principles of management of splenic injuries. Describe the post-splenectomy sepsis - prophylaxis	K	KH	Y	2hrs				
SU28.12	Describe the applied anatomy of biliary system. Describe the clinical features, investigations and principles of management of diseases of biliary system	K	KH	Y	4hrs	Anatomy-2hr		2hrs	
SU28.13	Describe the applied anatomy of small and large intestine	K	KH	Y		Anatomy-2hrs			
SU28.14	Describe the clinical features, investigations and principles of management of disorders of small and large intestine including neonatal obstruction and Short gut syndrome	K	KH	Y	5hrs	General Medicine-2hr			1hr
SU28.15	Describe the clinical features, investigations and principles of management of diseases of Appendix including appendicitis and its complications.	K	KH	Y	2hrs				
SU28.16	Describe applied anatomy including congenital anomalies of the rectum and anal canal	K	KH	Y		Anatomy-2hrs			
SU28.17	Describe the clinical features, investigations and principles of management of common anorectal diseases	K	KH	Y	2hrs			2hrs	
SU28.18	Describe and demonstrate clinical examination of abdomen. Order relevant investigations. Describe and discuss appropriate treatment plan	S	SH	Y			Bedside cliniC, Tutorial 2hrs		1hr
Topic: Urinary System									

SU29.10	Demonstrate a digital rectal examination of the prostate in a mannequin or equivalent	S	SH	Y			Skill lab 2hrs		
		Total			70hrs	56hrs	33hrs	36hrs	16hrs
								TOTAL	**211HRS**

BED SIDE CLINICS FOR Phase III MBBS PART II

Duration 8+4 Weeks

S.No	Number	Competancy	Teaching method
1	SU5.2	Elicit, document and present a history in a patient presenting with wounds.	Small group teaching/DOAP
2	SU10.3	Observe common surgical procedures and assist in minor surgical procedures; Observe emergency lifesaving surgical procedures.	CLINICS(OT)
3	SU18.3	Describe and demonstrate the clinical examination of surgical patient including swelling and order relevant investigation for diagnosis. Describe and discuss appropriate treatment plan.	Small group teaching/DOAP
4	SU22.3	Demonstrate and document the correct clinical examination of thyroid swellings and discus the differential diagnosis and their management	Small group teaching/DOAP
5	SU25.5	Demonstrate the correct technique to palpate the breast for breast swelling in a mannequin or equivalent	Small group teaching/DOAP
6	SU27.2	Demonstrate the correct examination of the vascular system and enumerate and describe the investigation of vascular disease	Small group teaching/DOAP
7	SU27.8	Demonstrate the correct examination of the lymphatic system	Small group teaching/DOAP
8	SU28.2	Demonstrate the correct technique to examine the patient with hernia and identify different types of hernias.	Small group teaching/DOAP
9	SU28.9	Demonstrate the correct technique of examination of a patient with disorders of the stomach	Small group teaching/DOAP
10	SU28.18	Describe and demonstrate clinical examination of abdomen. Order relevant investigations. Describe and discuss appropriate treatment plan	Small group teaching/DOAP
11	SU10.2	Describe the steps and obtain informed consent in a simulated environment	SKILL LAB(DOAP/Small group discussion
12	SU10.4	Perform basic surgical Skills such as First aid including suturing and minor surgical procedures in simulated environment	SKILL LAB(DOAP/Small group discussion

13	SU11.3	Demonstrate maintenance of an airway in a mannequin or equivalent	SKILL LAB(DOAP/Small group discussion
14	SU29.10	Demonstrate a digital rectal examination of the prostate in a mannequin or equivalent	SKILL LAB(DOAP/Small group discussion
15	SU14.4	Demonstrate the techniques of asepsis and suturing in a simulated environment	SKILL LAB(DOAP/Small group discussion
16	SU17.1	Describe the Principles of FIRST AID	SKILL LAB(DOAP/Small group discussion
17	SU17.2	Demonstrate the steps in Basic Life Support. Transport of injured patient in a simulated environment	SKILL LAB(DOAP/Small group discussion
18	SU17.10	Demonstrate Airway maintenance. Recognize and manage tension pneumothorax, hemothorax and flail chest in simulated environment.	SKILL LAB(DOAP/Small group discussion
19	SU2.3	Communicate and counsel patients and families about the treatment and prognosis of shock demonstrating empathy and care	TUTORIAL/AETCOM
20	SU3.2	Observe blood transfusions.	
21	SU3.3	Counsel patients and family/ friends for blood transfusion and blood donation.	TUTORIAL/AETCOM
22	SU4.4	Burns - Communicate and counsel patients and families on the outcome and rehabilitation demonstrating empathy and care.	TUTORIAL/AETCOM
23	SU8.2	Demonstrate Professionalism and empathy to the patient undergoing General Surgery	TUTORIAL/AETCOM
24	SU8.3	Discuss Medico-legal issues in surgical practice	TUTORIAL/AETCOM
25	SU9.1	Choose appropriate biochemical, microbiological, pathological,imaging investigations and interpret the investigative data in a surgical patient	TUTORIAL/AETCOM
26	SU9.3	Communicate the results of surgical investigations and counsel the patient appropriately	TUTORIAL/AETCOM
27	SU13.4	Counsel patients and relatives on organ donation in a simulated environment	TUTORIAL/AETCOM
28	SU25.4	Counsel the patient and obtain informed consent for treatment of malignant conditions of the breast	TUTORIAL/AETCOM

These competencies will be taught to the students according to the institutional logistics and availability of clinical material. Students will attend Out-patient department, Operation theatres one day each per week.

Text Books(latest edition) Recommended AND Operative manuals:

1. Bailey & Love's short practice of surgery recent edition.

2. Farquharson's – Operative General Surgery

Clinical Methods Books recommended:

1. Pye's Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery
2. A manual of clinical surgery by S.Das recent edition
3. Hamilton bailey's demonstrations of physical signs in clinical surgery recent edition

Reference Books:

1. Schwartz's Principles of Surgery recent edition
2. Sabiston's Textbook of Surgery: The Biological Basis of Modern Surgical Practice recent Edition.

FINAL MBBS - II, SURGERY PAPER - I

Time : 3 hours **Maximum marks : 100**

Write an essay on : **2 X 10 = 20**

1. Describe the classification of Neck Swellings, Describe the clinical features & Management of Thyrotoxicosis and mention the Complications of Thyroidectomy..
2. Describe the Etology, clinical features, Investigations, and management of colorectacarcinoma

Write short Notes On : **10 x 5 = 50**

3. Benign Breast Diseases.
4. Post – operative fluid management.
5. Cleft lip
6. Malignant Melanoma.

7. Amoebil liver Abscess.

8. Colostomy.

9. Choledochal cyst.

10. Management of appendicular mass

11. Hemorrhoidectomy

12 Plemorphic adenoma

Write briefly **5 X 2 = 10**

13. Septic shock

14. Pilonidal sinus

15. Fibroadenoma

16. Carbuncle

17. Intussusception

MCQ'S (Mark the right answer) : 20 x 1 = 20

18. Best management of contaminated wound with necrotic material ?

a) Debridement b) Tetanus toxoid

c) Gas gangrene serum d) Board spectrum antibiotics

19. All are complications of hydatid cyst in the liver except :

a) Jaundice b) Suppuration

c) Cirrhosis d) Rupture

20. Most of the parotid tumor are managed by:

a) Total parotidectomy b) Radical parotidectomy

c) Superfical parotidectomy

d) Radical parotidectomy and neck dissection

21. The sengstaken tube must maintain a pressure of… to stop bleeding from varices:

A) 20 mm Hg b) 25mm Hg

c) 35mm Hg d) 45 mm Hg

22. A clean incised wound heals by:

a) Primary intention b) Secondary intention

c) Excessive scaring d) None of the above

23. Which of the following statements best represent Ludwig's angina ?

a) A type of coronary artery spasm

b) An infection of the cellular tissues around submandibular salivary gland

c) Esophageal spasm

d) Retropharyngeal infection

24. Which of the following is least likely to be associated with gynecomastia :

a) Prolactinoma b) Adrenal tumors

c) hCG secreting tumors d) Estrogen secreting tumors

25. Structure preserved in radical neck dissections is :

a) Vagus nerve b) Submandibular gland

c) Sternocleidomastiod d) Internal Jugular Vein

26. Which of the following Suture has Maximum Tensile Strength and Minimum Tissue reaction.`

a) Vicryl b) PolyPropylene

c) Polyglycaprone d) Polydioxanone

27. After thyroidectomy for medullary carcinoma of thyroid, which is important investiogation for determining the recurrence of tumor:

a) Thyroglobulin b) TSH

c) CEA d) Thyroxine levels

28. Oesophageal manometry is used in.

a) Cancer esophagus b) Barrett esophagus

c) Schatzki ring d) Achalasia cardia

29. Which of the following best represents 'ranula':

a) A type of epulis b) A thyriglossal cyst

c) Cystic swelling in the floor of mouth d) Forked uvula

30. Cattle's maneuver is mobilization of :

a) Sigmoid colon b) Descending colon

c) Small bowel d) Cecum and descending colon

31. Incidence of Gallstone is high in:

a) Partial hepatectomy b) Ileal resecton

c) Jejuna resection d) Subtotal gastrectomy

32. Rectionary hemorrhage occurs:

a) After 24 hours b) After 48 hours

c) Within 24 hours d) After 7 days

33. Morbid obesity is BMI greater than:

a) 25 b) 30 c) 40 d)45

34. Disparity of the bowel ends during end to end anastomosis is corrected by:

a) Cheatle's maneuver b) Connell suture

c) Lambert suture d) Czerny technique

35. Preoperative shaving is ideally done at:

a) Evening before b) Morning of operation

c) Just before operation d) At operation table

36. Predisposing factor for carcinoma of Esophagus are all the below except.

a) Caustic injuries b) Tylosis

c) Achalasia d) Nutcrackers esophagus

37. Cryoprecipitate contains

a) Factor II b) Factor V

c) Factor VIII d) Factor IX

FINAL MBBS –II , Paper - II

SURGERY + ORTHOPAEDICS + ANAESTHESIA + RADIODIAGNOSIS + DENTISTRY

Time : 3 hours **Maximum marks : 100**

Note: Answer all questions. Answer Part A & B in separate answer books.

Answers in Part – A should not be answered in Part 'B' or vice – versa. Otherwise they will not be valued.

Part – A (50 Marks)

Write an essay notes on : **1 x 10 = 10**

1. Enumerate the causes of painless haematuria, Describe the clinical features , Investigations and management Nephrolithiasis.

Write Short Notes on: **4 x 5 = 20**

2. Congenital Hypertrophic Pyloric stenosis
3. Extradural hemorrhage.
4. TAO
5. Mediastinal Tumors.

Write briefly **5 X 2 = 10**

6. Tension pneumothorax
7. Hypospadias
8. Split thickness skin graft
9. Treatment of wilms tumor
10. Circumcision

MCQ'S (Mark the right answer) : **10 x 1 = 10**

11. Maximum tourniquet time for the upper limb is.

a) 30min b) 60min c) 2hrS d) 15min

12. Neurosurgery is indicated for all except :

a) SDH b) EDH

c) Depressed fracture d) Diffuse axonal injury

13. Late death in burns is due to.

a) Sepsis b) Hypovolemia

c) Contractures d) Neurogenic

14. Post transplant lymphoma is most commonly associated with

a) EBV b) CMV

c) Herpes simplex d) HHV6

15. Ideal graft for leg injury with 10 x 10 cm exposed bone:

a) Amniotic membrane graft b) Pedicle flap

c) Full thickness graft d) Split thickness skin graft

16. Which of the following testicular cancer is not Germ Cell Tumor.

a) Teratoma b) Embryonal cancer

c) Gonadoblastoma d) Chorio carcinoma

17. The following are elaborated by small cell carcinoma lung, except.

a) ADH b) ACTH

c) Calcitonin d) Noradrenaline

18. Lymphoma most commonly affects which compartment of the mediastinum.

a) Anterior b) Middle

c) Posterior d) Inferior

19. Surgery for varicose vein is contraindicated in :

a) DVD b) DVT

c) Atherosclerosis d) None

20. Regarding renal cell carcinoma, which among the following is false statement

a) Radiosensitive b) Also known as Gravitz Tumor

c) Less than 4 cm is treated by partial nephrectomy d) Arises from PCT

Part –B (Allied Specialities) (50 Marks)

(ORTHOPAEDICS + ANAESTHESIA + RADIODIAGNOSIS + DENTISTRY)

Write an essay on : 1 X 10 = 10

1. Describe the blood supply, clinical features, investigations, management and complications of fracture of femur in 60years old patient.

Write short notes on : 4 X 5 = 20

2. Trigger finger
3. Epidural anaesthesia.
4. Ultrasonography.
5. Osteomyelitis of mandible.

Write briefly 5 X 2 = 10

6. Pott's spine
7. Ewing sarcoma
8. Congenital torticolis
9. Finkelstein test
10. Green stick fracture

MCQ'S (Mark the right answer) : **10 x 1 = 10**

11. Most common site for skeletal tuberculosis is:

a) Hip b) Vertebrae c) Knee d) Wrist

12.The part frequently involved in Rhematoid Arthritis is:

a) Cartilage b) Epiphysis c) Subchondral d) Synovium

13. HLA B-27 is associated with:

a) Rhematoid Arthritis b) systemic lupus erythematosus

c) Polymyositis d) Ankylosing spondylitis

14. Carrying angle is decreased in:

a) Cubitus Varus b) Cubitus Valgus

c) Genu Varum d) Genu Valgum

15. Compartment syndrome is a feature, due to injury of :

a) Redial artery b) Ulcer artery

c) Recurrent radial artery d) Anterior interosseous artery

16. Compound fractures most commonly occurs in:

a) Tibia b) Femur c) Radius d) Humerus

17. The commonest malignant bone tumor is:

a) Multiple myaloma b) Osteogenic sarcoma

c) Ewings sarcoma d) Chondro sarcoma

18 .Compartment syndrome is a feature, due to injury of :

a) Redial artery b) Ulcer artery

c) Recurrent radial artery d) Anterior interosseous artery

19. Avascular necrosis is common in:

a) Old calcaneus fracture b) Fracture of neck of Talus

c) Fracture of neck of femur d) Fracture of scaphoid

20. Non - Union is commonly seen in:

a. Scaphoid fracture b. Bennet's fracture

c. Colles's fracture d. Smith's fracture

ORTHOPEDICS SYLLABUS

Topic: Skeletal Trauma, Poly trauma				**Number of competencies : (06)**	
OR1.1	Describe and discuss the Principles of pre-hospital care and Casualty management of a trauma victim including principles of triage	K/S/A/C	K/KH	Y	Lecture with video, Small group discussion 1hour
OR1.2	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of shock	K/S	K/KH	Y	Lecture 1 hour
OR1.3	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of soft tissue injuries	K	KH/SH	Y	Lecture, Small groupdiscussion 1 hour
OR1.4	Describe and discuss the Principles of management of soft tissueinjuries	K	K/KH	Y	Lecture, Small groupdiscussion 1 hour
OR1.5	Describe and discuss the aetiopathogenesis, clinical features, investigations, and principles of management of dislocation of majorjoints, shoulder, knee, hip	K	K/KH	Y	Lecture, Small groupdiscussion, Bed sideclinic 2 hours

OR1.6	Participate as a member in the team for closed reduction ofshoulder dislocation / hip dislocation / knee dislocation	K/S/A/C	SH	Y	Simulation, DOAPsession 2 hours
OR2.1	Describe and discuss the mechanism of Injury, clinical features,investigations and plan management of fracture of clavicle	K/S	KH/SH	Y	Lecture, Small groupdiscussion, Bed sideclinic 2 hours
OR2.2	Describe and discuss the mechanism of Injury, clinical features,investigations and plan management of fractures of proximal humerus	K	K/KH/ SH	Y	Lecture, Small groupdiscussion, Bed sideclinic 2 hours
OR2.3	Select, prescribe and communicate appropriate medications forrelief of joint pain	K	KH/SH	Y	Lecture, Small groupdiscussion, Bed sideclinic 2hours
OR2.4	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of fracture of shaft ofhumerus and intercondylar fracture humerus with emphasis on neurovascular deficit	K/S	K/KH	Y	Lecture, Small groupdiscussion, Bed sideclinic 2 hours

OR2.5	Describe and discuss the aetiopathogenesis, clinical features, mechanism of injury, investigation & principles of management of fractures of both bones forearm and Galeazzi and Monteggia injury	K	K/KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR2.6	Describe and discuss the aetiopathogenesis, mechanism of injury,clinical features, investigations and principles of management of fractures of distal radius	K	KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR2.7	Describe and discuss the aetiopathogenesis, mechanism of injury,clinical features, investigations and principles of management of pelvic injuries with emphasis on hemodynamic instability	K	K/KH/ SH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR2.8	Describe and discuss the aetiopathogenesis, mechanism of injury,clinical features, investigations and principles of management of spine injuries with emphasis on mobilisation of the patient	K	K/KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR2.9	Describe and discuss the mechanism of injury, Clinical features, investigations and principle of management of acetabular fracture	K	K/KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours

OR2.10	Describe and discuss the aetiopathogenesis, mechanism of injury,clinical features, investigations and principles of management of fractures of proximal femur	K/S/A/C	KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR2.11	Describe and discuss the aetiopathogenesis, mechanism of injury,clinical features, investigations and principles of management of (a) Fracture patella (b) Fracture distal femur (c) Fracture proximaltibia with special focus on neurovascular injury and compartment syndrome	K	K/KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR2.12	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Fracture shaft of femur in all age groups and the recognition and management of fatembolism as a complication	K	K/KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR2.13	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of: (a) Fracture both bones leg (b) Calcaneus (c) Small bones of foot	K	K/KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours

OR2.14	Describe and discuss the aetiopathogenesis, clinical features, Investigation and principles of management of ankle fractures	K/S/C	K/KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR2.15	Plan and interpret the investigations to diagnose complications offractures like malunion, non-union, infection, compartmental syndrome	K/S	SH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR2.16	Describe and discuss the mechanism of injury, clinical features, investigations and principles of management of open fractures withfocus on secondary infection prevention and management	K	K/KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR3.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of Bone and Jointinfections a) Acute Osteomyelitis b) Subacute osteomyelitis c) Acute Suppurative arthritis d) Septic arthritis & HIV infection e) Spirochaetal infection f) Skeletal Tuberculosis	K/S	K/KH/ SH	Y	Lecture, Small groupdiscussion, Video assisted lecture 2 hours

OR3.2	Participate as a member in team for aspiration of joints undersupervision	K/S/A/C	SH	Y	Small group Discussion. DOAPsession 2 hours (Skill Lab/Patients)
OR3.3	Participate as a member in team for procedures like drainage ofabscess, sequestrectomy/ saucerisation and arthrotomy	K/S/A/C	SH	Y	DOAP session, Videodemonstration 2 hours (Skill Lab/Patients)
OR4.1	Describe and discuss the clinical features, Investigation and principles of management of Tuberculosis affecting major joints(Hip, Knee) including cold access and caries spine	K	K/KH	Y	Lecture, Small groupdiscussion, Case discussion 2 hours
OR5.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of various inflammatory disorder of joints	K	K/KH	Y	Lecture, Small groupdiscussion, Bedside clinic 2 hours
OR6.1	Describe and discuss the clinical features, investigations andprinciples of management of degenerative condition of spine (Cervical Spondylosis, Lumbar Spondylosis, PID)	K	K/KH	Y	Lecture, Small groupdiscussion, Case discussion 2 hours

OR7.1	Describe and discuss the aetiopathogenesis, clinical features, investigation and principles of management of metabolic bone disorders in particular osteoporosis, osteomalacia, rickets, Paget'sdisease	K	K/KH	Y	Lecture, Small groupdiscussion, Case discussion 2 hours
OR8.1	Describe and discuss the aetiopathogenesis, clinical features, assessment and principles of management a patient with PostPolio Residual Paralysis	K	K/KH	Y	Lecture, Small groupdiscussion, Case discussion 2 hours
OR9.1	Describe and discuss the aetiopathogenesis, clinical features, assessment and principles of management of Cerebral palsypatient	K	K/KH	Y	Lecture, Small groupdiscussion 2 hours
OR10.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of benign and malignant bone tumours and pathological fractures	K	K/KH	Y	Lecture, Small groupdiscussion, Video assisted interactive lecture 2 hours
OR11.1	Describe and discuss the aetiopathogenesis, clinical features, investigations and principles of management of peripheral nerveinjuries in diseases like foot drop, wrist drop, claw hand, palsies ofRadial, Ulnar, Median, Lateral Popliteal and Sciatic Nerves	K	K/H	Y	Lecture, Small groupdiscussion, case discussion 2 hours

OR12.1	Describe and discuss the clinical features, investigations andprinciples of management of Congenital and acquired malformations and deformities of: a. limbs and spine - Scoliosis and spinal bifida b. Congenital dislocation of Hip,Torticollis, c. congenital talipes equino varus	K	KH	Y	Lecture, Small groupdiscussion 2 hours
OR13.1	Participate in a team for procedures in patients and demonstratingthe ability to perform on mannequins / simulated patients in the following: i. Above elbow plaster ii. Below knee plaster iii. Above knee plaster iv. Thomas splint v. splinting for long bone fractures vi. Strapping for shoulder and clavicle trauma	S/A	KH /SH	Y	Case discussion, Videoassisted Lecture, Small group discussion, Teaching, Skill lab sessions 2 hours (Skill Lab/Patients)
OR13.2	Participate as a member in team for Resuscitation of Polytraumavictim by doing all of the following : (a) I.V. access central - peripheral (b) Bladder catheterization (c) Endotracheal intubation (d) Splintage	S/A	KH /SH	Y	Case discussion, Videoassisted Lecture, Small group discussion, Teaching, Skill lab sessions 2 hours (Skill Lab/Patients) AETCOM
OR14.1	Demonstrate the ability to counsel patients regarding prognosis inpatients with various orthopedic illnesses like a. fractures with disabilities b. fractures that require prolonged bed stay c. bone tumours	K/S/A/C	KH /SH	Y	Case discussion, Videoassisted lecture, Small group discussion, Teaching, Skills lab sessions 2 hours (Skill Lab/Patients)

	d. congenital disabilities				AETCOM
OR14.2	Demonstrate the ability to counsel patients to obtain consent for various orthopedic procedures like limp amputation, permanentfixations etc..	K/S/A/C	KH /SH	Y	Case discussion, Videoassisted Lecture, Small group discussion, Teaching, Skills lab sessions 2 hours (Skill Lab/Patients) AETCOM
OR14.3	Demonstrate the ability to convince the patient for referral to ahigher centre in various orthopedic illnesses, based on the detection of warning signals and need for sophisticated management	K/S/A/C	KH /SH	Y	Case discussion, Videoassisted Lecture, Small group discussion, Teaching, Skills lab sessions 2 hours (Skill Lab/Patients) AETCOM

Column C: K- Knowledge, S – Skill, A - Attitude / professionalism, C- Communication. Column D: K – Knows, KH - Knows How, SH - Shows how, P- performs independently, Column F: DOAP session – Demonstrate, Observe, Assess, Perform.
Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

AETCOM -6HOURS

Skills Station – 6hours

Lectures-40Hours

Small Group Discussion/ Seminars - 30Hours

Teaching Learning Methods: Didactic Lecture, Self- directed Learning (SDL),Small group learning, Problem-based learning, Tutorials, Seminars,etc),Integrated Teaching.

Assessments methods: MCQ's,Long essay, Short essay, Short Answer questions,Viva voce.

Eligibility Criteria: 75% of attendance in theory & 80 % of attendance in practicals & 50 % of marks in internal examination of both theory and clinical.

UNIVERSITY EXAMINATION MODEL: 50 MARKS

EXAM PAPER	**NUMBER**	**MARKS**	**MARKS**
Essay	**1**	**10**	**10**
Short Answer Questions	**4**	**5**	**20**
Write a Brief Notes	**5**	**2**	**10**
MCQ'S	**10**	**1**	**10**
Total			**50 marks**

INTERNAL ASSESMENT: Learners must secure at least 50%marks of the total marks (theory & practical/clinical not less than 40%marks in theory and practical / clinical separately)

assigned for internal assessment on a particular subject in order to be eligible for appearing at the final university examination of that subject . Internal assessment marks will reflect as separate head of passing at the summative examination .

REFERENCE BOOKS:

1. ESSENTIALS ORTHOPAEDICS – J.Maheswari .
2. NATARAJAN'S TEXT BOOK OF ORTHOPAEDICS & TRAUMATOLOGY .
3. ADAM'S OUTLINE OF ORTHOPAEIDCS.
4. APLEY'S & SOLOMON'S SYSTEM OF ORTHOPAEDICS & TRAUMA.

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

CBME Curriculum Phase - II & III

This curriculum and syllabus are based on CBME curriculum applicable for admissions from 2019.

Goal

The broad goal of teaching and training of undergraduate students in Obstetrics and Gynaecology is that the student should acquire knowledge of structure, normal function and abnormal function of the female reproductive system and gain the knowledge and competency to diagnose and manage common clinical conditions affecting it.

Objectives

Knowledge and Skills

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

1. Outline the anatomy, physiology and pathophysiology of the reproductive system and the common clinical obstetric and gynaecological conditions.

2. Diagnose and manage normal pregnancy, normal labour, puerperium and lactation and identify high risk pregnancy and the associated problems.

3. Identify the leading causes of maternal and perinatal morbidity and mortality and learn prevention and basic management and situations of referral to the specialist care.

4. Understand the principles of contraception and various techniques employed, methods of medical termination of pregnancy, sterilisation and their complications and awareness of national programs.

5. Identify use, abuse and side effects of drugs in obstetric and gynaecological practice.

5. Acquire basic knowledge of benign gynaecological diseases and infections and sexually transmitted infections.

6. Learn diagnosis and prevention of gynaecological cancers and referral to specialist care.

7. Acquire basic knowledge of indications, techniques complications and perioperative care of minor and major obstetric, gynaecological and family planning surgical procedures.

8. Acquire skill in basic obstetrics and gynaecological examination and procedures, management of common diseases and their complications.

Course Schedule:

The above objectives are achieved through clinical postings and theory classes(lectures, tutorials, SDL, integrated teaching).

Gynaec Postings begin in Second professional year.

Second Professional Year

- 25 hours allotted for OBG
- Clinical postings for 4 Weeks, shall be 15 hours per week (3 hours per day from Monday to Friday)

Third Professional Year

Phase III Part – I - total duration 13 months reduced to 11 months (pandemic module for 2019 batch)

	Lectures	**SGD (tutorials/Seminar/ Integrated Teaching)**	**SDL**	**Total**	**Clinical postings**
Phase III Part I	25	35	5	65	4 weeks
Phase III Part II	70	125	15	210	8+4=12weeks

1. In clinical postings each student will follow 2 cases per week from admission to discharge and note in the record or observation book duly signed by assistant professor.

2. Bedside teaching to involve all students, focus on history taking, eliciting clinical signs, management strategies and communication skills.

3. For all certifiable procedural skills (implement DOAP session) skill lab will be used and all these to be entered in log book and duly signed.

4. Improving analytical skills in respective competencies by small group discussions.

5. Internal assessment at the end of every posting both theory and practical's.

6. Attendance cumulative in all professional years.

7. Dedicated posting to labour room for 4 weeks in part II , third professional year to assist and conduct normal deliveries under supervision, Caesarean section, operative deliveries, management of PPH, Eclampsia other major and minor procedures. All these are to be entered in record book and duly signed.

andatory practice on mannequins for certain must do procedures.

9. Focussed visits to centres dealing with national programs

10. Electives will be designed as per available infrastructure.

11. Implementing pandemic module.

12. Internal assessment needs to focus on log book and direct observation of skills.

15. AETCOM modules as per longitudinal program.

17. Encouragement of self directed learning, making students participate in seminars and symposia.

18. Field visits to primary and secondary level of health care.

19. Emphasize case based teaching.

21. Clinical clerkship in second professional year to focus on history taking, basic clinical examination, assessment of change in clinical status, communication and patient education. Third professional year part I to focus on all of the above and arriving at differential diagnosis ,ordering relevant investigations. Third professional year part II to focus on decision making, management plans , prognosis, follow up and continuity of care.

Integration:

- The teaching shall be aligned and integrated horizontally and vertically recognizing the importance of medical, surgical, medico – legal, social and ethical issues as they relate to the practice of Obstetrics & Gynaecology.
- 25 % of the allotted time shall be utilized for integrated learning with pre and para clinical subjects and assessed during clinical subject examination.
- Integrated teaching with clinical departments like Medicine, Surgery, Paediatrics, Radiology etc will be conducted where ever necessary.

Assessment:

The performance in essential components of training are to be assessed, based on :

(a) Attendance:-

The learner must have 75% attendance in theory and 80% in clinical postings in each 2nd Professional (Phase II) and 3rd Professional (Phase III) – Part – I & Part – II.

(b) Internal Assessment :

Internal assessment will be based on day -to- day assessment. It will relate to different ways in which learners participate in learning process including assignments, preparation for seminar, clinical case presentation, preparation of clinical case for discussion, clinical case study/ problem solving exercise, maintaining log book and records, written test and orals etc.

1. Regular periodic examinations will be conducted throughout 2nd professional (Phase II) and 3rd Professional (Phase III) – Part I & Part – II.

2. **Second Professional year** : There will be 2 internal assessments in second professional year for 100 marks each. Clinical examination will be conducted at the end of the clinical postings for 100 marks based on competencies and skills acquired in that phase.

3. **Third Professional year:** There will be 2 internal assessments in third professional year for 100 marks each. Second exam is the pre final exam .Clinical examination will be conducted at the end of the clinical postings for 100 marks based on competencies and skills acquired in that phase.

4. Day to Day records and findings will be written in log book (including required skill certifications).These findings will be given importance in internal assessment.

5. Learners must secure at least 50% marks of the total marks(combined in theory and practical not less than 40 % marks in theory and practical separately.) assigned for internal assessment marks will reflect as separate head of passing at the summative examination.

6. The results of internal assessment will be displayed on the notice board within 1 – 2 weeks of the test.

7. Students must have completed the required certifiable competencies for that phase of training and completed the log book appropriate for that phase of training to be eligible for appearing at the final university examination.

University Examination Pattern:

Theory:-

Number of papers – Two

Paper I : Obstetrics, Neonatology, Social Obstetrics

Paper II : Gynaecology, Family planning and Contraception.

Time – 3 hours each.

Distribution of Marks – 2 Essay - 2 X 10 = 20 marks

10 Short notes - 10 X 5 = 50 Marks

5 Brief notes - 5 X 2 = 10 Marks

20 MCQs/ Objective type - 20 X 1 = 20 Marks

Total = 100 Marks

Practical:

Distribution of marks –

Obstetrics case - 50 marks

Gynaec case - 50 marks

Viva Voce -

1. Maternal pelvis and fetus = 20 marks

2. Obstetrics Viva = 25 marks

(Obstetrics instruments, specimens, drugs etc.)

3. Gynaec Viva = 25 marks

(Gynaec instruments, specimens, drugs etc.)

4. Family planning and contraception = 20 marks

5. Record = 10 marks

Total marks = 200 marks

Eligibility criteria to appear for university examination:

Marks requirements

- 50% marks combined in theory and practical marks (not less than 40% in each in any internal assessment examination for eligibility to appear for university examinations.
- The student has to attend final internal assessment examination (Pre final) without fail.

Attendance requirements

- 75 % in theory and 80% in clinical in 2nd Professional year
- 75% in theory and 80% in clinical 3rd Professional year (Phase III) - Part – I & Part - II

Eligibility criteria to pass Final university examination:

A candidate shall obtain 50 % marks in university examination separately in theory and practical (practical includes: practical and viva) in order to be declared as passed.

Recommended Text Books:

1. Shaw's text book of Gynaecology by Dr.Daftari&V.Pdubeidri

2. Text book of Obstetrics – by Dr.D.C.Dutta

3. Text Book of Gyanecology – by Dr.D.C.Dutta.

6. Text Book of Obstetrics – Dr.G.R.K.Raju

7. Manual of Obstetrics – Dr.SirishDaftary

8. Text Book of Obstetrics – by Mudaliar& Menon

Reference Books:

1. Williams Obstetrics.

2. Jeffcoates Gynaecology

3. Novak's Text Book of Gynaecology

4. Williams Gynaecology

5. Post graduate obstetrics & Gynaecology ol-I & II by Dr.Ratnam &Dr.Arul Kumaran

6. Management of labour – Dr.Arul Kumaran

7. Spheroff's text book of endocrinology and infertility

Blue printing for Question paper

Paper I - Obstetrics, Neonatology, Social Obstetrics

Total Marks = 100 (including MCQs)

S.No	Topic	Weightage in %	Marks	Type of Questions
1	Anatomy and Physiology of pelvis, Genital organs, Fertilisation and development of Embryo	5	5	SAQ,BAQ.MCQ
2	Physiology of pregnancy, Prenatal care and antepartum surveillance	5	5	SAQ,BAQ.MCQ
3	Physiology of labour and Puerperium	15	15	LAQ,SAQ,BAQ.MCQ
4	Complications of pregnancy	20	20	LAQ,SAQ,BAQ.MCQ
5	Diseases complicating pregnancy	20	20	LAQ,SAQ,BAQ.MCQ
6	Abnormal labour	15	15	LAQ,SAQ,BAQ.MCQ
7	New born and neonatal problems	5	5	SAQ,BAQ.MCQ
8	Obstetrics operations and procedures	10	10	SAQ,BAQ.MCQ
9	Social obstetrics and miscellaneous	5	5	SAQ,BAQ.MCQ
	Total	100	100	

Note:

SAQ - Short Answer Question (5 marks)

LAQ - Long Answer Question (10 marks)

BAQ - Brief Answer Question (2 marks)

MCQ - Multiple Choice Question (1 mark)

Blue printing for Question paper

Paper II - Gynaecology, Family Planning, Contraception

Total Marks = 100 (including MCQs)

S.No	Topic	Weightage in %	Marks	Type of Questions
1	Anatomy and Reproductive Physiology	2	2	SAQ,BAQ.MCQ
2	Puberty, Paediatric and Adolescent gynaecology	5	5	SAQ,BAQ.MCQ
3	Adult gynaecology : Reproductive years (AUB, Dysmenorrhoea, Pelvic pain, Endometriosis)	14	14	LAQ,SAQ,BAQ.MCQ
4	STD's and Genito urinary infections including Tuberculosis	5	5	SAQ,BAQ.MCQ
5	Sexual development and its disorders, malformations of genital tract	2	2	SAQ,BAQ.MCQ
6	Urogynaecology, Genital prolapse, Injuries, Genital fistulae	10	10	LAQ,SAQ,BAQ.MCQ
7	Reproductive endocrinology, Infertility(Including Amenorrhoea)	15	15	LAQ,SAQ,BAQ.MCQ
8	Early pregnancy issues (Ectopic, Molar pregnancy)	10	10	LAQ,SAQ,BAQ.MCQ
9	Benign diseases of Vulva, Vagina, Cervix.	2	2	SAQ,BAQ.MCQ
10	Gynaecologic oncology (including intra epithelial lesions of vulva, vagina, cervix)	15	15	LAQ,SAQ,BAQ.MCQ
11	Birth control and MTP	15	15	SAQ,BAQ.MCQ
12	Miscellaneous	5	5	SAQ,BAQ.MCQ
	Total	100	100	

Note:

SAQ - Short Answer Question (5 marks)

LAQ - Long Answer Question (10 marks)

BAQ - Brief Answer Question (2 marks)

MCQ - Multiple Choice Question (1 mark)

Department of Obstetrics & Gynaecology
Syllabus According to CBME Curriculum-Phase III MBBS Part-I

Number	Competency the Student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Teaching Learning Methods	Hours
OG9.1	Classify, define and discusses the aetiology and management of abortions including threatened, incomplete, inevitable, missed and septic					
OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labour in occipito - anterior presentation, monitoring of labour including partogram, conduct of labour, pain relief, principles of induction and acceleration of labour, management of third stage of labour.					
OG14.1	Enumerate and discuss the diameters of maternal pelvis and types.	K	KH	Y	SGD	1
OG14.2	Discuss the mechanism of normal labor, define and describe obstructed labor, its clinical features; prevention; and management.	K	KH	Y	SGD	
OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labour in occipito - anterior presentation, monitoring of labour including partogram, conduct of labour, pain relief, principles of induction and acceleration of labour, management of third stage of labour.					
OG14.3	Describe and discuss rupture uterus, causes, diagnosis and Management.	K	KH	Y	SGD	1

OG14.4	Describe and discuss the classification; diagnosis; management of abnormal labour.	K	KH	Y	SGD	2
OG14.2	Discuss the mechanism of normal labor, define and describe obstructed labor, its clinical features; prevention; and management.	K	KH	Y		
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations, principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia.					
OG10.1	Define, classify and describe the aetiology, pathogenesis, clinical featured, ultra sonography, differential diagnosis and management of antepartum haemorrhage in pregnancy.					
OG10.2	Enumerate the indications and describe the appropriate use of blood and blood products, their complications and management.					
OG10.1	Define, classify and describe the aetiology, pathogenesis, clinical featured, ultrasonography, differential diagnosis and management of antepartum haemorrhage in pregnancy.					
OG11.1	Describe the etiopathology, clinical features; diagnosis and investigations, complications, principles of management of multiple pregnancies.	K	KH	Y	Lecture	3
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations, principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia.					

OG12.2	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy.					
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations, principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia.					
OG12.2	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy.					
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy.					
OG12.7	Describe and discuss screening, risk factors, management of mother and newborn with HIV.	K	KH	Y	SGD	2
OG12.1	Define, classify and describe the etiology and pathophysiology, early detection, investigations, principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia.					
OG15.1	Enumerate and describe the indications and steps of common obstetrics procedures, technique and complications: Episiotomy, vacuum extraction: low forceps: Caesarean section, assisted breech delivery: external cephalic version: cervical cerclage.					

OG21.1	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications, selections of patients, side effects and failure rate including Ocs, male contraception, emergency contraception and IUCD.					
OG31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus.	K	KH	Y	Lecture	5
OG12.3	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes diseases in pregnancy.					

Phase III MBBS
Part I Clinics

Number	Competency the Student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Teaching Learning Methods
OG 35.2	Arrive at a logical provisional diagnosis after examination.	K/S	SH	Y	Bed Side
OG 35.3	Recognize situations, which call for urgent or early treatment at secondary and tertiary centres and make a prompt referral of such patients after giving first aid or emergency treatment.	K/S	SH	Y	Bed Side
OG 35.4	Demonstrate interpersonal and communications skills befitting a physician in order to discuss illness and its outcome with patient and family.	A/C	SH	Y	Bed Side
OG 35.5	Determine gestational age, EDD and obstetric formula.	K/S	SH	Y	Bed Side
OG 35.6	Demonstrate ethical behavior in all aspects of medical practice.	A/C	SH	Y	Bed Side
OG 35.7	Obtain informed consent for any examination / procedure.	S	SH	Y	Bed Side
OG 35.8	Write a complete case record with all necessary details.	S	SH	Y	Bed Side
OG 35.9	write a proper discharge summary with all relevant information	S	SH	Y	Bed Side
OG 35.10	Write a proper referral note to secondary or tertiary centres or to other physicians with all necessary details.	S	SH	Y	Bed Side
OG 35.11	Demonstrate the correct use of appropriate universal precautions for self - protection against HIV and hepatitis and counsel patients.	S	SH	Y	Bed Side

	Plan and institute a line of treatment, which is need based, cost effective and appropriate for common conditions taking into consideration (a) Patient (b) Disease (c) Socio - economic status (d) Institution/ Governmental guidelines	K/S	SH	Y	Bed Side
OG 36.2	Organize antenatal, postnatal, well-baby and family welfare clinics	K/S	SH	Y	Bed Side
OG 23.1	Describe and discuss the physiology of puberty, features of abnormal puberty, common problems and their management	K	KH	Y	Bed Side
OG 13.4	Demonstrate the stages of normal labor in a simulated environment / mannequin and counsel on methods of safe abortion.	S	SH	Y	Skill lab
	Observe and assist in the performance of an episiotomy and demonstrate the correct suturing technique of an episiotomy in a simulated environment. Observe/Assist in operative obstetrics cases - including - CS, Forceps, vacuum extraction, and breech delivery.	S	SH	Y	Skill lab
OG 19.1	Describe and discuss the physiology of puerperium, its complications, diagnosis and management, counseling for contraception, puerperal sterilization.	K	KH	Y	Skill lab
OG 35.1	Obtain a logical sequence of history, and perform a humane and through clinical examination, excluding internal examinations (per rectal and per- vaginal	K/S	KH	Y	Skill lab
OG 35.17	Demonstrate the correct technique of urinary catheterization in a simulated / supervised environment.	S	SH	Y	Skill lab
OG 17.2	Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding.	S/A/C	SH	Y	Skill lab

GITAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH

DEPARTMENT OF Obstetrics & Gynaecology

Syllabus According to CBME Curriculum - Phase III MBBS Part - II

Number	Competency the Student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Teaching Learning Methods	Hours
OG30.1	Describe and discuss the etiopathogenesis; clinical features; differential diagnosis, investigations, management, PCOS.	K	KH	Y	Lecture	2
OG30.2	Enumerate the causes and describe the investigations and management of hyper anrogenism.	K	KH	N	Lecture	2
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy.	K	KH	Y	Integrated	2
OG28.1	Describe and discuss the common causes, pathogenesis, clinical features, differential diagnosis; investigations; principles of management of infertility - methods of tubal patency, ovulation induction, assisted reproductive techniques.	K	KH	Y	Lecture	4
OG28.2	Enumerate the assessment and restoration of tubal Patency.	K	KH	N	Lecture	2
OG28.3	Describe the principles of ovulation induction.	K	KH	Y	Lecture	3
OG28.4	Enumerate the various Assisted Reproduction Techniques.	K	KH	N	Lecture	2

OG12.6	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of liver disease in pregnancy.	K	KH	Y	Integrated	2

OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy.	K/S	KH	Y	Lecture	4
OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy.	K/S	KH	Y	SDL	1
OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labor in occipito- anterior presentation; monitoring of labor including partogram; conduct of labor, pain relief; principles of induction and acceleration of labor; management of third stage of labor.	K/S	KH	Y	Lecture	3
OG27.4	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of Pelvic Inflammatory Disease.	K	KH	Y	SGD	2
OG12.8	Describe the mechanism, prophylaxis, fetal complications, diagnosis and management of iso immunization in pregnancy.	K	KH	Y	Integrated	2
OG29.1	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, principles of management , complications of fibroid uterus.	K	KH	Y	Lecture	4
OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labor in occipito- anterior presentation; monitoring of labor including partogram; conduct of labor, pain relief; principles of induction and acceleration of labor; management of third stage of labor.	K/S	KH	Y	SDL	1
OG8.4	Describe and demonstrate clinical monitoring of maternal and fetal well - being.	K/S	KH	Y	SGD	2

OG9.1	Classify, define and discusses the aetiology and management of abortions including threatened, incomplete, inevitable, missed and septic	K	KH	Y	SGD	2
OG9.3	Discuss the aetiology, clinical features, differential diagnosis of acute abdomen in early pregnancy (with a focus on ectopic pregnancy) and enumerate the principles of medical and surgical management.	K	KH	Y	SGD	2
OG15.1	Enumerate and describe the indications and steps of common obstetrics procedures, technique and complications: Episiotomy, vacuum extraction: low forceps: Caesarean section, assisted breech delivery: external cephalic version: cervical cerclage.	S	KH	Y	Lecture	5
OG15.1	Enumerate and describe the indications and steps of common obstetrics procedures, technique and complications: Episiotomy, vacuum extraction: low forceps: Caesarean section, assisted breech delivery: external cephalic version: cervical cerclage.	S	KH	Y	SGD	13
OG9.1	Classify, define and discusses the aetiology and management of abortions including threatened, incomplete, inevitable, missed and septic	K	KH	Y	SDL	1
OG12.5	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of urinary tract infections in pregnancy.	K	KH	Y	Lecture	1
OG12.8	Describe the mechanism, prophylaxis, fetal complications, diagnosis and management of iso immunization in pregnancy.	K	KH	Y	SGD	2
OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy.	K	KH	Y	Integrated	2

OG12.8	Describe the mechanism, prophylaxis, fetal complications, diagnosis and management of iso immunization in pregnancy.	K	KH	Y	SDL	1
OG19.1	Describe and discuss the physiology of puerperium, its complications, diagnosis and management; counseling for contraception, puerperal sterilization.	K	KH	Y	SGD	2
OG21.1	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications; selection of patients, side effects and failure rate including Ocs, male contraception, emergency contraception and IUCD.	K	KH	Y	Lecture	8
OG33.2	Describe the principles of management including surgery and radiotherapy of Benign, Pre- malignant (CIN) and Malignant Lesions of the Cervix.	K	KH	Y	Lecture	10
OG33.4	Enumerate the methods to prevent cancer of cervix including visual inspection with acetic acid (VIA), visual inspection of cervix with Lugol's iodine (VILI), pap smear and colposcopy.	K	KH	Y	Lecture	2
OG33.1	Classify, describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations and staging of cervical cancer.	K/S	KH	Y	Lecture	1
OG33.2	Describe the principles of management including surgery and radiotherapy of Benign, Pre- malignant (CIN) and Malignant Lesions of the Cervix.	K	KH	Y	SDL	1
OG25.1	Describe and discuss the causes of primary and secondary amenorrhea, its investigation and the principles of management.	K	KH	Y	Integrated	2
OG34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer.	K	KH	Y	Lecture	8

OG34.2	Describe and discuss the etiology , pathology, classification, staging of ovarian cancer, clinical features, differential diagnosis, investigations, principles of management including staging laparotomy.	K	KH	Y	Lecture	8
OG32.2	Enumerate the causes of postmenopausal bleeding and describe its management.	K	KH	Y	Lecture	1
OG34.2	Describe and discuss the etiology , pathology, classification, staging of ovarian cancer, clinical features, differential diagnosis, investigations, principles of management including staging laparotomy.	K/S	KH	Y	SDL	1
OG34.2	Describe and discuss the etiology , pathology, classification, staging of ovarian cancer, clinical features, differential diagnosis, investigations, principles of management including staging laparotomy.	K/S	KH	Y	Integrated	2
OG9.5	Describe the etiopathology, impact on maternal and fetal health and principles of management of hyperemesis gravidarum.	K	KH	Y	SGD	2
OG34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer.	K	KH	Y	SDL	1
OG10.1	Define, classify and describe the aetiology, pathogenesis, clinical featured, ultrasonography, differential diagnosis and management of antepartum haemorrhage in pregnancy.	K	KH	Y	SGD	2
OG11.1	Describe the etiopathology, clinical features; diagnosis and investigations, complications, principles of management of multiple pregnancies.	K	KH	y	SGD	2

OG11.1	Describe the etiopathology, clinical features; diagnosis and investigations, complications, principles of management of multiple pregnancies.	K	KH	Y	SDL	1
	Define, classify and describe the etiology and pathophysiology, early detection, investigations, principles of management of hypertensive disorders of pregnancy and eclampsia, complications of eclampsia.	K	KH	Y	SGD	4
OG27.2	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of Pelvic Inflammatory Disease.	K	KH	Y	Integrated	2
	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of Pelvic Inflammatory Disease.	K	KH	Y	SDL	1
OG12.2	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy.	K	KH	Y	SGD	2
OG12.3	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mothet and foetus and the management during pregnancy and labor, and complications of diabetes diseases in pregnancy.	K	KH	Y	SGD	2
OG12.4	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of heart diseases in pregnancy.	K	KH	Y	SGD	2
OG12.8	Describe the mechanism, prophylaxis, fetal complications, diagnosis and management of iso immunization in pregnancy.	K	KH	Y	SGD	2

OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labour in occipito - anterior presentation, monitoring of labour including partogram, conduct of labour, pain relief, principles of induction and acceleration of labour, management of third stage of labour.	K	KH	Y	SGD	6
OG16.3	Describe and discuss causes, clinical features, diagnosis, investigations, monitoring of fetal well - being, including ultrasound and fetal Doppler, principles of management, prevention and counseling in intrauterine growth retardation.	K	KH	Y	Integrated	2
OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy.	K	KH	Y	SGD	6
OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy.	K	KH	Y	SDL	1
OG14.1	Enumerate and discuss the diameters of maternal pelvis and types.	K	KH	Y	SGD	2
OG14.2	Discuss the mechanism of normal labor, define and describe obstructed labor, its clinical features; prevention; and management.	K	KH	Y	SGD	2
OG14.3	Describe and discuss rupture uterus, causes, diagnosis and management.	K	KH	Y	SGD	2
OG12.7	Describe and discuss screening, risk factors, management of mother and newborn with HIV.	K	KH	Y	Integrated	2
OG14.4	Describe and discuss the classification; diagnosis; management of abnormal labour.	K	KH	Y	SGD	2

OG15.1	Enumerate and describe the indications and steps of common obstetrics procedures, technique and complications: Episiotomy, vacuum extraction: low forceps: Caesarean section, assisted breech delivery: external cephalic version: cervical cerclage.	K	KH	Y	SGD	2
OG30.1	Describe and discuss the etiopathogenesis; clinical features; differential diagnosis, investigations, management, complications of PCOS.	K	KH	Y	Integrated	2
OG16.1	Enumerate and discuss causes, prevention, diagnosis, management, appropriate use of blood and blood products in postpartum haemorrhage.	K	KH	Y	SGD	2
OG16.3	Describe and discuss causes, clinical features, diagnosis, investigations, monitoring of fetal well - being, including ultrasound and fetal Doppler, principles of management, prevention and counseling in intrauterine growth retardation.	K	KH	Y	SGD	2
OG17.3	Describe and discuss the clinical features, diagnosis and management of mastitis and breast abscess.	K	KH	Y	SGD	2
OG19.1	Describe and discuss the physiology of puerperium, Its complications, diagnosis and management; counseling for contraception. Puerperal sterilization.	K	KH	Y	SGD	2
OG19.1	Describe and discuss the physiology of puerperium, Its complications, diagnosis and management; counseling for contraception. Puerperal sterilization.	K	KH	Y	SDL	1
OG27.1	Describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations, management and long term implications of Pelvic Inflammatory Disease.	K	KH	Y	Integrated	2

OG20.1	Enumerate the indications and describe and discuss the legal aspects, indications, methods for first and second trimester MTP, complications and management of complications of medical Termination of pregnancy.	K	KH	Y	SGD	2
OG24.1	Define, classify and discuss abnormal uterine bleeding, its aetiology, clinical features, investigations, diagnosis and management.	K	KH	Y	SGD	2
OG26.1	Describe and discuss the etiopathogenesis, clinical features; investigations and implications on health and fertility and management of endometriosis and adenomyosis	K	KH	Y	SGD	4
OG18.3	Describe and discuss the diagnosis of birth asphyxia	k	KH	y	Integrated	2
OG29.1	Describe and discuss the etiology; pathology; clinical features; differential diagnosis, investigations, principles of management, complications of fibroid uterus.	K	KH	Y	SGD	2
OG29.1	Describe and discuss the etiology; pathology; clinical features; differential diagnosis, investigations, principles of management, complications of fibroid uterus.	K	KH	Y	SDL	1
OG31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus.	K	KH	Y	SGD	2
OG31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus.	K	KH	Y	SDL	1
OG9.3	Discuss the aetiology, clinical features, differential diagnosis of acute abdomen in early pregnancy (with a focus on ectopic pregnancy) and enumerate the principles of medical and surgical ,management.	K	KH	Y	Integrated	2

OG33.4	Enumerate the methods to prevent cancer of cervix including visual inspection with acetic acid (VIA), visual inspection of cervix with Lugol's iodine (VILI), pap smear and colposcopy.	K	KH	Y	SGD	2
OG33.1	Classify, describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations and staging of cervical cancer.	K	KH	Y	SGD	2
OG33.1	Classify, describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations and staging of cervical cancer.	K	KH	Y	Integrated	2
OG31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus.	K	KH	Y	SDL	1
OG34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer.	K	KH	Y	SGD	2
OG34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer.	K	KH	Y	SDL	1
	Describe and discuss the etiology , pathology, classification, staging of ovarian cancer, clinical features, differential diagnosis, investigations, principles of management including staging laparotomy.	K	KH	Y	SGD	2
OG34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer.	K	KH	Y	Integrated	2
OG34.3	Describe and discuss the etiology , pathology, classification, staging , clinical features, differential diagnosis, investigations and management of gestational trophoblastic disease.	K	KH	Y	SGD	2

Phase III MBBS Part II Clinics

Number	Competency the Student should be able to	Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Teaching Learning Methods
OG 9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation.	S	SH	Y	Bed Side
OG 10.1	Define, classify and describe the aetiology, pathogenesis, clinical Define features, ultrasonography, differential diagnosis and management of antepartum haemorrhage in pregnancy.	K	KH	Y	Bed Side
	Describe the etiopathology, clinical features; diagnosis and investigations, complications, principles of management of multiple pregnancies.	K	KH	Y	Bed Side
	Define , classify and describe the etiology and pathophysiology, early detection, investigations; principles of management of hypertensive disorders of pregnancy and eclampsia, complications of ecalampsia.	K	KH	Y	Bed Side
	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and fetus and the management during pregnancy and labour, and complications of anemia in pregnancy.	K	KH	Y	Bed Side
	Define, classify and describe the etiology, pathophysiology , diagnosis, investigations, criteria, adverse effects on the mother and fetus and the management during pregnancy and labour, and complications of diabetes in pregnancy.	K	KH	Y	Bed Side

	Define, classify and describe the etiology, pathophysiology , diagnosis, investigations, criteria, adverse effects on the mother and fetus and the management during pregnancy and labour, and complications of heart diseases in pregnancy.	K	KH	Y	Bed Side
OG 12.5	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of urinary tract infections in pregnancy.	K	KH	Y	Bed Side
OG 12.6	Describe the clinical features, detection, effect of pregnancy on the disease and impact of the disease on pregnancy complications and management of liver diseases in pregnancy.	K	KH	Y	Bed Side
OG 12.7	Describe and discuss screening, risk factors, management of mother and newborn with HIV	K	KH	Y	Bed Side
OG 12.8	Describe the mechanism, prophylaxis, fetal complications, diagnosis and management of iso immunization in pregnancy.	K	KH	Y	Bed Side
	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy.	K/S	KH	Y	Bed Side
OG 13.3	Observe/ assist in the performance of an artificial rupture of membranes	S	SH	Y	Bed Side
OG 14.1	Enumerate and discuss the diameters of maternal pelvis and types	K	KH	Y	Bed Side
OG 14.2	Discuss the mechanism of normal labor, Define and describe obstructed labour, its clinical features, prevention, and management.	K	KH	Y	Bed Side
OG 14.3	Describe and discuss rupture uterus, causes, diagnosis and management.	K	KH	Y	Bed Side

OG 14.4	Describe and discuss the classification; diagnosis; management of abnormal labour.	K	KH	Y	Bed Side
OG 16.1	Enumerate and discuss causes, prevention, diagnosis, management, appropriate use of blood and blood products in postpartum haemorrhage.	K	KH	Y	Bed Side
OG 16.2	Describe and discuss uterine inversion – causes, prevention, diagnosis and management.	K	KH	Y	Bed Side
	Describe and discuss causes, clinical features, diagnosis, investigations, monitoring of fetal well-being, including ultrasound and fetal Doppler, principles of management, prevention and counseling in intrauterine growth retardation.	K/S	SH	Y	Bed Side
	Describe and discuss the temporary and permanent methods of contraception, indications, technique and complications, selection of patients, side effects and failure rate including Ocs, male contraception, emergency contraception and IUCD.	K	KH	Y	Bed Side
	Describe and discuss the etiology (with special emphasis on Candida, T.vaginalis, bacterial vaginosis),characteristics, clinical diagnosis, investigations, genital hygiene, management of common causes and the syndromic management.	K	KH	Y	Bed Side
	Describe and discuss the common causes, pathogenesis, clinical features, differential diagnosis; investigations; principles of management of infertility - methods of tubal patency, ovulation induction, assisted reproductive techniques.	K	KH	Y	Bed Side
OG 28.2	Enumerate the assessment and restoration of tubal latency.	K	K	N	Bed Side
OG 28.3	Describe the principles of ovulation induction.	K	KH	Y	Bed Side

OG 28.4	Enumerate the various Assisted Reproduction Techniques.	K	K	N	Bed Side
OG 29.1	Describe and discuss the etiology; pathology; clinical features; differential diagnosis, investigations, principles of management, complications of fibroid uterus.	K/A/C	KH	Y	Bed Side
OG 31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus.	K/S	KH	Y	Bed Side
OG 32.1	Describe and discuss the etiology, classification, clinical features, diagnosis, principles of management and preventive aspects of prolapse of uterus.	K	KH	Y	Bed Side
OG 32.2	Enumerate the causes of postmenopausal bleeding and describe its management.	K	KH	Y	Bed Side
OG 33.1	Classify, describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations and staging of cervical cancer.	K/S	KH	Y	Bed Side
OG 33.2	Describe the principles of management including surgery and radiotherapy of Benign, Pre- malignant (CIN) and Malignant Lesions of the Cervix.	K	KH	Y	Bed Side
OG 33.4	Enumerate the methods to prevent cancer of cervix including visual inspection with acetic acid (VIA), visual inspection of cervix with Lugol's iodine (VILI), pap smear and coposcopy.	K	K	Y	Bed Side
OG 34.1	Describe and discuss aetiology, pathology, staging clinical features, differential diagnosis, investigations, staging laparotomy and principles of management of endometrial cancer.	K	KH	Y	Bed Side
OG 36.3	Demonstrate the correct technique of punch biopsy of uterus in a simulated / supervised environment.	S	SH	Y	Bed Side

OG 37.1	Observe and assist in the performance of a Caesarean section	K/S/A/C	SH	Y	Bed Side
OG 37.2	Observe and assist in the performance of Laparotomy	K/S/A/C	SH	Y	Bed Side
OG 37.3	Observe and assist in the performance of Hysterectomy – abdominal /vaginal.	K/S/A/C	SH	Y	Bed Side
OG 37.4	Observe and assist in the performance of Dilatation & Curettage (D&C)	K/S/A/C	SH	Y	Bed Side
OG 37.5	Observe and assist in the performance of Endometrial aspiration -endocervical curettage(EA - ECC)	K/S/A/C	SH	Y	Bed Side
OG 37.6	Observe and assist in the performance of outlet forceps application of vacuum and breech delivery.	K/S/A/C	SH	Y	Bed Side
OG 37.7	Observe and assist in the performance of MTP in the first trimester and evacuation in incomplete abortion	K/S/A/C	SH	Y	Bed Side
OG 38.1	Laparoscopy	K/S/A/C	SH	Y	Bed Side
OG 38.2	Hysteroscopy	K/S/A/C	SH	Y	Bed Side
OG 38.3	Lap sterilization	K/S/A/C	SH	Y	Bed Side
OG 38.4	Assess the need for and issue proper medical certificates to patients for various purposes	K/S/A/C	SH	Y	Bed Side
OG 8.5	Describe and demonstrate pelvic assessment in a model	K/S	SH	Y	Skill lab
OG 13.4	Demonstrate the stages of normal labor in a simulated environment / mannequin and counsel on methods of safe abortion.	S	SH	Y	Skill lab

	Observe and assist in the performance of an episiotomy and demonstrate the correct suturing technique of an episiotomy in a simulated environment. Observe/ Assist in operative obstetric cases-including - CS, Forceps, Vacuum extraction , and breech delivery.	S	SH	Y	Skill lab
OG 18.2	Demonstrate the steps of neonatal resuscitation in a simulated environment.	S	SH	Y	Skill lab
OG 19.2	Counsel in a simulated environment, contraception and puerperal sterilization	S/A/C	SH	Y	Skill lab
OG 20.2	In a simulated environment administer informed consent to a person wishing to undergo Medical Termination of Pregnancy.	S/A/C	SH	Y	Skill lab
OG 35.11	In a simulated environment administer informed consent to a person wishing to undergo Medical Termination of Pregnancy.	S	SH	Y	Skill lab
OG 35.12	Obtain a PAP smear in a stimulated environment	S	SH	Y	Skill lab
OG 35.13	Demonstrate the correct technique to perform artificial rupture of membranes in a simulated/supervised environment.	S	SH	Y	Skill lab
OG 35.14	Demonstrate the correct technique to perform and suture episiotomies in a simulated/ supervised environment.	S	SH	Y	Skill lab
OG 35.15	Demonstrate the correct technique to insert and remove an IUD in a simulated / supervised environment.	S	SH	Y	Skill lab
OG 35.16	Diagnose and provide emergency management of antepartum and postpartum haemorrhage in a simulated/ guided environment.	S	SH	Y	Skill lab

Model Question Paper

Obstetrics & Gynaecology

Phase III MBBS, Part II , 2019-20 Batch

Time: 3hours
Max. Marks:100

(Paper I Obstetrics, Neonatology, Social Obstetrics)

Long Answer Questions: 2 x 10 = 20 M

1) A 30 year old G3P1L1A1 with 32 weeks of gestation came to casualty with complaints of painless bleeding per vaginum since 2 hours. What is your diagnosis? Write the differential diagnosis. How will you investigate and manage this patient? **1+2+3+4=10 M**

2) A 28 year old primi gravida presented to labour room at 34 weeks of gestation with complaints of headache and epigastric pain. On examination, her blood pressure was 180/110 mm Hg. What is the diagnosis, what are it complications? How will you investigate this patient? Discuss the immediate management and obstetric management this patient.

1+2+3+2+2 =10 M

Short Answer Questions : 10 x 5 = 50 M

3. Hyperemesis gravidarum.

4. Follow up of molar pregnancy.

5. Role of ultrasound in 1st trimester of pregnancy and its significance.

6. Modified biophysical profile.

7. Medical methods of induction of labour.

8. Missed Abortion.

9. Screening for diabetes mellitus in pregnancy.

10. Use of Betamethasone on Obstetrics.

11. Causes and management of Neonatal jaundice.

12. Prerequisites for forceps application.

Brief Answer Questions : 5X2=10 Marks

13. Hegar's sign

14. Management of transverse lie at term.

15. Erb's palsy

16. Causes of maternal mortality in INDIA.

17. Inter spinous diameter.

Multiple Choice Questions : 20X1=20 Marks

18. All of the following changes are seen in pregnancy except.

(a) Increased stoke volume (b) increased cardiac output

(c) Increased intravascular volume (d) increased peripheral vascular resistance

19. Which of the following vaccine is absolutely contra indicated in pregnancy.

(a) Hepatitis B (b) T.T (c) Influenza (d) Rubella

20. Peri conceptional use of.....leads to reduced incidence of neural tube defects.

(a) Iron (b) Calcium (c) Folic acid (d) Vitamin D

21. In deep transverse arrest , head is arrested at the level of.....

(a) Ischial Tuberosity (b) Ischial spine (c) inlet of pelvis (d) Perineum

22..... is the smallest diameter of true pelvis.

(a) Inter tuberous diameter (b) Inter spinous diameter (c) Diagnol conjugate (d) None

23. Which of the following is not a sign of placental separation.

(a) Fundus of uterus raises to the umbilicus (b) Extra vulval lengthening of cord

(c) Fresh bout of bleeding (d) Uterus is relaxed

24. HCG is secreted by .....

(a) Syncitiotrophoblast (b) Cytotrophoblast

(c) Amniotic membrane (d) Fetal yolk sac

25. Commonest cardiac lesion in pregnancy in our country is .....

(a) MS (b) MR (c) AR (d) VSD

26. Burn Marshall technique is used in the delivery of .....

(a) Occipito posterior position (b) Face presentation

(c) Brow presentation (d) Breech presentation

27. All the following drugs are used in the management of PPH except.....

(a) PGF2α (b) Misoprostol (c) Methergine (d) Nifedepine

28. Hydatidiform mole is principally a disease of

(a) Amnion (b) Uterus (c) Chorion (d) Decidua

29. All of the following can cause DIC during pregnancy except

(a) Diabetes mellitus (b) Amniotic fluid embolism

(c) Intrauterine death (d) Abruptio placentae

30. Twin peak sign is seen in

(a) Monochorionic diamniotic (b) Dichorionic monoamniotic

(c) Conjoined twins (d) Dichorionic diamniotic

31. The dose of anti-D after term delivery for a Rh negative mother with Rh positive baby is

(a) 50 µg (b) 200 µg (c) 300 µg
(d) 100 µg

32. According to WHO, Anemia in pregnancy is diagnosed when haemoglobin is less than

(a) 10 gm% (b) 11gm% (c) 12gm%
(d) 9 gm%

33. Macrosomia is defined as weight of fetus

(a) >3 kg (b) > 3.5 kg (c) > 4 kg
(d) 4.5 kg

34. Which of the following antihypertensive is not given in pregnancy

(a) Enalapril (b) α Methyl dopa (c) Labetolol
(d) Nifedipine

35.Which drug is given to prevent HIV transmission from mother to child

(a) Nevirapine (b) Lamivudine (c) Stavudine
(d) Abacavir

36. Maternal near miss refers to

(a) Teenager becoming pregnant

(b) Contraceptive failure in a teenager

(c) A woman presenting with life threatening condition, but has survived.

(d) A woman presenting with life threatening condition who has died.

37. Anti Tubercular drug contraindicated in pregnancy

(a) Streptomycin (b) INH (c) Rifampicin

(d) Ethambutol

Model Question Paper

Obstetrics & Gynaecology

Phase III MBBS, Part II 2019-20 Batch

Time: 3hours
Max. Marks:100

(Paper II Gynaecology, Family Planning, Contraception)

Long Answer Questions: 2 x 10 = 20 M

1. Describe the anatomy of pelvic floor. Discuss the etiology of prolapse. How will you manage a 55 year old postmenopausal lady with third degree utero vaginal prolapse? Mention main steps of the surgery?

2+2+3+3=10 Marks

2. A 50 year old P3L3 woman presents with post menopausal bleeding. Examination reveal Stage II A cervical cancer. Write about FIGO staging of cervical cancer. Briefly outline the principles of management of this patient. What are the methods used for screening cervical cancer. **3+4+3= 10 Marks**

Short Answer Questions : 10x5=50

3. Red degeneration of fibroid.

4. Medical management of AUB.

5. Dermoid cyst of ovary.

6. Clinical features and management of Acute PID.

7. Test for ovulation.

8. Crypto menorrhoea.

9. Describe the mechanism of action, indications, contraindications, side effects and failure rate of IUCD.

10. Invasive mole.

11. Types of Dysmenorrhoea & its management.

12. Enumerate & describe any two theories proposed to explain the etio pathogenesis of Endometriosis.

Brief Answer Questions : 5X2=10 Marks

13. Treatment of Bacterial vaginosis.

14. Drugs used for emergency contraception.

15. Treatment of Bartholin abscess.

16. Phenotypic features of Turner syndrome.

17. Mechanism of action and dose of Letrozole.

Multiple Choice Questions : 20X1=20 Marks

18. Just before ovulation there is surge of .....hormone.

(a) LH (b) FSH (c) LH & FSH (d) GnRH

19. All of the following are sexually transmitted except.....

(a) Trichomoniasis (b) Chlamydia (c) Bacterial vaginosis (d) HBsAg

20. A woman with genital tuberculosis may present with .....

(a) Asymptomatic (b) TO mass (c) Menstrual irregularities (d) All of the above

21. All of the following can be prescribed for contraception in a lactating woman except.....

(a) OC Pill (b) Mini Pill (c) Copper –T 380A (d) DMPA

22. SERM used for contraception is .....

(a) Raloxifene (b) Clomiphene (c) Ormeloxifen (d) Ulipristal

23. First sign of puberty .....

(a) Thelarche (b) Adrenarche (c) Pubarche (d) none of the above

24. Which of the following statement regarding HIV infection is false..

(a) Commercial sex workers, Injectable drug abusers, those with other STD's are at high risk of getting HIV infections

(b) Screening with Pap smear to detect CIN is done every three years in HIV positive woman.

(c) The risk of vertical transmission of infection to the fetus with ART is 1- 2 %.

(d) Other associated STD's should be detected and promptly treated in HIV positive woman.

25. Which of the following condition may present with acute retention of urine.

(a) Hematocolpos in adolescent girls

(b) Retroverted gravid uterus at about 14 weeks of gestation.

(c) Large cervical fibroid

(d) All of the above

26. All of the following are complications of abdominal hysterectomy in the long term except.....

(a) Incisional hernia (b) Chronic pelvic pain (c) Vault prolapse (d) Burst abdomen

27. Hysteroscopy means visualisation of

(a) Uterine cavity (b) Abdominal cavity (c) Genital tract (d) Fallopian tube

28. Posterior colpotomy is done for

(a) Pelvic haematocele (b) Pelvic abscess (c) Ovarian abscess (d) All

29. Malignant tumours are characterised by usually all of the following except

(a) Large size > 5 cm (b) Thick septa (c) Solid (d) Uniloculated

30. Hobnail cells is a feature of

(a) Brenner tumour (b) clear cell tumour (c) Embryonal carcinoma (d) Kruckenburg tumour

31. Treatment of choice of simple hyperplasia of endometrium without atypia.

(a) TAH (b) TAH + BSO (c) Progesterone (d) Estrogen

32. In a woman presenting with amenorrhoea, headache, blurred vision and galactorrhoea, appropriate investigation is

(a) Prolactin (b) LH (c) FSH (d) HCG

33. A 45 year old woman presented with history of polymenorrhea for last 6 months. The first line of management is

(a) Hysterectomy

(b) Progesterone for 3 cycles

(c) Dilatation and curettage

(d) Oral contraceptive for 3 years

34. Scar endometriosis can occur following

(a) Classical caesarean section (b) Hysterotomy (c) Episiotomy (d) All of the above

35. Womb stone appearance of fibroid is seen in

(a) Hyaline degeneration (b) Red degeneration (c) Calcareous degeneration (d)Atrophy

36. Pearl index indicates

(a) Contraceptive failure (b) Low birth weight (c) IUGR (d) Hirsutism

37. For contraception, DMPA is given

(a) Monthly (b) 3 monthly (c) 6 Monthly (d) Yearly

DEPARTMENT OF PAEDIATRICS

Subject:

Academic schedule and assessment procedure for the subject of Paediatrics for MBBS Undergraduates in 2nd (Phase II) and 3rd professional year (Phase III part 1 and part 2) including university examinations.

Goal:

The broad goals of the teaching of undergraduate students in Pediatrics are to acquire knowledge and appropriate skills for optimally dealing with major health problems of children and to ensure their optimal growth and development. The course includes systematic instructions in growth and development, nutritional needs of a child, immunization schedules and management of common diseases of infancy and childhood, scope of Social Pediatrics and counseling.

Objectives:

At the end of the course, the student shall be able to:

(a) Describe the normal growth and development during fetal life, neonatal period, childhood and adolescence and outline deviations thereof

(b) Describe the common pediatrics disorders and emergencies in terms of epidemiology, etiopathogenesis, clinical manifestations, diagnosis, rational therapy and rehabilitation.

(c) State age related requirements of calories, nutrients, fluids, drugs etc. in health and disease

(d) Describe preventive strategies for common infectious disorders, malnutrition, genetic and metabolic disorders, poisonings, accidents and child abuse

(e) Outline National programmes relating to child health including immunization programmes

Competencies:

At the end of the course, the student shall be able to:

(a) Take a detailed pediatrics history, conduct an appropriate physical examination of children including neonates, make clinical diagnosis, explain common bedside investigative procedures, interpret common laboratory investigations and plan and institute therapy,

(b) Ability to recognize and provide emergency and routine ambulatory and First Level Referral Unit care for neonates, infants, children and adolescents and refer as may be appropriate,

(c) Ability to participate in National Programmes related to child health and in conformation with the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) Strategy,

(d) Ability to perform procedures as indicated for children of all ages in the primary care setting

(e) Ability to recognize children with special needs and refer appropriately

(f) Ability to communicate appropriately and effectively.

(g) Distinguish between normal newborn babies and those requiring special care and institute early care to all new born babies including care of pre-term and low birth weight babies, provide correct

guidance and counselling in breast-feeding.

Integration:

The training in Pediatrics should be done in an integrated manner with other disciplines, such as Anatomy, Physiology, Forensic Medicine, pathology, Microbiology, pharmacology, Community Medicine, Obstetrics and Physical Medicine, curative and rehabilitative services for care of children both in the community and at hospital as part of a team.

Course schedule

The above objectives are achieved through clinical postings and theory classes (lectures, tutorials/seminars, SDL and integrated teaching). Paediatricclinical postings begin in 2nd professional year.

Second professional year:

2 weeks allotted for clinics, 3 hours per day from Monday to Friday.

Third professional year:

Phase III part 1– total duration 13 months reduced to 11 months (pandemic module for 2019 batch)

	Lectures	**SGD**	**SDL**	**Total**	**Clinical postings**
Phase III Part 1	20	30	5	55	4 weeks
Phase III Part 2	20	35	10	65	4 weeks

1. In clinical postings each student will follow 2 cases per week from admission to discharge and note in the record or observation book duly signed by assistant professor.
2. Bedside teaching to involve all students; focus on history taking, eliciting clinical signs, management strategies and communication skills.
3. For all certifiable procedural skills (implement DOAP) skill lab will be used and all these to be entered in log book and duly signed.
4. Improving analytical skills in respective competencies by small group discussions
5. Internal assessment at the end of every posting- both theory and practicals
6. Attendance cumulative in all professional years
7. Mandatory practice on mannequins for certain procedures
8. Focused visits to centres dealing with national programs
9. Electives will be designed as per available infrastructure
10. Internal assessment needs to focus on log book and direct observation of skills.
11. AETCOM modules as per longitudinal program
12. Encouragement of self directed learning, making students participate in seminars and symposia
13. Field visits to primary and secondary level healthcare
14. Emphasize case based teaching
15. Clinical clerkship in second professional year to focus on history

taking, basic clinical examination, assessment of change in clinical status, communication and patient education.

16. Third professional part 1 focuses on all above and arriving at differential diagnosis, ordering relevant investigations. Third professional part 2 to focus on decision making, management plans, prognosis, follow up and continuity of care.

Integration:

Teaching shall be integrated both vertically and horizontally recognizing the importance of medical, surgical, medico-legal and ethical issues as they relate to the practice of Paediatrics.

25% of the allotted time shall be utilized for integrated learning with pre and para clinical subjects and assessed during clinical subject examination.

Integrated teaching with clinical departments likes Medicine, Surgery, Obstetrics and Gynecology, radiology etc will be conducted whenever necessary.

Recommended Text Books:

Essential Paediatrics - OP Ghai

Paediatric Clinical Methods- Meherban Singh

Reference Books:

Nelson textbook of Paediatrics

Nutrition and Child development – K E Elizabeth

Cloherty and Starks Manual of Neonatal Care

Practical Aspects of Paediatrics – Mayoor K Chedda

SYLLABUS – COMPETENCIES FOR IIIRD PROFESSIONAL YEAR PART-I

Number	Competency	Domain	K/KH/SH/P	Core	T/L method	Time
Normal Growth And Development						
PE1.1	Define the terminologies Growth and Development and Discuss the factors affecting normal growth and development	K	KH	Y	Lecture	1 hour
PE1.2	Discuss and Describe the patterns of growth in infants, children and adolescents	K	KH	Y		
PE1.3	Discuss and Describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical	K	KH	Y	SGD	1 hour

	growth in infants ,children and adolescents					
PE 1.5	Define development and Discuss the normal developmental milestones with respect to motor, behavior, social, adaptive and language	K	KH	Y	Lecture	1 hour
PE 1.6	Discuss the methods of assessment of development.	K	KH	Y		
Common Problems Related To Growth						
PE2.1	Discuss the Aetio-pathogenesis, clinical features and management of a child who failure to thrive	K	KH	Y	Lecture	1 hour
PE2.4	Discuss the Aetio-pathogenesis , clinical features and management of a child with short stature	K	KH	Y		
PE2.6	Enumerate there fetal criteria for growth related problems	K	K	Y		
Adolescent Health &Common Problems Related To Adolescent Health						

PE6.1	Define Adolescence and stages of adolescence				SGD	1 hour
PE 6.2.	Describe the physical ,physiological and psychological changes during adolescence(Puberty)					
PE6.3	Discuss the general health problems during adolescence	K	KH	Y		
PE6.4	Describe adolescent sexuality and common problems related to it	K	KH	N		
PE6.5	Explain the Adolescent Nutrition and common nutritional problem	K	KH	Y		
PE6.6	Discuss the common Adolescent eating disorders (Anorexia nervosa, Bulimia)	K	KH	N		
PE6.7	Describe the common mental health problems during adolescence	K	KH	Y	SGD Integration	1 hour
PE6.10	Discuss the objectives and functions of AFHS (Adolescent Friendly Health Services) and the referral Criteria	K	KH	N		

PE6.12	Enumerate the importance of obesity and other NCD in adolescents	K	KH	Y		
PE6.13	Enumerate the prevalence and the importance of recognition of sexual drug abuse in adolescents and children	K	KH	N		
To Promote And Support Optimal Breast Feeding For Infants						
PE7.1	Awareness on the cultural beliefs and practices of breastfeeding	K	K	N	SGD Integration	1 hour
PE7.2	Explain the Physiology of lactation	K	KH	Y		
PE7.3	Describe the composition and types of breast milk and Discuss the differences between cow's milk Human milk	K	KH	Y		
PE7.4	Discuss the advantages of breast milk	K	KH	Y		
PE7.6	Enumerate the baby friendly hospital initiatives	K	KH	Y		
Complementary Feeding						

PE8.1	Define the term Complementary Feeding	K	K	Y	SGD	1 hour
PE8.2	Discuss the principles ,the initiation ,attributes ,frequency ,technique and hygiene related to complementary feeding including IYCF	K	KH	Y		
Normal Nutrition, Assessment And Monitoring						
PE9.1	Describe the age-related nutritional needs of infants ,children and adolescents including micronutrients and vitamins	K	KH	Y	SGD	1 hour
PE9.2	Describe the tools and methods for assessment and classification of nutritional status of infants ,children and adolescents	K	KH	Y		
PE9.3	Explains the calorific value of common Indian foods	K	K	Y		
Provide Nutritional Support, Assessment And Monitoring For Common Nutritional Problems						
P E10.1	Define and Describe the aetio -pathogenesis, classify including WHO classification, clinical features ,complication	K	KH	Y	Lecture	1 hour

	and management of severe acute malnourishment(SAM)and moderate acute Malnutrition(MAM)					
P E10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y		
Micronutrientsinhealthanddisease-1(Vitamins A D E K , B Complex And C)						
PE 12.1	Discuss the RDA, dietary sources of Vitamin A and their role in health and disease	K	K	Y	SGD	2 hour
PE 12.2	Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin A	K	KH	Y		
PE 12.5	Discuss the Vitamin A prophylaxis program and their Recommendations	K	K	Y		
PE 13.1	Discuss the RDA, dietary sources of Calcium and its role in health and disease	K	K	Y		
PE 13.12	Describe the causes, clinical features, diagnosis and management of Calcium Deficiency	K	KH	Y		

PE 12.6	Discuss the RDA, dietary sources of Vitamin D and its role in health and disease	K	K	Y		
PE 12.7	Describe the causes, clinical features, diagnosis and management of vitamin D deficiency (VDD)/ excess (Rickets & Hyper vitaminosis D)	K	KH	Y		
PE 12.10	Discuss the role of screening for Vitamin D deficiency	K	K	Y		
PE 12.11	Discuss the RDA, dietary sources of Vitamin E and its role in health and disease	K	K	N		
PE 12.12	Describe the causes, clinical features, diagnosis and management of deficiency of Vitamin E	K	K	N		
PE 12.13	Discuss the RDA, dietary sources of Vitamin K and their role in health and disease	K	KH	N		
PE 12.14	Describe the causes, clinical features, diagnosis management & prevention of deficiency of Vitamin	K	KH	N		
PE 12.15	Discuss the RDA ,dietary sources of Vitamin Band its Role in health and disease				**SDL**	

PE 12.16	Describe the causes, clinical features, diagnosis and management of deficiency of B complex vitamins	K	KH	Y		
PE 12.19	Discuss the RDA ,dietary sources of vitamin c and their role in health and disease	K	KH	N		
PE 12.20	Describe the causes, clinical features, diagnosis and management of deficiency of vitamin C (scurvy)	K	KH	N		
PE 12.21	Identify the clinical features of vitamin C deficiency	S	SH	N		
Fluid And Electrolyte Balance						
PE 15.1	Discuss the fluid and electrolyte requirement in health and disease	K	K	Y	SGD	2 hour
PE 15.2	Discuss the clinical features and complications of fluid and electrolyte imbalance and outline the management					
PE 15.3	Calculate the fluid and electrolyte requirement in health	S	SH	Y		

PE 15.4	Interpret electrolyte report	S	S H	Y		
PE 15.5	Calculate fluid and electrolyte imbalance	S	S H	Y		
Integrated Management Of Neonatal And Childhood Illnesses(IMNCI)Guideline						
PE16.1	Explain the components of Integrated Management of Neonatal and Childhood Illnesses (IMNCI) guidelines and method of Risk stratification	K	K H	Y	SGD	1 hour
The National Health Programs – NHM, RCH						
PE17.1	State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCHA+, RBSK, RKSK, JSSK, mission In dradhanush and ICDS	K	K H	Y	SGD	1 hour
PE18.1	List and explain the components, plan, outcome of Reproductive Child Health (RCH) program and appraise its monitoring and	K	K H	Y	SGD	1 hour

	evaluation					
PE 18.2	Explain preventive interventions for child survival and safe motherhood	K	K H	Y		
National Programs – Universal Immunization Program						
PE19.1	Explain the components of the Universal Immunization Program(UIP)and the National Immunization Program(NIP)	K	K H	Y	Lecture	1 hour
PE 19.2	Explain the epidemiology of vaccine preventable diseases(VPDs)	K	K H	Y		
PE 19.3	Vaccine description with regard to classification of vaccines, strainused,dose,route,schedule,risks, benefits and side effects, indications and contra indications	K	K H	Y		
PE 19.4	Define cold chain and discuss the methods of safe storage and handling of vaccines	K	K H	Y	SGD	1 hour
PE 19.5	Discuss immunization in special situations – HIV positive children, immunodeficiency, pre-term, organ transplants, those who received blood and blood products , splenectomised children	K	KH	Y		

	,adolescents ,and travelers					
PE 19.8	Demonstrate willingness to participate in the national and sub-national immunization days	A	SH	Y	SGD	1 hour
PE 19.9	Describe the components of safe vaccine practice –Patient education/ counseling ; adverse events following immunization, safe injection practices ,documentation and medico-legal implications	K	K H	Y		
PE 19.15	Explain the term implied consent in Immunization services	K	K	Y		
PE 19.16	Enumerate available newer vaccines and their indications including pentavalent pneumococcal, rotavirus ,JE ,typhoid IPV& HPV	K	K	N		
Care of the Normal New Born and High Risk Newborn						
PE 20.1	Define the common neonatal nomenclatures including the classification and describe the characteristics of a Normal	K	KH	Y	Lecture	1 hour

	Term Neonate and High Risk Neonates					
PE 20.2	Explain the care of a normal neonate	K	KH	Y		
PE 20.11	Discuss the clinical characteristics, complications and management of low birth weight (preterm and small for gestation).	K	KH	Y		
PE 20.7	Discuss the etiology ,clinical features and management of Birth asphyxia	K	KH	Y	Lecture	1 hour
PE 20.9	Discuss the etiology ,clinical features and management of birth injuries.	K	KH	Y		
PE 20.8	Discuss the etiology, clinical features and management of respiratory distress in New born including meconium-aspiration and transient tachypnea of newborn.	K	KH	Y	Lecture	1 hour
PE 20.10	Discuss the etiology ,clinical features and management of hemorrhagic disease of newborn	K	KH	Y	Lecture	1 hour
PE 20.12	Discuss the temperature regulation in neonates ,clinical features and management of Neonatal Hypothermia.	K	KH	Y		

PE 20.13	Discuss the etiology, clinical features and management of Neonatal hypoglycemia.	K	KH	Y	SGD	1 hour
PE 20.14	Discuss the etiology ,clinical features and management of Neonatal hypocalcemia	K	KH	Y		
PE 20.15	Discuss the etiology, clinical features and management of neonatal seizures.	K	KH	Y		
PE 20.16	Discuss the etiology , clinical features and management of neonatal sepsis.	K	KH	Y	SGD	1 hour
PE 20.17	Discuss the etiology, clinical features and management of Perinatal infections.	K	KH	Y		
PE 20.19	Discuss the etiology , clinical features and management of Neonatal hyper bilirubinemia	K	KH	Y	Lecture	1 hour
PE 20.20	Identify clinical presentations of common surgical conditions in the newborn including TEF, oesophageal atresia , anal atresia, cleft lip and palate, congenital diaphragmatic hernia and causes of acute abdomen.	K	KH	Y	SGD	1 hour

Vaccine Preventable Diseases						
PE 34.1	Discuss the epidemiology, clinical features, clinical types, complications of Tuberculosis in Children and Adolescents	K	K H	Y	Lecture	2 hours
PE 34.2	Discuss the various diagnostic tools for childhood tuberculosis	K	K H	Y		
PE 34.3	Discuss the various regimens for management of Tuberculosis as per National Guidelines	K	K H	Y		
PE 34.4	Discuss the preventive strategies adopted and the objectives and outcome of the National Tuberculosis Program	K	K H	Y		
PE 34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis	S	S H	N	SGD	1 hour
PE 34.10	Discuss the various samples for demonstrating the organism eg .Gastric Aspirate ,Sputum ,CSF ,FNAC	K	K H	Y		

PE 34.12	Enumerate the indications and discuss the limitations of methods of culturing M .Tuberculosis	K	K H	Y		
PE 34.13	Enumerate the newer diagnostic tools for Tuberculosis including BACTEC CBNAAT and their indications	K	K	N	**SDL**	
PE 34.14	Enumerate the common causes of fever and discuss the etio pathogenesis ,clinical features ,complications and management of fever in children	K	K H	Y	SGD	2 hours
PE 34.16	Enumerate the common causes of fever and discuss the etio pathogenesis ,clinical features, complications and management of child with Diphtheria, Pertussis, Tetanus	K	KH	Y		
PE 34.15	Enumerate the common causes of fever and discuss the etio pathogenesis, clinical features ,complications and management of child with exanthematous illness like Measles ,Mumps, Rubella &Chickenpox	K	KH	Y	SGD	1 hour
PE 34.17	Enumerate the common causes of fever and discuss the etio pathogenesis ,clinical features, complications and	K	K H	Y	SGD	1 hour

	management of child with Typhoid					
PE 34.18	Enumerate the common causes of fever and discuss the etio pathogenesis ,clinical features, complications and management of child with Dengue ,Chikungunya and other vector borne diseases	K	KH	Y	Lecture	1 hour
PE 34.19	Enumerate the common causes of fever and discuss the etio pathogenesis, clinical features, complications and management of children with Common Parasitic Infections ,malaria ,leishmaniasis, filariasis, helminthic Infestations , amebiasis , giardiasis	K	KH	Y	SGD	1 hour
PE 34.20	Enumerate the common causes of fever and discuss the etio pathogenesis ,clinical features, complications and management of child with Rickettsial diseases	K	KH	Y		
Diarrhoeal Diseases and Dehydration						
PE 24.1	Discuss the etio pathogenesis, classification ,clinical presentation and management of diarrheal diseases in children.	K	KH	Y	Lecture	1 hour

PE 24.2	Discuss the classification and clinical presentation of various types of diarrheal dehydration	K	K H	Y		
PE 24.3	Discuss the physiological basis of ORT ,types of ORS and the composition of various types of ORS in children	K	K H	Y	SGD	1 hour
PE 24.4	Discuss the types of fluid used in Pediatric diarrheal diseases and their composition	K	K H	Y		
PE 24.5	Discuss the role of antibiotics, antispasmodics, anti-secretory drugs, probiotics,anti-emetics in acute diarrheal diseases	K	K H	Y		
PE 24.6	Discuss the causes, clinical presentation and management of persistent diarrhea in children	K	K H	Y	Lectur e	1 hour
PE 24.7	Discuss the causes, clinical presentation and management of chronic diarrhea in children.	K	K H	Y		
PE 24.8	Discuss the causes, clinical presentation and management of dysentery in children	K	K H	Y		
Acute and Chronic Liver Disorders						
PE26.1	Discuss the etio pathogenesis, clinical features and	K	K	Y	Lectur	1 hour

	management of acute hepatitis in children				e	
PE 26.2	Discuss the etio pathogenesis, clinical features and management of Fulminant Hepatic Failure in children	K	K	Y		
PE 26.3	Discuss the etio pathogenesis, clinical features and management of chronic liver diseases in children.	K	K	Y	SGD	1 hour
PE 26.4	Discuss the etiopathogenesis, clinical features and management of Portal Hypertension in children	K	K	Y		
PE 26.11	Enumerate the indications for Upper GI endoscopy	K	K H	Y		
PE 26.12	Discuss the prevention of Hep B infection – Universal precautions and Immunization	K	K	Y	**SDL**	
Respiratory System						
PE 28.1	Discuss the etio pathogenesis, clinical features and management of Nasopharyngitis	K	K H	Y	SGD	1 hour
PE 28.2	Discuss the etio pathogenesis of Pharyngo-tonsillitis	K	K H	Y		

PE 28.3	Discuss the clinical features and management of Pharyngo-tonsillitis	K	K H	Y		
PE 28.4	Discuss the etio pathogenesis ,clinical features and management of Acute Otitis Media(AOM)	K	K H	Y		
PE 28.5	Discuss the etio pathogenesis , clinical features and management of Epiglottitis	K	K H	Y	SGD	1 hour
PE 28.6	Discuss the etio pathogenesis, clinical features and management of Acute laryngo-tracheo-bronchitis	K	K H	Y		
PE 28.7	Discuss the etiology ,clinical features and management of Stridor in children	K	K H	Y		
PE 28.8	Discuss the types, clinical presentation, and management of foreign body aspiration in infants and children	K	K H	Y		
PE 28.18	Describe the etiopathogenesis, diagnosis, clinical features, management and prevention of lower respiratory infections including bronchiolitis, wheeze Associated LRTI Pneumonia and empyema	K	K H	Y	Lectur e	2 hour
PE 28.19	Describe the etio pathogenesis, diagnosis clinical features,	K	K	Y	Lectur	1 hour

	management and prevention of asthma in children		H		e	
PE 31.5	Discuss the etio pathogenesis, clinical types ,presentations ,management and prevention of childhood Asthma	K	K H	Y		
PE 31.8	Enumerate the criteria for referral in a child with asthma	K	K	Y	SGD	1 hour
PE 31.9	Interpret CBC and CX Ray In Asthma	S	S H	Y		
Chromosomal Abnormalities						
PE32.1	Discuss the genetic basis, risk factors ,complications, prenatal diagnosis, management and genetic counseling in Down Syndrome	K	K H	Y	Lectur e	1 hour
PE 32.4	Discuss the referral criteria and Multidisciplinary approach to management	K	KH	Y		
PE 32.6	Discuss the genetic basis ,risk factors, clinical features, complications ,prenatal diagnosis, management and genetic counseling in Turner Syndrome	K	KH	N		

PE 32.9	Discuss the referral criteria and Multidisciplinary approach to management	K	KH	N		
PE 32.11	Discuss the genetic basis, risk factors ,complications ,prenatal diagnosis ,management and genetic counseling in Klinefelter Syndrome	K	KH	Y		

SYLLABUS – COMPETENCIES FOR IIIrd PROFESSIONAL YEAR PART-2

Number	Competency	Domain	K/KH/ SH/P	Core	TLM	Time
Cardiovascular System- Heart Diseases						
PE 23.1	Discuss the Hemodynamic changes, clinical presentation, complications and management of Acyanotic Heart Diseases-VSD	K	KH	Y	Lecture	1 hour

	,ASD and PDA					
PE 23.2	Discuss the Hemodynamic changes, clinical presentation, complications and management of Cyanotic Heart Diseases– Fallot Physiology	K	KH	Y	Lecture	1 hour
PE 23.3	Discuss the etio pathogenesis, clinical presentation and management of cardiac failure in infant and children	K	KH	Y	SGD	1 hour
PE 23.4	Discuss the etio pathogenesis, clinical presentation and management of Acute Rheumatic Fever in children	K	KH	Y	Lecture	1 hour
PE 23.5	Discuss the clinical features, complications, diagnosis, management and prevention of Acute Rheumatic Fever	K	KH	Y		
PE 23.6	Discuss the etio pathogenesis, clinical features and management of Infective endocarditis in children	K	KH	Y	**SDL**	
PE 23.16	Discuss the indications and limitations of Cardiac catheterization	K	K	Y	SGD	1 hour
PE 23.17	Enumerate some common cardiac surgeries like BT shunt, Potts and Waterston's and corrective surgeries	K	K	Y		

Anemia And Other Hemato-Oncologic Disorders In Children						
PE29.1	Discuss the etio pathogenesis, clinical features ,classification and approach to a child with anemia	K	KH	Y	SGD	1 hour
PE29.20	Enumerate the indications for splenectomy and precautions	K	K	N		
PE 29.2	Discuss the etio pathogenesis, clinical features and management of iron deficiency anemia.	K	KH	Y	Lecture	1 hour
PE 29.3	Discuss the etio pathogenesis, clinical features and management of VitaminB-12, Folate deficiency anemia.	K	KH	Y		
PE 29.4	Discuss the etio pathogenesis, clinical features and management of Hemolytic anemia, Thalassemia Major, Sickle cell anemia. Hereditary spherocytosis , Autoimmune hemolytic anemia and hemolytic uremic syndrome.	K	KH	Y	Lecture SGD	2 hours 1 hour
PE29.5	Discuss the National Anemia Control Program.	K	KH	Y	**SDL**	

PE29.6	Discuss the cause of thrombocytopenia in children: describe the clinical features and management of idiopathic Thrombocytopenic Purpura.	K	KH	Y	SGD	1 hour
PE29.7	Discuss the etiology, classification, pathogenesis and clinical features of Hemophilia in children.	K	KH	Y	**SDL**	
PE29.8	Discuss the etiology, clinical presentation and management of Acute Lymphoblastic Leukemia in Children.	K	KH	N	Lecture	1 hour
PE29.9	Discuss the etiology, clinical presentation and management of Lymphoma in children.	K	KH	N		
PE29.16	Discuss the indications for Hemoglobin electrophoresis and interpret the report.	K	K	N	SGD	1 hour
Genito - Urinary System						
PE21.1	Enumerate the etio pathogenesis, clinical features, complications and management of Urinary Tract infection(UTI) in children	K	KH	Y	Lecture	1 hour
PE21.2	Enumerate the etio pathogenesis, clinical features ,complications and management of acute post-streptococcal Glomerular Nephritis	K	KH	Y	Lecture	1 hour

	in children					
PE 21.3	Discuss the approach and referral criteria to a child with Proteinuria	K	KH	Y	Lecture	1 hour
PE 21.4	Discuss the approach and referral criteria to a child with hematuria	K	KH	Y	SGD	1 hour
PE 21.7	Enumerate the etio pathogenesis, clinical features, complications and management of Wilms Tumor.	K	KH	Y		
PE 21.5	Enumerate the etio pathogenesis, clinical features, complications and management of Acute Renal Failure in children	K	KH	Y	SGD	1 hour
PE 21.6	Enumerate the etio pathogenesis, clinical features, complications and management of chronic kidney disease in children.	K	KH	Y	SGD	1 hour
PE 21.15	Discuss and enumerate the referral criteria for children with genitourinary disorder	K	KH	Y	SGD	1 hour
PE 21.17	Describe the etio pathogenesis, grading, clinical features and management of hypertension in children	K	KH	Y		
Approach To And Recognition Of A Child With Possible Rheumatologic Problem						
PE 22.1	Enumerate the common Rheumatological problems in children. Discuss the clinical approach to recognition and referral of a child	K	KH	Y	Lecture	1 hour

	with Rheumatological problem					
PE 22.3	Describe the diagnosis and management of common vasculitic disorders including Henoch Schonlein Purpura, Kawasaki Disease, SLE, JIA	K	KH	N	SGD	2 hours
Systemic Pediatrics-Central Nervous System						
PE 30.1	Discuss the etio pathogenesis, clinical features, complications, management and prevention of meningitis in children	K	KH	Y	Lecture	1 hour
PE 30.2	Distinguish bacterial, viral and tuberculous meningitis	K	KH	Y	SGD	1 hour
PE 30.20	Interpret and explain the findings in a CSF analysis	S	SH	Y		
PE 30.3	Discuss the etio pathogenesis, classification, clinical features, complication and management of Hydrocephalus in children	K	KH	Y	SGD	1 hour
PE 30.4	Discuss the etio pathogenesis, classification, clinical features, and management of Microcephaly in children	K	KH	Y	SGD	1 hour
PE 30.5	Enumerate the Neural tube defects. Discuss the causes ,clinical	K	KH	Y	Lecture	1 hour

	features ,types, and management of Neural Tube defect					
PE 30.6	Discuss the etio pathogenesis ,clinical features, and management of Infantile hemiplegia	K	KH	Y	SGD	1 hour
PE 30.10	Discuss the etio pathogenesis, clinical features and management of Mental retardation in children	K	KH	Y		
PE 30.7	Discuss the etio pathogenesis, clinical features ,complications and management of Febrile seizures in children	K	KH	Y	Lecture	1 hour
PE 30.9	Define Status Epilepticus, Discuss the clinical presentation and management	K	KH	Y	SGD	1 hour
PE 27.6	Describe the etio pathogenesis ,clinical approach and management of Status epilepticus	K	KH	Y		
PE 30.8	Define epilepsy. Discuss the pathogenesis, clinical types, presentation and management of Epilepsy in children	K	KH	Y	SGD	1 hour
PE 30.11	Discuss the etio pathogenesis, clinical features and management of children with cerebral palsy	K	KH	Y	Lectur e	1 hour
PE3.8	Discuss the etio pathogenesis, clinical presentation and multi	K	KH	Y		

	disciplinary approach in the management of cerebral palsy					
PE30.12	Enumerate the causes of floppiness in an infant and discuss the clinical features, differential diagnosis and management	K	KH	Y	SGD	1 hour
PE30.14	Discuss the etio pathogenesis, clinical features and management of Duchene muscular dystrophy	K	KH	Y	SGD	1 hour
PE30.13	Discuss the etio pathogenesis, clinical features ,management and prevention of Poliomyelitis in children	K	KH	Y	**SDL**	
PE 30.15	Discuss the etio pathogenesis, clinical features and management of Ataxia in children	K	KH	Y	**SDL**	
PE 30.16	Discuss the approach to and management of a child with headache	K	KH	Y	SGD	1 hour
Common Problems Related To Development-1						
PE.3.1	Define, Enumerate and Discuss the causes of developmental delay and disability Including intellectual disability in children	K	K	Y	**SDL**	
PE3.2	Discuss the approach to a child with developmental delay	K	KH	Y	SGD	1 hour
PE3.6	Discuss the referral criteria for children with Developmental delay	K	K	Y		

Common Problems Related To Development - 2						
PE4.1	Discuss the causes and approach to a child with scholastic backwardness	K	K	N	Lectur e	1 hour
PE4.4	Discuss etiology ,clinical features, diagnosis and management of a child with autism	K	K	N		
PE 4.3	Discuss diagnostic assessment of a child with suspected ADHD.	K	K	N	SGD	1 hour
PE 4.4	Discuss clinical assessment of ASD.	K	K	N		
Common Problems Related To Behaviour						
PE 5.1	Describe the clinical features ,diagnosis and management of thumb sucking	K	K	N	**SDL**	
PE 5.3	Describe the clinical features ,diagnosis and management of nail-biting	K	K	N		
PE 5.6	Describe the clinical features, diagnosis and management of pica	K	K	N		
PE 5.2	Describe the clinical features ,diagnosis and management of feeding problems	K	K	N		

PE 5.4	Describe the clinical features, diagnosis and management of breath holding spells.	K	K	N	SGD	1 hour
PE 5.5	Describe the clinical features, diagnosis and management of temper tantrums	K	K	N		
PE 5.7	Describe the clinical features, diagnosis and management of fussy infant	K	K	N		
PE 5.8	Discuss the etiology, clinical features and management of enuresis.	K	K	N	SGD	1 hour
PE 5.9	Discuss the etiology, clinical features and management of Encopresis.	K	K	N		
Allergic Rhinitis, Atopic Dermatitis, Bronchial Asthma , Urticaria , Angio Edema						
PE 31.1	Describe the etio pathogenesis, management and prevention of Allergic Rhinitis in Children	K	KH	Y	SGD	1 hour
PE 31.12	Discuss the etio pathogenesis, clinical features, complications and management of Urticaria / Angioedema.	K	K	Y		
PE 31.3	Describe the etio pathogenesis ,clinical features and management of Atopic dermatitis in Children	K	KH	Y		
Endocrinology						

PE 13.7	Discuss the RDA ,dietary sources of Iodine and its role in Health and disease	K	K	Y	SGD	1 hour
PE 13.8	Describe the causes ,diagnosis and management of deficiency of Iodine	K	KH	Y		
PE 13.10	Discuss the National Goiter Control program and its recommendations	K	K	Y		
PE33.1	Describe the etio pathogenesis clinical features, management of Hypothyroidism in children	K	KH	Y	Lecture	1 hour
PE33.4	Discuss the etio pathogenesis, clinical types, presentations, complications and management of Diabetes mellitus in children	K	KH	Y	Lecture	1 hour
PE33.8	Define precocious and delayed Puberty	K	KH	Y	SGD	1 hour
P E11.1	Describe the common etiology, clinical features and management of obesity in children	K	KH	Y		
P E11.2	Discuss the risk approach for obesity and Discuss the prevention strategies	K	KH	Y		

Pediatric Emergencies–Common Pediatric Emergencies						
PE 27.1	List the common causes of morbidity and mortality in the under five children	K	K	Y	**SDL**	
PE 27.2	Describe the etio pathogenesis, clinical approach and management of cardio respiratory arrest in children	K	KH	Y	Lecture	1 hour
PE 27.5	Describe the etio pathogenesis, clinical approach and management of Shock in children	K	KH	Y	Lecture	1 hour
PE 27.3	Describe the etio pathogenesis of respiratory distress in children	K	KH	Y	SGD	1 hour
PE 27.4	Describe the clinical approach and management of respiratory distress in children	K	KH	Y		
PE 27.7	Describetheetiopathogenesis,clinicalapproachandmanagementofanunconsciouschild	K	KH	Y	SGD	1 hour
PE 27.9	Discuss oxygen therapy ,in Pediatric emergencies and modes of administration	K	KH	Y	SGD	1 hour
PE 27.11	Explain the need and process of triage of sick children brought to health facility	K	KH	Y	SGD	1 hour
PE 27.12	Enumerate emergency signs and priority signs	K	KH	Y		

PE 27.13	List the sequential approach of assessment of emergency and priority signs	K	KH	Y		
PE 27.24	Monitoring and maintaining temperature :define hypothermia. Describe the clinical features ,complications and management of Hypothermia	K	K	Y	**SDL**	
PE 27.25	Describe the advantages and correct method of keeping an infant warm by skin to skin contact	K	K	Y	**SDL**	
PE 27.26	Describe the environmental measures to maintain Temperature	K	K	Y		
PE 27.29	Discuss the common causes, clinical presentation, medico-legal implications of abuse	K	K	Y	SGD	1 hour
Toxic Elements And Free Radicals And Oxygen Toxicity						
PE 27.8	Discuss the common types, clinical presentations and management of poisoning in children	K	KH	Y	SGD	2 hours
PE 14.1	Discuss the risk factors ,clinical features, diagnosis and management of Lead Poisoning	K	KH	N		
PE 14.2	Discuss the risk factors ,clinical features ,diagnosis and management of Kerosene aspiration	K	KH	N		

PE 14.3	Discuss the risk factors, clinical features, diagnosis and management of Organo-phosphorus poisoning	K	KH	N		
PE 14.4	Discuss the risk factors ,clinical features, diagnosis and management of paracetamol poisoning	K	KH	N		
PE 14.5	Discuss the risk factors ,clinical features, diagnosis and management of Oxygen toxicity	K	KH	N		
The Role Of The Physician In The Community						
PE 35.1	Identify, discuss and defend medico legal, socio-cultural and ethical issues as they pertain to health care in children(including parental rights and right to Refuse treatment)	K	KH	Y	SGD	1 hour

S. No	TOPIC CODE	TOPIC	CP	C	L	T/L method	Others

Total 10 days (2weeks posting, 5 days a week)

1		**INTRODUCTION TO PAEDIATRICS,** orientation to OPD, Paediatric wards and NICU. Sensitization to competencies to be achieved in the 2 weeks of posting and logbook particulars.	1				
	PE1.4	Perform Anthropometric measurements for different age groups, document in growth charts and interpret		3	Logbook	Bedside/ skill lab	
	PE11.5	Calculate BMI, document in BMI chart and interpret		3	Logbook	Bedside	
2	PE1.7	Perform Developmental assessment and interpret	1	3	Logbook	Bedside	
3	PE 7.7	Perform breast examination and Identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess	1	-	-	Bedside/ skill lab	Skill assess-ment, OSCE (video based)

	PE 7.5	Observe correct technique of breast feeding and distinguish right from wrong technique		3	Logbook	Bedside/ skill lab	Skill assessment, OSCE (video based)
4	PE8.3	Enumerate the common complimentary foods	1	-	-	Bedside	Skill assessment OSCE/ VIVA/ LONG CASE
	PE 8.4	Elicit history on the Complementary Feeding habits					
	PE 9.4	Elicit, document and present an appropriate nutritional history and perform a dietary recall					
	PE 9.5	Calculate the age appropriate calorie requirement in health and disease and Identify gaps					
	PE 9.6	Assess and classify the nutrition status of infants, children and adolescents and recognize deviations					
	PE 9.7	Plan an appropriate diet in health and disease					

5	PE2.2	Assessment of a child with failure to thrive including eliciting an appropriate history and examination	1	-	-	Bedside	
	PE2.3	Counseling apparent with failing to thrive child			Logbook	Bedside	AETCOM
6	PE2.5	Assessment of a child with short stature: Elicit history; perform examination, document and present.	1	-	-	Bedside	
	PE 11.3	Assessment of a child with obesity with regard to eliciting history including physical activity, charting and dietary recall			logbook	Bedside/ standardized pt	
	PE 11.4	Examination including calculation of BMI, measurement of waist hip ratio, Identifying external markers like acanthosis, striae, pseudo-gynecomastia		-	-	Bedside/ standardized pt/ videos	
7	PE6.8	Respecting patient privacy and maintaining Confidentiality while dealing with adolescence	1	-	-	Bedside	

	PE6.9	Perform routine Adolescent Health checkup including eliciting history, performing examination including SMR (Sexual Maturity Rating), growth assessments(using Growth charts)and systemic exam including thyroid and Breast exam and the HEADS screening					
8	PE 18.3	Conduct antenatal examination of women independently and apply at- risk approach in antenatal care	1	-	-	Bedside/ video	Integrate with OBG/ CM
	PE 18.4	Provide intra-natal care and conduct a normal delivery In a simulated environment			Logbook	DOAP session, Skills Lab, Video	Integrate with OBG/ CM
	PE 18.5	Provide intra-natal care and observe the conduct of a Normal delivery			Logbook	**DOAP**	Integrate with OBG

	PE 18.6	Perform Postnatal assessment of new born and mother, provide advice on breastfeeding, weaning and on family planning			-	Bedside/ skill lab	Integrate with OBG/ CM

CP – clinical posting; C number required to certify; L- logbook; Each clinical posting (CP)- 3 hours

	Video /DOAP						
9	PE 7.8	Educate mothers on ante natal breast care and prepare mothers for lactation	1		Logbook	DOAP / clinical session	AETCOM
	PE 7.9	Educate and counsel mothers for best practices in Breastfeeding			Logbook	DOAP	
	PE 7.10	Respects patient privacy			Logbook		AETCOM
10	PE 7.11	Participate in Breastfeeding Week Celebration	1	DOAP	Logbook		
	PE8.5	Counsel and educate mothers on the best practices in Complementary feeding			Logbook		Integrate with

							CM

3RD MBBS (PART 1) CLINICAL POSTINGS

DEPARTMENT OF PAEDIATRICS

Total 24 days (4weeks posting, 6 days a week)

Each clinical posting (CP) - 3 hours

CP- Clinical posting; C – Minimum number of certification; L-logbook

S. No	TOPIC CODE	TOPIC	CP	C	L	T/L Method	Other
1	P E10.3	Assessment of a patient with SAM and MAM,diagnosis, classification and planning management including hospital and community-based intervention, rehabilitation and prevention	1	-	-	Bedside	
	P E10.4	Identify children with under nutrition as per IMNCI criteria and plan referral	1		Logbook	DOAP	
	P E 10.5	Counsel parents of children with SAM and MAM			Logbook	Bedside	AETCOM
2	PE 12.3	Identify the clinical features of dietary deficiency /excess of Vitamin A	1	-	Logbook	Clinical case or photographs/ bedside	
	PE 12.4	Diagnose patients with Vitamin A deficiency (VAD),classify and plan management					

	PE 12.8	Identify the clinical features of dietary deficiency of Vitamin D				teaching	
	PE 12.9	Assess patients with Vitamin D deficiency, diagnose, classify and plan management					
	PE 12.17	Identify the clinical features of Vitamin B complex deficiency					
	PE 12.18	Diagnose patients with vitamin complex deficiency and plan management					
	PE 12.21	Identify the clinical features of vitamin deficiency					
3	PE13.3	Identify the clinical features of dietary deficiency of Iron and make a diagnosis	1		Logbook	Bedside /skill lab	
	PE 13.4	Interpret hemogram and Iron Panel					
	PE 13.5	Propose a management plan for IRON deficiency anemia					
4	PE 15.6	Demonstrate the steps of inserting an IV cannula in a model	1	2	-	Skill lab	
	PE 15.7	Demonstrate the steps of inserting an interosseous line in a mannequin		2			

5	PE16.2	Assess children < 2 months using IMNCI guidelines	1	-	Logbook	DOAP/ video	
	PE16.3	Assess children > 2 months to 5years using IMNCI guidelines and stratify risk					
6	PE 18.3	Conduct antenatal examination of women independently and apply at-risk approach in antenatal care	1	-	-	Bedside	**OBG**
	PE 18.6	Perform Postnatal assessment of newborn and mother, provide advice on breastfeeding, weaning and on family planning				Bedside /skill lab	-
	PE 18.7	Educate and counsel care givers of children				OSCE	
	PE 18.8	Observe the implementation of the program by visiting rural health centre			Logbook		
	PE 18.4	Provide intra-natal care and conduct a normal delivery in a simulated environment	1		Logbook	DOAP	**OBG**
	PE 18.5	Provide intra-natal care and observe the conduct of a normal delivery				DOAP/ skill lab	

7	PE 19.6	Assess patient for fitness for immunization and prescribe an age appropriate immunization schedule	1	-	-	OPD/ skill lab	-
	PE 19.7	Educate and counsel a patient for immunization			Logbook	DOAP	
	PE 9.11	Document Immunization in an immunization record			-	DOAP	-
	PE 19.10	Observe the handling and storing of vaccines					
	PE 19.12	Observe the administration of UIP vaccines			Logbook		
	PE 19.13	Demonstrate the correct administration of different vaccines in a mannequin					
	PE 19.14	Practice Infection control measures and appropriate handling of the sharps					
8	PE 20.3	Perform Neonatal resuscitation in a manikin	2	-	Logbook	Skill lab/ DOAP	

	PE 20.4	Assessment of a normal neonate	2	-	Logbook	Bedside	
	PE 20.5	Counsel/educate mothers on the care of neonates					
	PE 20.6	Explain the follow-up care for neonates including Breastfeeding, temperature maintenance, immunization, importance of growth monitoring and red flags.					
	PE 20.18	Identify and stratify risk in a sick neonate using IMNCI guidelines	1		Logbook	DOAP	
9	PE 24.9	Elicit, document and present history pertaining to diarrheal diseases	2	-		Bedside	-
	PE 24.10	Assess for signs of dehydration, document and present					
	PE 24.11	Apply the IMNCI guidelines in risk stratification of children with diarrheal dehydration and refer			Logbook		
	PE 24.13	Interpret RFT and electrolyte report					
	PE	Plan fluid management as per the WHO criteria					

	24.14						
	PE 4.12.1	Perform and interpret stool examination including Hanging Drop		-	Logbook	DOAP	**MICRO**
	PE 24.15	Perform NG tube insertion in a manikin	1	-	Logbook	DOAP	-
	PE 24.16	Perform IV cannulation in a model					
	PE 24.17	Perform Interosseous insertion model					
10	PE 26.5	Elicit document and present the history related to diseases of Gastrointestinal system	1	-		Bedside, skill lab	
	PE 26.6	Identify external markers for GI and Liver disorders e.g. Jaundice, Pallor, Gynecomastia, Spider angioma, Palmar erythema, Icthyosis, Caput medusa, Clubbing, Failing to thrive, Vitamin A and D deficiency					
	PE 26.7	Perform examination of the abdomen, demonstrate organomegaly, ascites etc.					

	PE 26.8	Analyze symptoms and interpret physical signs to make a provisional/ differential diagnosis					
	PE 26.9	Interpret Liver Function Tests, viral markers, Ultra sonogram report					
	PE26.13	Counsel and educate patients and their family ,Appropriately on liver diseases			log book		
	PE26.10	Demonstrate the technique of liver biopsy in a Perform Liver Biopsy in a simulated environment			log book	DOAP	
11	PE 28.9	Elicit, document and present age appropriate history of a child with upper respiratory problem including Stridor	1	-	-	DOAP	
	PE28.10	Perform otoscopic examination of the ear					**ENT**
	PE28.11	Perform throat examination using tongue depressor					
	PE28.12	Perform examination of the nose					

	PE28.13	Analyze the clinical symptoms and interpret physical findings and make a provisional / differential diagnosis in a child with ENT symptoms					
	PE28.14	Develop a treatment plan and document appropriately in a child with upper respiratory symptoms	1	-		bedside	-
	PE28.15	Stratify risk in children with stridor using IMNCI guidelines			log book		
	PE28.16	Interpret blood tests relevant to upper respiratory problems					
	PE28.17	Interpret X-ray of the paranasal sinuses and mastoid; and /or use, written report in case of management. Interpret CXR in foreign body aspiration and lower respiratory tract infection, understand the significance of thymic shadow in pediatric chest X-rays				bedside	
12	PE 34.5	Able to elicit, document and present history of contact with tuberculosis in every patient encounter					
	PE 34.6	Identify a BCG scar	1	-		bedside	-

	PE 34.7	Interpret a Mantoux Test			log book		
	PE 34.8	Interpret a chest radiograph					
	PE 34.9	Interpret blood tests in the context of laboratory evidence for tuberculosis					
	PE 34.10	Discuss the various samples for demonstrating the organism e.g. Gastric Aspirate, Sputum, CSF, FNAC					
	PE 34.11	Perform AFB staining			log book		
13	PE 32.2	Identify the clinical features of Down Syndrome	1	-	logbook	Bedside / photos	-
	PE 32.3	Interpret normal Karyotype and recognize Trisomy 21					
	PE 32.5	Counsel parents regarding 1. Present child 2. Risk in the next pregnancy					
	PE 32.7	Identify the clinical features of Turner Syndrome					
	PE 32.8	Interpret normal Karyotype and recognize Turner Karyotype					

	PE 32.12	Identify the clinical features of Klinefelter Syndrome					
	PE 32.13	Interpret normal Karyotype and recognize the Klinefelter Karyotype					

DEPARTMENT OF PAEDIATRICS

Total: 24(4weeks, 6days per week)

Each clinical posting (CP) Duration: 3hr.

CP- Clinical posting; C – Minimum number of certification required; L -logbook

No	CODE	COMPETENCY	CP	C	L	T/L method	Other
1	PE 23.7	Elicit appropriate history for a cardiac disease, analyze the symptoms e.g. breathlessness, chest pain, tachycardia, feeding difficulty, failing to thrive, reduced urinary output, swelling, syncope, cyanoticspells, Suck rest cycle, frontal swelling in infants.	1	-	-	Bedside	-
	PE 23.8	Identify external markers of a cardiac disease e.g. Cyanosis, Clubbing, dependent edema, dental caries,					

		arthritis, erythema rash, chorea, subcutaneous nodules, Osler node, Janeway lesions and document					
	PE 23.9	Record pulse, blood pressure, temperature and respiratory rate and interpret as per the age					
	PE 23.10	Perform independently examination of the cardiovascular system – look for precordial bulge, pulsations in the precordium, JVP and its significance in children and infants, relevance of percussion in Pediatric examination, Auscultation and other system examination and document					
	PE 23.11	Develop a treatment plan and prescribe appropriate drugs including fluids in cardiac diseases, anti –failure drugs, and inotropic agents					
	PE 23.12	Interpret a chest X ray and recognize Cardiomegaly	1	-	Logbook	Bedside / Skill lab	**RADIOLOGY**
	PE 23.13	Choose and Interpret blood reports in Cardiac illness					
	PE 23.14	Interpret Pediatric ECG					

	PE 23.15	Use the ECHO reports in management of cases					
	PE 23.18	Demonstrate empathy while dealing with children with cardiac diseases in every patient encounter					AETCOM
2	PE 29.10	Elicit, document and present the history related to Hematology	1	-	-	Bedside	-
	PE 29.11	Identify external markers for hematological disorders e.g. Jaundice, Pallor, Petechiae, Purpura, Ecchymosis, Lymphadenopathy, bone tenderness, loss of weight, Mucosal and large joint bleed.					
	PE 29.12	Perform examination of the abdomen, demonstrate Organomegaly.					
	PE 29.13	Analyze symptoms and interpret physical signs to make a provisional /differential diagnosis.					
	PE	Interpret CBC, LFT					

	29.14						
	PE 29.15	Perform and Interpret peripheral smear.	1	-	Logbook	DOAP/ Bedside/ Skill lab	
	PE 29.19	Counsel and educate patients about prevention and treatment of anemia.					
	PE 29.17	Demonstrate performance of bone marrow aspiration in mannequin.					
	PE 29.18	Enumerate the referral criteria for Hematological conditions					
3	PE 21.8	Elicit, document and present a history pertaining to diseases of the Genitourinary tract	**1**	**-**	-	Bedside	-
	PE 21.9	Identify external markers for Kidney disease, like Failing to thrive, hypertension, pallor, Icthyosis, anasarca			Logbook	Bedside	
	PE21.1	Analyze symptom and interpret the physical findings and					

	0	arrive at an appropriate provisional differential diagnosis					
	PE 21.11	Perform and interpret the common analytes in a Urine examination	1	-	-	Bedside	
	PE 21.12	Interpret report of Plain X Ray of KUB			Logbook	Bedside/ skill lab	
	PE 21.13	Enumerate the indications for and Interpret the written report of Ultra sonogram of KUB					**RADIOLOGY**
	PE 21.14	Recognize common surgical conditions of the abdomen and genitourinary system and enumerate the indications for referral including acute and subacute intestinal obstruction, appendicitis, pancreatitis, perforation intussusception, Phimosis, undescended testis, Chordee, hypospadias, Torsion testis, hernia Hydrocele, Vulval Synechiae			-		**SURGERY**
	PE 21.16	Counsel / educate a patient for referral appropriately			Logbook		AETCOM

4	PE 22.2	Counsel a patient with Chronic illness			Logbook	Bedside	
5	PE 30.18	Demonstrate the correct method for physical examination of CNS including identification of external markers. Document and present clinical findings	1	-	-	Bedside	-
	PE 30.19	Analyse symptoms and interpret physical findings and propose a provisional / differential diagnosis					
	PE 30.20	Interpret and explain the findings in a CSF analysis	1	-	Logbook	Bedside/ skill lab	-
	PE 30.23	Perform in a mannequin lumbar puncture. Discuss the indications, contraindication of the procedure					
	PE 30.22	Interpret the reports of EEG, CT, MRI	1				**RADIOLOGY**
	PE 30.21	Enumerate the indication and discuss the limitations of EEG, CT, MRI			-		

	PE3.3	Assessment of a child with developmental delay- elicit document and present history	1	-	-	bedside	-
	PE3.4	Counsel a parent of a child with developmental delay			Logbook	DOAP	
6	PE 31.2	Recognize the clinical signs of Allergic Rhinitis	1	-	-	Bedside	**ENT**
	PE 31.4	Identify clinical features of atopic dermatitis and manage					
	PE 31.6	Recognize symptoms and signs of asthma in a child					
	PE 31.7	Develop a treatment plan for a child with appropriate to the severity and clinical presentation					
	PE 31.9	Interpret CBC and CX Ray in Asthma					-
	PE 31.11	Observe administration of Nebulization			Logbook	DOAP	
7	PE 33.2	Recognize the clinical signs of Hypothyroidism and refer	1	-	-	Bedside/ skill lab	-
	PE 33.3	Interpret and explain neonatal thyroid screening report					
	PE 33.5	Interpret Blood sugar reports and explain the diagnostic criteria for Type 1 Diabetes	1	-		Bedside /skill lab	-

	PE 33.6	Perform and interpret Urine Dip Stick for Sugar			Logbook	DOAP	
	PE 33.7	Perform genital examination and recognize Ambiguous Genitalia and refer appropriately	1	-	-	Bedside/ skill lab	-
	PE 33.9	Perform Sexual Maturity Rating (SMR) and interpret					
	PE 33.10	Recognize precocious and delayed Puberty and refer			Logbook		
	PE 33.11	Identify deviations in growth and plan appropriate referral			Logbook	Bedside	-
8	PE 27.10	Observe the various methods of administering Oxygen	1		Logbook	Bedside	-
	PE 27.14	Assess emergency signs and prioritize			-	DOAP/ skill lab	
	PE 27.15	Assess airway and breathing: recognize signs of severe respiratory distress. Check for cyanosis, severe chest in drawing, grunting		3	-		
	PE 27.16	Assess airway and breathing. Demonstrate the method of positioning of an infant & child to open airway in a simulated		3			

		environment					
	PE 27.17	Assess airway and breathing: administer oxygen using correct technique and appropriate flow rate	1	3	-	DOAP/ skill lab	-
	PE 27.18	Assess airway and breathing: perform assisted ventilation by Bag and mask in a simulated environment		3			
	PE 27.19	Check for signs of shock i.e. pulse, Blood pressure, CRT		3			
	PE 27.20	Secure an IV access in a simulated environment	1	3	-	DOAP/ skill lab	-
	PE 27.21	Choose the type of fluid and calculate the fluid requirement in shock		3			
	PE 27.22	Assess level of consciousness & provide emergency treatment to a child with convulsions/ coma - Position an unconscious child - Position a child with suspected trauma - Administer IV/per rectal Diazepam for a convulsing child in	1	3	-	DOAP/ skill lab	-

		a simulated environment					
	PE 27.23	Assess signs of severe dehydration	1	3	-		-
9	PE 27.27	Assess for hypothermia and maintain temperature		-		Skill lab	
	PE 27.28	Provide BLS for children in manikin	1	3	-	Skill lab	-
	PE 27.30	Demonstrate confidentiality with regard to abuse	1	-	Log book	DOAP/ skill lab	
	PE 27.31	Assess child for signs of abuse					
	PE 27.32	Counsel parents of dangerously ill/ terminally ill child to break a bad news	1	-	-		-
	PE 27.33	Obtain Informed Consent					
	PE 27.34	Willing to be a part of the ER team					

	PE 27.35	Attends to emergency calls promptly					

UNIVERSITY EXAMINATION PATTERN

Theory: Number of papers- One paper , Time – 3 hours		
Distribution of marks		
2 Long answers questions	2 x 10	**20 Marks**
10 Short answer questions	10 x 5	**50 Marks**
5 Brief answer questions	5 x 2	**10 Marks**
20 Multiple Choice Questions	20 x 1	**20 Marks**
TOTAL		**100 Marks**
Practical:		
Distribution of marks		
Long case – One case	1 x 20	**20 Marks**
Short case – Two cases	2 x 10	**20 Marks**
Spotters -Three	3x 5	**15 Marks**
Viva (4 stations)	4 x 10	**40 Marks**
Log Book and Record		**05 Marks**
TOTAL		**100 Marks**

Long case – Paediatric case Short case- one Paediatric case and one Neonatal case Viva – arranged as 4 stations • Vaccines and emergency drugs, • X ray interpretation, • Nutrition, • Commonly used equipment for Paediatric and Neonatal procedures	
TOTAL	**200 Marks**

Eligibility criteria <u>to appear</u> for University examination:

Marks Requirement: 50% marks combined in theory and practical (not less than 40% in each) in any internal assessment examination for eligibility to appear for University examinations. The student has to attend the 4th internal assessment examination (Pre Final) without fail.

Attendance Requirements:

80% in Clinics in 2nd Professional Year (Phase II)

75% in Theory and 80% in clinics in 3rd Professional Year (Phase III –Part 1)

75% in Theory and 80% in clinics in 3rd Professional Year (Phase III –Part II)

Logbook: Learners must have completed the required certifiable competencies and complete the log book appropriate for 3rd Professional Part 2 Phase of training to be eligible for appearing at the final university examination.

Eligibility criteria <u>to pass</u> (Final) University examination

A candidate shall obtain mandatory 50% marks in University conducted examination separately in Theory and Practical (practical = clinical + viva) [theory=theory paper only] in order to be declared as passed.

<u>Distribution of marks for the question paper (Theory) for University examinations</u>

Guidelines for setting Paediatrics question paper:

1. Blueprinting with respect to allocation of marks to each topic must be followed in the question paper.
2. Long essay and short notes questions should be structured. It is essential to allocate marks to individual parts of the question.
3. Maximum marks allocated to each topic in the blue print may vary by +/- 2 marks in the question paper to accommodate for the 5 and 2 markers and making a total of 100 marks.

4. All questions must be given within the prescribed competencies by CBME.

Blueprinting for Question Paper

Maximum marks: 100 including MCQ's

S. No	Topic	Weightage	Marks	Types of questions
1	General Paediatrics	20%	20	LAQ,SAQ,BAQ,MCQ
2	Nutrition	10%	10	LAQ,SAQ,BAQ,MCQ
3	Newborn	20%	20	LAQ,SAQ,BAQ,MCQ
4	Communicable diseases	15%	15	LAQ,SAQ,BAQ,MCQ
5	Systemic Paediatrics	20%	20	LAQ,SAQ,BAQ,MCQ
6	Emergency Paediatrics	10%	10	SAQ, BAQ,MCQ
7	Miscellaneous	5%	5	SAQ,BAQ,MCQ
	TOTAL	**1O0%**	**100**	

LAQ- Long answer question, SAQ- short answer question, BAQ brief answer question, MCQ multiple choice question

TOPICS

1. General Paediatrics -	Introduction to Pediatrics
	Normal Growth and its Disorders
	Development
	Adolescent Health & Development
2. Nutrition -	Fluid and Electrolyte Disturbances
	Nutrition
	Micro-nutrients in Health and Disease
3. Newborn Infants	
4. Communicable diseases -	Immunization and Immunodeficiency
	Infections and Infestations
5. Systemic diseases -	Diseases of Gastrointestinal System & Liver Hematological Disorders
	Otolaryngology
	Disorders of Respiratory System
	Disorders of Cardiovascular System
	Disorders of Kidney and Urinary Tract
	Endocrine and Metabolic Disorders
	Central Nervous System
	Neuromuscular Disorders
	Childhood Malignancies

		Rheumatological Disorders
		Genetic Disorders
		Inborn Errors of Metabolism
6 .Emergency Paediatrics	-	Poisonings, Injuries and Accidents
		Pediatric Critical Care
7. Miscellaneous	-	Common Medical Procedures
		Rational Drug Therapy
		Integrated Management of Neonatal &
		Childhood Illness
		Rights of Children

THEORY EXAMINATION BLUE PRINT

ONE PAPER OF 100 MARKS

Type of questions	Marks per questions	Number of questions	Total marks
Long Answer Questions (LAQ / ESSAY) (Structured)	10	2	20
Short Answer Questions(SAQ)	5	10	50
Brief Answer Questions(BAQ)	2	10	20
MCQ	1	10	10

Long answer questions (LAQ)

The questions should make the students to apply higher cognitive skills. The questions should be structured and marks breakup should be provided

Short answer questions (SAQ)

These structured questions provide opportunity to answer in specific within in a short time.

Brief answer questions (BAQ) These questions are based on applied aspects and require answers to be given very precisely

Multiple choice questions (MCQ) - Analytical

DEPARTMENT OF PAEDIATRICS

MODEL EXAMINATION PAPER FOR FINAL MBBS PART II

(2019 – 2020 BATCH STUDENTS)

Total marks 100 **Total Duration 3 hours**

ESSAY QUESTIONS: **2X 10 = 20 marks**

1. Describe life cycle of malaria parasite, enumerate clinical features of malaria. How to investigate a case of malaria. Explain treatment of complicated malaria. (2+ 2+2+4)

2. A one and half year old male child presented with easy fatiguibility, irritability . On examination child having pallor, hepatosplenomegaly present. H/o of previous sibling with similar complaints and is receiving periodic blood transfusions. On investigations hemoglobin electrophoresis : HbF > 90%, HbA < 2%. (1+2+1+4+2)
    a. What is the probable diagnosis?
    b. Describe the characteristic facies in this condition.
    c. What is the pattern of inheritance ?
    d. Describe the clinical features and management ?
    e. Enumerate the complications ?

SHORT QUESTIONS: **10 x 5 = 50 marks**

3. Definition and causes of Failure to thrive.
4. Write in detail about of Feeding of a LBW baby.
5. Enumerate causes and management of obesity in children .
6. Discuss clinical features and management of Vitamin D dependent rickets.
7. Write about causes and management of hypocalcemia in new born.
8. Enumerate Clinical features of marasmus and kwashiorkor.
9. Discuss the Complications of blood transfusion
10. Write about WHO classification of Vitamin A deficiency and its treatment
11. Investigations and management of enteric fever
12. Define Physiological jaundice in new born and management of it.

VERY SHORT QUESTIONS **5x2=10 marks**

13. Jones major criteria

14. Four complications of dengue fever
15. Vitamin -A prophylaxis
16. Define term and preterm baby
17. Heart defects in down's syndrome

MCQ: **20 x 1 = 20 marks**

18. Vitamin K dependent factors:

    a) II, VI, IX, X. b) II, VII, IX, X. c) II, VI, IX, XI. d) II, VI, IX, XI.

19. Following reflexes appear after birth except:

    a) Parachute. b) Moro's.
    b) Symmetrical tonic neck reflex. d) Landau reflex.

20. Following is not a part of severe acute malnutrition definition by WHO:

    a) Weight for height <3SD. b) Height for age <3 SD.

    c) Bilateral pedal edema. d) Mid upper arm circumference <11.5 cms.

21. Following is a false statement for constitutional delay:

    a) Final height of the child is short.

    b) Family history of delayed puberty.

    c) Bone age is delayed. d) Height velocity is normal.

22. Maximum brain growth (90 %) occurs by:

    a) At birth. b) At 1 Year. c) At 2 years. d) At 3 years.

23. Following is not a fat soluble vitamin:

    a) Vitamin A. b) Vitamin C. c) Vitamin D. d) Vitamin K.

24. Recombinant vaccine is:

    a) DPT b) OPV c) Hepatitis B d) BCG

25. Cause of Croup is:

    a) Asthma b) Laryngotracheobronchitis c) Pneumonia d) Bronchioli

26. Complication of Enteric fever

a) Urticarial Rash b) Encephalopathy

c) Severe Dehydration d) Hypothermia

27. Cause of delayed milestones

a) Cerebral Palsy b) Asthma c) Chronic Diarrhea d) HIV Infection

28. Moro's reflex normally disappears by

a) 3 months b) 4months c) 6 months d) 8 months

29. Which of the following is true about Salbutamol

a) For its action on lungs, it has to be given by inhalation only

b) It is a selective beta 1 agonist

c) It causes decreased lung volume

d) It causes constriction of smooth muscles

30. Correct latching technique to the breast is shown by all except

a) Mouth wide open

b) Areola visible more on the upper side than lower

c) Sucking with rest in between

d) Baby's chest and abdomen need not be in contact with the mother

31. A one year old can perform all of these EXCEPT

a) May take a few steps without holding on

b) Puts things in a container and takes them out

c) Draw a circle d) says "mama" "dada" etc

32. A six week old infant cannot

a) Grasp dangling objects b) fix gaze

c) Lift and hold head d) turn head towards sound

33. Shakir tape is used for measurement of

a) Height of infant b) mid arm circumference

c) Skin fold thickness d) head circumference

34. Commonest cause of enuresis in children is

a) Psychological stress b) diabetes mellitus c) UTI d) spina bifida

35. Prenatal diagnosis is possible for all except

a) Duchenne muscular dystrophy b) sickle cell anaemia

c) ectodermal dysplasia d) beta thalasssemia

36. A seven year old boy with reduced height and weight for age for past 1 year, is likely to have

a) Malnutrition b) Lymphoma

c) Chronic infection /inflammation d) Measles

37. Costochondral junction swelling is seen

a) Scurvy b) Rickets c) Chondrodystrophy d) All of the above