

Rajiv Gandhi University of Health Sciences
Bangalore, Karnataka



Internal Medicine Curriculum for Competency Based Curriculum

RGUHS Internal Medicine Curriculum as per the new Competency Based Curriculum

Preamble

The NMC envisages that the Indian Medical Graduate should function as the Physician of first contact in the community, to provide holistic health care to the evolving needs of the nation and the world. To fulfil this, the IMG should be able to perform the following roles: a clinician, a communicator, a lifelong learner, a professional and a team leader.

Competency-based medical education (CBME) is an outcomes-based training model that has become the new standard of medical education internationally. This new curriculum is being implemented across the country and the first batch has been enrolled since the academic year 2019. The regulatory and accrediting body NMC had started the process by training faculty across the country in the key principles of CBME and developing key competencies for each specialty with the input from expert groups under each specialty. The NMC, in the Graduate medical regulations 2019, has provided the list of internal medicine competencies required for an IMG and these have been included in this document.

The document begins with the goals and objectives of the medicine curriculum, then a summary of phase wise hours allotted to internal medicine and their distribution across didactic lecture, small group discussion and self-directed learning. Subsequently, this document suggests phase wise topics in the 4 clinical postings, directory of minimum cases to be seen, and suggested clinical assessment methods for the postings.

This is followed by the competencies to be delivered, along with the SLOs, suggested TL methods, and suggested assessment methods.

Goals and Objectives of the medicine curriculum

Goals

The broad goal of the medicine curriculum is to equip the IMG with sufficient knowledge, skills and attitude to diagnose and appropriately treat common disorders affecting the adult population.

Objectives

A) Knowledge

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

- a. Describe the pathophysiology of common diseases of adults
- b. Describe the clinical features, diagnosis and management of the above
- c. Be well versed with the preventive aspects of the internal medical curriculum, specifically patient education, lifestyle modification and adult vaccination.

(B) Skills

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

- a. Demonstrate the ability to elicit a detailed clinical history and perform a general physical and systemic examination, in outpatient and inpatient settings.

- b. Demonstrate the ability to apply the elicited history and examination to arrive at correct diagnosis and plan treatment.
- c. Demonstrate the ability to deliver immediate care to commonly seen emergencies prior to referral to higher centre.

C) Attitude and communication skills

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

- a. Communicate effectively with patients, their families and the public at large
- b. Communicate effectively with peers and teachers demonstrate the ability to work effectively with peers in a team.
- c. Demonstrate professional attributes of punctuality, accountability and respect for teachers and peers.
- d. Appreciate the issues of equity and social accountability

Summary of course content, teaching and learning methods and student assessment for the undergraduate (MBBS) Curriculum in Internal medicine –

Distribution of hours :

Phase	Lecture	Small group discussion	Self-directed learning
Phase 2	25		
Phase 3, part 1	25	35	5
Phase 3, part 2	70	125	15

Time allotted excludes time reserved for internal / University examinations, and vacation.

Teaching-learning methods shall be learner centric and shall predominantly include small group learning, interactive teaching methods and case-based learning. Didactic lectures not to exceed one-third of the total teaching time. 25% of allotted time (non-clinical time) of third Professional shall be utilized for integrated learning with pre- and para- clinical subjects. This will be included in the assessment of clinical subjects.

The teaching learning activity focus should be on application of knowledge rather than acquisition of knowledge.

The curricular contents shall be vertically and horizontally aligned and integrated to the maximum extent possible to enhance learner's interest and eliminate redundancy and overlap.

Small group discussion (SGD) may include the following

1. Tutorials
2. Case based discussion
3. Skill lab sessions

Unless otherwise mentioned, in the TL methods suggested in the competency table, SGD sessions are for 2 hours, and lectures for 1 hour and skill lab sessions are for 4 hours

Phase wise competencies suggested

Phase 2 : Introduction to history taking, introduction to systems

Phase 3 part 1 : 4,6,9,11,12,16,25

Phase 3 part 2 : remaining competencies and pandemic module

Topics for self-directed learning in Phase 1

(1 hour each)

1. KFD/ JE
2. Acromegaly & hyperprolactinemia
3. Posterior pituitary disorders
4. Sideroblastic anemia
5. Haemolytic anemias

Topics for SDL in phase 2

1. Introduction to cardiovascular disease in adults
2. Cardiomyopathies
3. Pneumoconiosis
4. Nephrotic syndrome
5. Epilepsy
6. Drug induced liver injury
7. Hepatic transplantation
8. physiologic effects of acute blood and volume loss
9. therapy of bee sting allergy
10. Heat stroke
11. medico legal aspects of suspected suicidal or homicidal poisoning
12. multiple endocrine neoplasia syndrome
13. Autoimmune hepatitis
14. Systemic sclerosis
15. Primary biliary cirrhosis

Commented [SN1]: Suggested SDL topics , both Phases together. The individual institutions can modify according to their need.

Clinical posting, certifiable skills, case matrix, clinical skills assessment , clerkship , skill lab topics

Acquisition and certification of skills shall be through experiences in patient care, diagnostic and skill laboratories. Use of skill lab to train undergraduates in listed skills should be done mandatorily.

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 II shall be 18 hours per week (3 hrs per day from Monday to Saturday)

Acquisition and certification of skills shall be through bedside clinics, clerkship (student doctor) , diagnostic and skill laboratories.

Clinical postings – phase wise objectives

Posting 1 : The student , at the end of the posting, would have practiced the following

- A. Building a rapport with the patient
- B. Eliciting history in native language of patient
- C. Examining vital signs – pulse, blood pressure, temperature, jugular venous pressure
- D. General physical examination – pallor, icterus, cyanosis, lymphadenopathy, edema
- E. Observation of systemic examination

Posting 2

- A. Practice of skills attained in posting 1
- B. Systemic examination (inspection, palpation, percussion, auscultation) of cardiovascular system, respiratory system, abdomen, and central nervous system

Posting 3

- A. Practice of skills attained in posting 1 and 2
- B. Fluent, confident systemic examination
- C. Ability to distinguish between normal and abnormal physical findings
- D. Collating history and examination findings to arrive at differential diagnoses

Posting 4

Practice and refinement of skills attained in postings 1, 2 and 3

Certifiable skills

1	Perform and interpret a capillary blood glucose test	IM 11.12
2	Perform and interpret a urinary ketone estimation with a dipstick	IM 11.13
3	Describe and discuss the indications for and insert a peripheral intravenous catheter	IM10.21
4	Perform and interpret a 12 lead ECG	IM 1.18, IM 2.10, IM 8.17
5	Describe and discuss the indications to perform an ABG and to interpret the results. to perform arterial blood gas analysis: interpret the data	IM 10.20
6	Perform and demonstrate in a mannequin BLS	IM 2.22

7	Perform and interpret a gram stain and AFB stain	IM 3.14, IM6.14
8	Describe, perform and interpret a peripheral smear and stool occult blood	IM 9.10

Case matrix

Sl. No.	Topic/System	Case
1.	Cardiovascular system	Heart Failure Coronary Artery Disease Hypertension Valvular heart disease
2.	Respiratory System	Pneumonia Pleural effusion Fibrosis COPD
3.	Gastrointestinal and hepatobiliary System	Hepatitis GI Bleed Diarrheal disorders
4.	Central Nervous System	Cerebrovascular accident Movement disorders Peripheral Neuropathy Spinal Cord Disorders
5.	Endocrine system	Diabetes Mellitus Thyroid disorders Obesity

6.	Infectious diseases	Fever and febrile disorders HIV Miscellaneous Infections
7.	Musculoskeletal System	Rheumatological disorders
8.	Nutrition	Anemia Nutrition and vitamin deficiencies
9.	Geriatrics	Comprehensive geriatric assessment
10.	Renal System	Acute kidney injury and chronic kidney disease
11.	Miscellaneous	Common Malignancies Envenomation Poisoning

Clerkship: should be mandatorily implemented, from 1st clinical postings in Medicine .

The goal of this type of T-L activity is to provide learners with experience in longitudinal patient care, being part of the health care team, and participate in hands-on care of patients in outpatient and inpatient setting. During the 1st clinical postings, the students are oriented to the working of the department. During the subsequent clinical posting the students are allotted patients, whom they follow-up through their stay in the hospital, participating in that patient's care including case work-up, following-up on investigations, presenting patient findings on rounds, observing surgeries if any till patient is discharged.

Goal: To provide learners with experience in:

- (a) Longitudinal patient care,
- (b) Being part of the health care team,

- (c) Hands-on care of patients in outpatient and inpatient setting.
- (d) No learner will be given independent charge of the patient
- (e) The supervising physician will be responsible for all patient care decisions

The learner will function as a part of the health care team with the following responsibilities:

Be part of the unit's outpatient services on admission days,
Remain with the admission unit until 6 PM except during designated class hours,

Be assigned patients admitted during each admission day for whom he/she will undertake responsibility, under the supervision of a senior resident or faculty member,

Participate in the unit rounds on its admission day and will present the assigned patients to the supervising physician,

Perform simple tasks, including nebulisation, patient education

Follow the patient's progress throughout the hospital stay until discharge,

Participate, under supervision, in procedures, surgeries, deliveries etc. of assigned patients

Participate in unit rounds on at least one other day of the week excluding the admission day, Discuss ethical and other humanitarian issues during unit rounds,
Attend all scheduled classes and educational activities,
Document his/her observations in a prescribed log book / case record.

Clerkship phase wise

Year of Curriculum	Focus of Learner - Doctor programme
Year 1	Introduction to hospital environment, early clinical exposure, understanding perspectives of illness
Year 2	History taking, physical examination, assessment of change in clinical status, communication and patient education
Year 3	All of the above and choice of investigations, basic procedures and continuity of care
Year 4	All of the above and decision making, management and outcomes

Eligibility to appear for Professional examinations

(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., Internal Medicine and allied branches), the candidate must have 75% attendance in each subject and 80% attendance in 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:

Theory assessment

A 100-mark question paper covering the topics of part 1 may be conducted. Mark division will be as follows:

100 marks
Long essay 2X10= 20
Short essay 8x5=40 marks
Short answer question 10x3=30marks
MCQs 10x1=10marks

A minimum of 80% of the marks should be from the must know component of the curriculum. A maximum of 20% can be from the desirable to know component. All main essay questions to be from the must know component of the curriculum.

One main essay question to be of the modified variety containing a clinical case scenario. At least 30% of questions should be clinical case scenario based. Questions to be constructed to test higher cognitive levels.

Internal Assessment

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.

Log book

1. (a) A designated faculty member in each unit will coordinate and facilitate the activities of the learner, monitor progress, provide feedback and review the log book/ case record.
2. (b) The log book/ case record must include the written case record prepared by the learner including relevant investigations, treatment and its rationale, hospital course, family and patient discussions, discharge summary etc.
3. (c) The log book should also include records of patients assigned. Submission of the log book/ case record to the department is required for eligibility to appear for the final examination of the subject.

There shall be no less than four theory internal assessment (One each in 2nd MBBS and 3rd MBBS Part1 and Two in 3rd MBBS Part2) excluding the prelims in Medicine. An end of posting clinical assessment shall be conducted for each of the clinical postings in Medicine. Internal assessment may be conducted as follows

AETCOM assessment will include: (a) Written tests comprising of short notes and creative writing experiences, (b) OSCE based clinical scenarios / viva voce

The competencies to be delivered in AETCOM have been summarized at the end of the competency table. The question paper must include a least one question based on AETCOM competencies covered in that phase. AETCOM competencies must also be tested in the viva voce.

Internal assessment at the end of clinical postings

Internal assessment marks at the end of each posting will be a sum of log book (documentation of skills practiced, clerkship, assessment of behaviour in posting) and clinical internal assessment marks. Internal assessment may be conducted as follows in postings

Posting 1 – long case focusing on history, vital signs and general physical examination

Posting 2 – OSCE with the following stations – history, vital signs, general physical examination, CVS, RS, Abdomen, CNS, diagnostic skills, communication

Posting 3 – Long case or OSLER (Objective Structured Long Examination Record)

Posting 4 – short case and/or long case

There will be one Theory and Clinical preliminary exam before the student is eligible for university exams.

Day to day records and logbook (including required skill certifications) should be given importance in internal assessment. Internal assessment should be based on competencies and skills.

Learners must secure at least 50% marks of the total marks (combined in theory and clinical; not less than 40 % marks in theory and practical separately) assigned for internal assessment in Medicine to be eligible for appearing at the final University examination.

Internal assessment marks will reflect as separate head of passing at the summative examination.

The results of internal assessment should be displayed on the notice board within 1-2 weeks of the test.

Remedial measures should be offered to students who are either not able to score qualifying marks or have missed on some assessments due to any reason.

Learners must have completed the required certifiable competencies for that phase of training and Medicine logbook entry completed to be eligible for appearing at the final university examination.

University examinations

University examinations 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 & Gynaecology and Paediatrics.

The discipline of Orthopaedics, Anaesthesiology, Dentistry and Radiodiagnosis will constitute 25% of the total theory marks incorporated as a separate section in paper II of General Surgery.

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.

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 out on an objective basis to the extent possible.

Marks allotted

Medicine	Theory	Clinical examination
Total marks	2 papers of 100 marks each for Medicine . The pattern of each question paper is given below	200 marks
	Long essay 2X10= 20	One long case for 80 marks
	Short essay 8x5=40 marks	Two short cases for 40 marks each
	Short answer question 10x3=30marks	Viva-voce for 40 marks. Station-1: Xray & ECG Station-2: Instruments Station-3: Specimens Station-4: Drugs & case scenarios
	MCQs 10x1=10marks	

The theory paper should include different types such as structured essays, short essays, Short Answers Questions (SAQ) and MCQs (Multiple Choice Questions). Marks for each part should be indicated separately.

A minimum of **80%** of the marks should be from the **must know** component of the curriculum. A maximum of **20%** can be from the **desirable to know** component. All **main essay questions** to be from the **must know component** of the curriculum.

One main essay question to be of the **modified variety** containing a clinical case scenario. At least 30% of questions should be clinical case scenario based. Questions to be constructed to test higher cognitive levels.

Clinical examinations will be conducted in the hospital wards. Clinical cases kept in the examination must be of 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, analyse 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 interpretation of common investigative data, X-rays, identification of specimens, ECG, etc. is to be also assessed.

At least one question in each paper of the clinical specialties in the University examination should test knowledge competencies acquired during the professional development programme. Skill competencies acquired during the Professional Development Programme must be tested during the clinical, practical and viva voce.

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.

Pass criteria

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 separately in theory and clinicals (clinical = clinical + viva)

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.

Appointment of Examiners

Person appointed as an examiner in the 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.

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.

All eligible examiners with requisite qualifications and experience can be appointed as internal examiners by rotation

External examiners may not be from the same University.

There shall be a Chairman of the Board of paper-setters who shall be an internal examiner and shall moderate the questions.

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

BLUEPRINT FOR ASSESSMENT

RATIONALE BEHIND THE BLUEPRINTING WITH EXCERPTS FROM NMC DOCUMENT ON ASSESSMENT

As per NMC guidelines, a balance should be drawn between the action verbs which are specified in the Bloom's taxonomy along with a balance of the topics of the curriculum

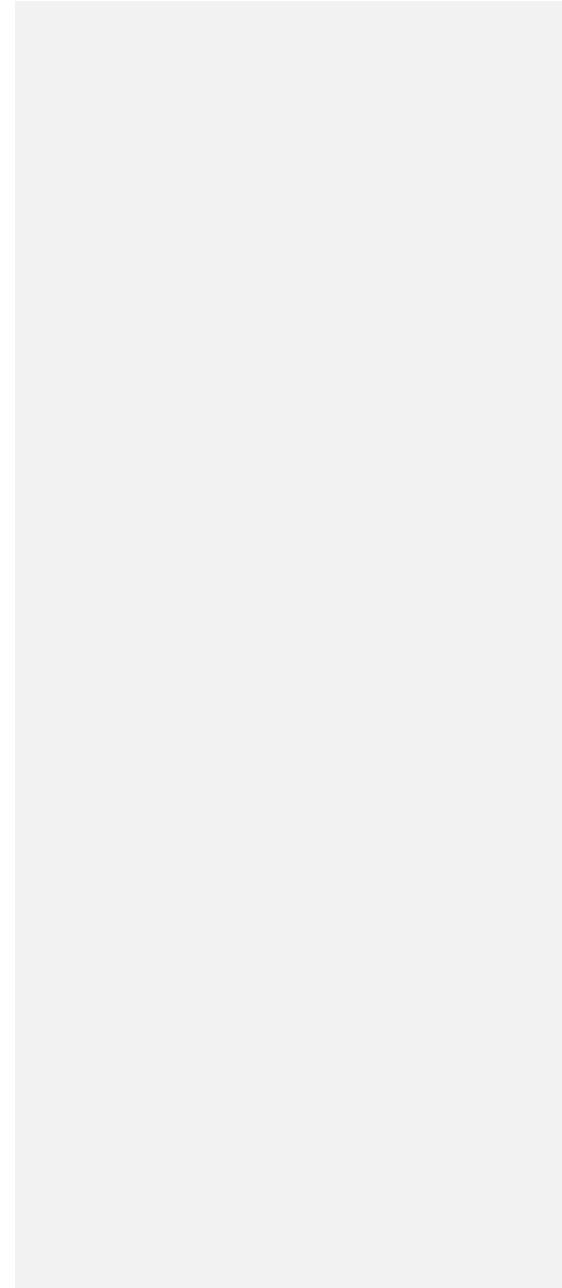
Levels of Bloom's Taxonomy with Suggested Verbs in the questions are specified below.

Knowledge	Define, Describe, Draw, Find, Enumerate, Cite, Name, Identify, List, label, Match, Sequence, Write, State
Comprehension	Discuss, Conclude, Articulate, Associate, Estimate, Rearrange, Demonstrate understanding, Explain, Generalise, Identify, Illustrate, Interpret, Review, Summarise
Application	Apply, Choose, Compute, Modify, Solve, Prepare, Produce, Select, Show, Transfer, Use
Analysis	Analyse, Characterise, Classify, Compare, Contrast, Debate, Diagram, Differentiate, Distinguish, Relate, Categorise
Synthesis	Compose, Construct, Create, Verify, Determine, Design, Develop, Integrate, Organise, Plan, Produce, Propose, rewrite
Evaluation	Appraise, Assess, Conclude, Critic, Decide, Evaluate, judge, Justify, Predict, Prioritise, Prove, Rank

The focus should be on providing clinical oriented questions rather than purely theoretical questions. All faculty and students are directed to the NMC document on Competency Based Assessment for further details.

The blueprinting provided is an estimate only. While exact adherence to the number of questions may not be perfectly possible, the spirit of the blueprint must be honoured while setting the paper. This document will guide teachers/ students and evaluators on what to focus on.

Draft



Number	Topic	Marks on 175
1.	Heart failure	15
2.	Acute Myocardial infarction	13
3.	Pneumonia	6
4.	Fever and febrile syndromes (miscellaneous infections)	12
5.	Liver disease	4
6.	HIV	4
7.	Rheumatological disease	6
8.	HTN	12
9.	Anaemia	6
10.	AKI/CKD	4
11.	DM	4
12.	Thyroid dysfunction	4
13.	Common malignancies	2
14.	obesity	6
15.	GI bleeding	4
16.	Diahorreal diseases	6
17.	Headache	6
18.	Cerebrovascular accidents	13
19.	Envenomation	5
20.	Movement disorder	2
21.	poisonings	8

22.	Mineral, Fluid Electrolyte and Acid base Disorder	13
23.	Nutritional and Vitamin Deficiencies	6
24.	Geriatrics	7
25.	Chronic respiratory diseases	7
26.	Dermatology	12
27.	Psychiatry	13
	Total marks	200

Draft

General Medicine- Paper 1

2 ×10 =20 Marks

LONG ESSAYS

1. Discuss the aetiology, clinical features and management of Acute ischemic stroke. (2+3+5)
2. A 45 year old man undertook an 18 hour air flight. After his flight he noticed swelling of right lower limb swelling. Two days later he developed sudden onset of left sided chest pain and hemoptysis. What is the most probable diagnosis? How would you confirm the diagnosis and manage the patient. (2+3+5)

SHORT ESSAYS

8×5 =40 marks

3. Secondary hypertension
4. Infective endocarditis
5. Management of acute STEMI
6. Atypical pneumonia
7. Pyrexia of unknown origin
8. Spontaneous bacterial peritonitis
9. Microangiopathic hemolytic anemia
10. Dengue shock syndrome

SHORT ANSWERS

10×3=30 Marks

11. Paradoxical split
12. Variceal bleed acute management
13. Integrase inhibitors
14. Falls in the elderly
15. Dermatological manifestations in HIV
16. Pseudohyperkalemia
17. Chorea
18. Non alcoholic steatohepatitis
19. Bedaquiline
20. Lupus nephritis

MULTIPLE CHOICE QUESTIONS

10×1=10 Marks

Choose one single answer. There is no negative marking.

21. Which are the following antimicrobials is associated with prolongation of QT intervals
A) Isoniazid B) Co- amoxiclav c) **Erythromycin** d) Gentamicin
22. Which one of the following trace elements is implicated as a cause of cardiomyopathy
A)Copper B) **Selenium** C) Magnesium D)Zinc

23. A 54-year-old man presents with central crushing chest pain. Examination is normal. 12-lead ECG shows ST segment elevation in leads II, III, aVF, and ST depression in V1, V2 and V3. Which coronary artery is occluded?
 A) Circumflex B) **Right coronary artery** C) Left anterior descending
 D) Obtuse marginal
24. A 26-year-old professional footballer collapses while playing football. He is rushed to the Emergency Department, and is found to be in ventricular tachycardia. He is defibrillated successfully and his 12 lead ECG following resuscitation demonstrates left ventricular hypertrophy. Ventricular tachycardia recurs and despite prolonged resuscitation he dies. Which of the following is the most likely diagnosis?
 A) **Hypertrophic cardiomyopathy** B) Pulmonary embolism C) Myocardial infarction D) Aortic stenosis
25. Which of the following statements is true of infections with Mycobacterium tuberculosis?
 A) A positive tuberculin test indicates active disease B) In pregnant women treatment should not be given until after delivery C) Lymph node positive disease requires longer treatment than pulmonary disease D) **Non-sputum producing patients are non-infectious**
26. A 45-year-old woman was diagnosed with bacterial endocarditis. What is the characteristic fundoscopic feature of this disease?
 A) Janeway lesions B) Macular star C) Retinal artery aneurysms D) **Roth's spots**
27. To which of the following drug classes does the oral hypoglycaemic agent pioglitazone belong?
 A) biguanide B) A peroxisome proliferator activated receptor (PPAR)-alpha agonist C) **A peroxisome proliferator activated receptor (PPAR)-gamma agonist** D) A sulphonylurea
28. A 64-year-old man comes to the clinic for review of his type 2 diabetes. He is currently managed with metformin 1 g BD and sitagliptin 100 mg. On examination his blood pressure is 156/90 mmHg, his pulse is 80 and his BMI is 30. Of note on routine investigations is a raised triglyceride level. Which of the following is associated with elevated triglycerides?
 A) Decreased hepatic fat B) **Increased insulin resistance** C) Increased subcutaneous fat D) Reduced cardiovascular risk
29. Which of the following is activated by cholera toxin?
 A) **Adenylate cyclase** B) Guanylate cyclase C) Peroxisome proliferator receptor (PPAR) gamma D) Sodium/potassium ATPase
30. A 55-year-old male is admitted with vomiting. He has a long history of alcohol abuse, appears slightly jaundiced, and is dishevelled and unkempt. He was started on an intravenous glucose infusion and diazepam and he symptomatically improved. One day later he became confused, developed vomiting and diplopia, and was unable to stand. What is the most likely diagnosis?
 A) Delirium tremens B) Hepatic encephalopathy C) Subdural haematoma
 D) **Vitamin B deficiency**

General Medicine- Paper 2

2 ×10 =20 Marks

LONG ESSAYS

1. Describe the aetiology, clinical features and investigation of bronchial asthma. Discuss briefly the management of mild and acute severe asthma. (1+2+2+5)
2. Discuss the aetiopathogenesis, clinical examination, and management of Pyogenic Meningitis. (2+3+5)

SHORT ESSAYS

8×5 =40 marks

3. Psoriatic arthritis
4. Temporal arteritis
5. Management of DKA
6. Thyrotoxic crisis
7. Obstructive sleep apnea
8. Cobra bite
9. Yellow phosphorus poisoning
10. Falls in the elderly

SHORT ANSWERS

10×3=30 Marks

11. Renal replacement therapy
12. SGLT 2 inhibitors
13. Philadelphia chromosome
14. Chronic diarrhea
15. Migraine prophylaxis
16. Metabolic acidosis
17. Hypophosphatemia
18. Scabies
19. Post traumatic stress disorder
20. Erythema nodosum leprosum

MULTIPLE CHOICE QUESTIONS

10×1=10 Marks

21. A 29-year-old woman who is known to have one episode of severe allergy to egg protein in childhood comes to the vaccination clinic for review. She is travelling with her partner to South America and inquires about which vaccinations she is able to have. Which of the following vaccinations should definitely be avoided?
A)MMR B)Recombinant influenza vaccine C) Typhoid D) **Yellow fever**
22. A 19-year old student is diagnosed with bipolar disorder and is started on olanzapine. Which of the following is the most common side effect that she may experience?
A)Elevated transaminases B)Thrombocytopenia C)Urinary retention D)**Weight gain**
23. A 27-year-old patient presented to his GP with persistent cough and weight loss. He had night sweats. He was diagnosed with TB and referred to the respiratory clinic. He was started on treatment. His urine became orange in colour. Which one of the following drugs causes this?

A) Ethambutol B) Isoniazide C) Pyrazinamide D) **Rifampicin**

24. A patient is prescribed warfarin for prophylaxis of DVT. Which vitamin does warfarin antagonise?

a) B6 B) C C) D D) **K**

25. A 23-year-old man with known peanut allergy presented to the Emergency department with anaphylaxis. He has a swollen face and lips. His BP is 90/60 mmHg, pulse 110 bpm and he is wheezy. Which of the following formulations of adrenaline should be given?

A) 0.5 ml of 1:10000 adrenaline IM B) **0.5 ml of 1:1000 adrenaline IM** C) 5 ml of 1:1000 adrenaline IM D) 10 ml of 1:10000 adrenaline IV

26. A patient is suspected of having taken a substance with anticholinesterase effects. Which of the following combinations of signs, if present, would be the most likely to confirm this effect?

A) **Bradycardia and miosis** B) Bradycardia and mydriasis C) Bradycardia and urinary retention D) Tachycardia and diarrhoea

27. A 52-year-old woman with a three year history of sero-positive erosive rheumatoid arthritis has recently commenced methotrexate therapy initiated at the rheumatology clinic. Which one of the following agents should she also be receiving in conjunction with her methotrexate?

A) Omeprazole B) Thiamine C) Vitamin C D) **Folic Acid**

28. A 62-year-old female with colonic carcinoma is treated with chemotherapy and is receiving ondansetron for intractable nausea and vomiting. Which of the following best describes the pharmacological actions of ondansetron?

A) Dopaminergic antagonists B) H1 antihistamine C) **5-HT3 antagonist** D) Anticholinergic

29. A 51-year-old man presents with wheals and urticaria. He takes a variety of medications. Which drug is the most likely to have caused this reaction?

A) **Aspirin** B) Glyceryl trinitrate C) Omeprazole D) Paracetamol

30. A 72-year-old man presents with painful lumps in his feet and is diagnosed with gout. Following initial treatment with non-steroidal anti-inflammatory agents he is started on allopurinol. How does allopurinol work?

A) Inhibits cyclooxygenase II B) Inhibits macrophage tubular formation C) Inhibits nitric oxide synthase D) **Inhibits xanthine oxidase**

Competency & SLO table : competencies in part 1 : 4,6,9,11,12,16,25. All others in phase 2. The following are guidelines, and modifications may be made in SLOs, TL methods and assessment based on institution infrastructure and practices.

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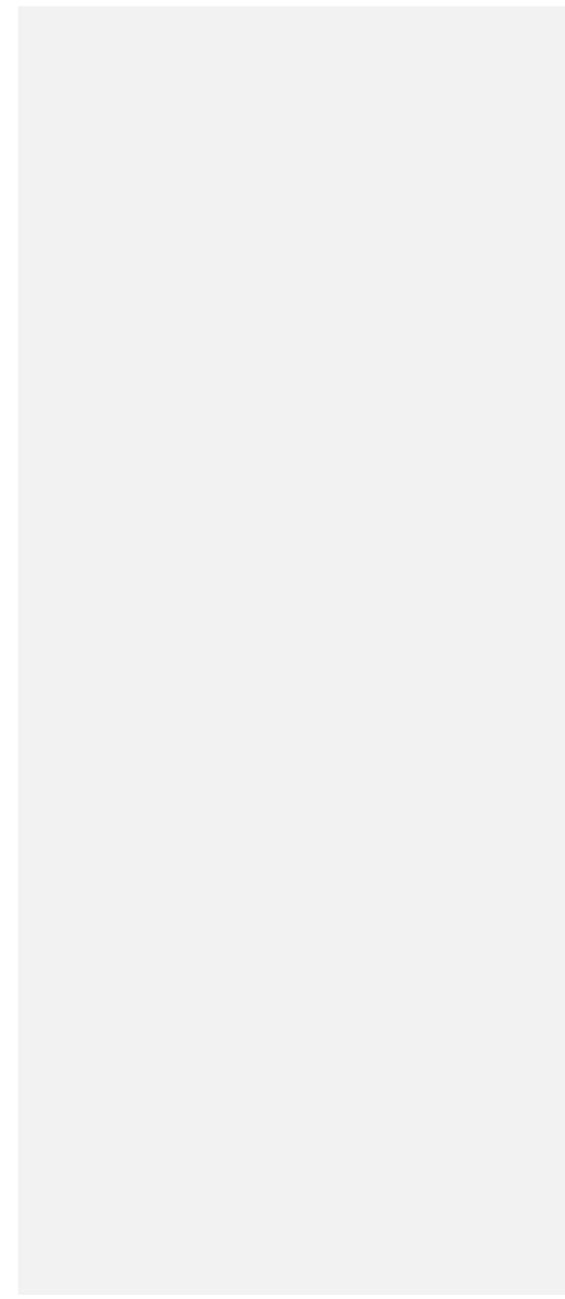
Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
Topic: Heart Failure					
IM1.1	Introduction to cardiovascular disease in adults	1. Describe and discuss the epidemiology of common causes of heart disease including: rheumatic/ valvular, ischemic, hypertrophic inflammatory	SDL	Short essay	Pathology, Physiology
IM1.2,1.4,1.5,1.6	Heart failure	1. Describe and discuss the genetic basis of forms of heart failure 2. Stage heart failure 3. Describe ,discuss and differentiate the processes involved in heart failure with reduced Vs preserved ejection fraction 4. Describe and discuss the compensatory mechanisms involved in heart failure including cardiac remodeling and neurohormonal adaptations	Lecture	EQ	Pathology, Physiology
1.7,1.23,1.26,1.27	Treatment of heart failure	1. Develop management plan for patient with heart failure 2. Enumerate, describe and discuss the factors that exacerbate heart 3. Describe, prescribe and communicate non pharmacologic management of heart failure including sodium restriction, physical activity and limitations	Case based discussion	MEQ	
1.24	Pharmacotherapy of heart failure	1. 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	Small group discussion	Short essay Viva voce	

IM1.3,1.9,1.27	Rheumatic fever	<ol style="list-style-type: none"> 1. Describe and discuss the etiopathogenesis & clinical evolution of rheumatic fever, modified Jones criteria, and rheumatic valvular heart disease and its complications including infective endocarditis 2. Describe and discuss the clinical presentation and features, diagnosis, recognition and management of acute rheumatic fever 3. Describe and discuss the role of penicillin prophylaxis in the prevention of rheumatic heart disease 	Lecture	SEQ Viva voce	Pathology, Physiology, Microbiology
IM1.8	Arrhythmias	<ol style="list-style-type: none"> 1. Describe and discuss the pathogenesis and development of common arrhythmias 2. Discuss the classification, etiopathogenesis, clinical features diagnosis and management of atrial fibrillation 	Lecture	<ol style="list-style-type: none"> 1. Short essay question 2. ECG interpretation in OSCE station 3. Viva voce 	Pathology, Physiology

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM1.10,1.11	History and examination in cardiovascular disease	<ol style="list-style-type: none"> 1. 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 2. Perform and demonstrate a systematic examination based on the history that will help establish the diagnosis and estimate its severity including 	Small group discussion followed by Bedside clinic	Long case	
IM1.12,1.13,1.14,1.15	Vital signs and their interpretation in CVS case Cardiovascular examination	<ol style="list-style-type: none"> 1. Demonstrate peripheral pulse, volume, character, quality and variation in various causes of heart failure 2. Measure the blood pressure accurately, recognize and discuss alterations in blood pressure in valvular heart disease and other causes of heart failure and cardiac tamponade 3. Demonstrate and measure jugular venous distension 4. Identify and describe the timing, pitch quality conduction and significance of precordial murmurs and their variations 	Small group discussion Bedside clinic	Physical examination station in OSCE Short case	
IM1.16,1.17,1.19	Investigations in heart disease	<ol style="list-style-type: none"> 1. Generate a differential diagnosis based on the clinical presentation and prioritize it based on the most likely diagnosis 2. Order and interpret diagnostic testing based on the clinical diagnosis including 12 lead ECG, Chest radiograph, blood cultures 3. Enumerate the indications for and describe the findings of heart failure with the following conditions including: 2D echocardiography, brain natriuretic peptide, exercise testing, nuclear medicine testing and coronary angiogram 	Clerkship Small group discussion	Documentation in logbook Problem based short essay question	

IM1.18,2. 10	Perform and interpret a 12 lead ECG		Small group discussion Clerkship	Documentation in logbook	
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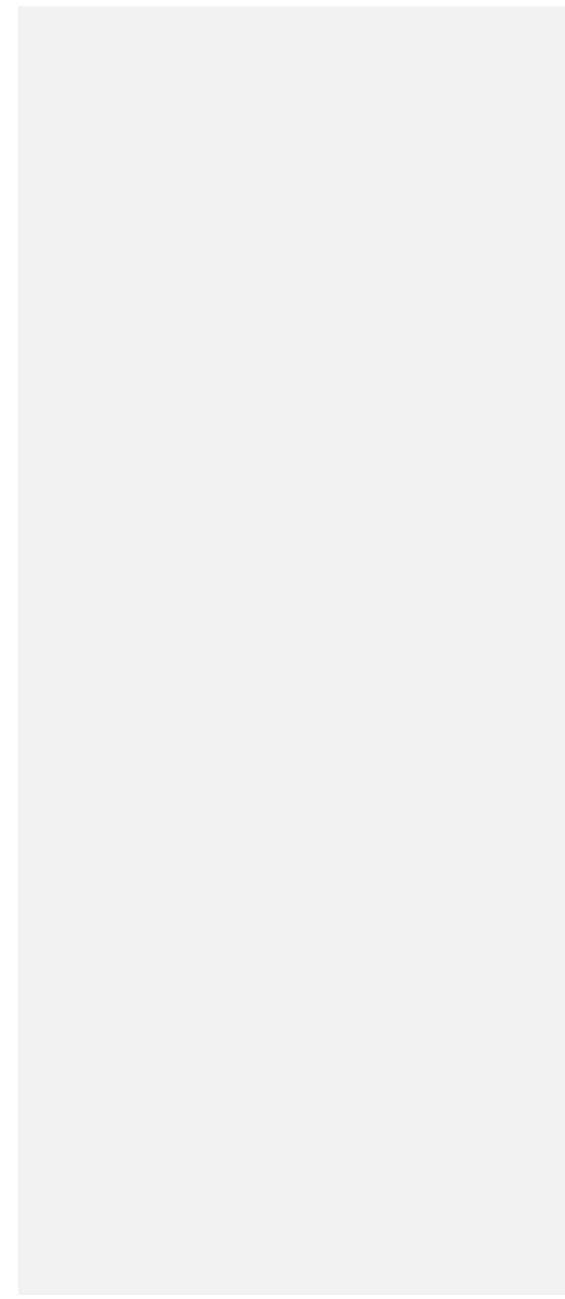
Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM1.20, 1.25	Introduction to Valvular heart disease	<ol style="list-style-type: none"> Determine the severity of valvular heart disease based on the clinical and laboratory and imaging features and determine the level of intervention required including surgery Enumerate the indications for valvuloplasty, valvotomy, coronary revascularization and cardiac transplantation 	Lecture	Short case Examination station in OSCE	
	Mitral valve disease	<ol style="list-style-type: none"> Discuss the haemodynamics, etiopathogenesis, clinical features of mitral stenosis Discuss the haemodynamics, etiopathogenesis, clinical features of mitral regurgitation 	Lecture		
	Aortic valve disease	<ol style="list-style-type: none"> Discuss the haemodynamics, etiopathogenesis, clinical features of aortic stenosis Discuss the haemodynamics, etiopathogenesis, clinical features of aortic regurgitation 	Lecture		
IM1.21	Infective endocarditis	<ol style="list-style-type: none"> Describe the clinical features of acute and subacute endocarditis, echocardiographic findings, blood culture and sensitivity and therapy 	Lecture	SEQ	
IM1.22	Phlebotomy and collecting specimen for culture	Assist and demonstrate the proper technique in collecting specimen for blood culture	DOAP session Clerkship	Skill assessment in OSCE station	Microbiology

IM1.28	Congenital heart disease in adults	<ol style="list-style-type: none"> 1. Enumerate common adult presentations of congenital heart disease and describe the distinguishing features between cyanotic and acyanotic heart disease 2. Discuss etiopathogenesis and prevention of congenital heart disease 	Lecture	Short essay Short answer	
	ASD	<ol style="list-style-type: none"> 1. Discuss the embryology, haemodynamics, pathophysiology of ASD 2. Discuss the management of ASD 	Lecture		
	VSD,	<ol style="list-style-type: none"> 1. Discuss the embryology, haemodynamics, pathophysiology of VSD <p>Discuss the management of VSD</p>	Lecture		
IM 1.29	PDA	<ol style="list-style-type: none"> 1. Describe haemodynamics, clinical features, complications and management of patent ductus arteriosus 	Lecture	Short essay Viva voce	

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM1.30	Intramuscular injection	1. Administer an intramuscular injection with aseptic precautions and appropriate explanation to the patient	Task trainer	Log book	Pharmacology
IM2.1,2.2,2.4,2.5,2.9	Ischemic heart disease	<ol style="list-style-type: none"> 1. Discuss the epidemiology of coronary artery disease 2. Discuss the aetiology of risk factors - modifiable & non-modifiable - of atherosclerosis and IHD 3. Discuss and describe the pathogenesis natural history, evolution and complications of atherosclerosis and IHD 4. Describe the approach to a case of stable angina 	Lecture	Short essay	Pathology, Physiology, Community Medicine
IM2.3	Lipid cycle	Discuss and describe the lipid cycle and the role of dyslipidemia in the pathogenesis of atherosclerosis	Lecture	Viva voce	Physiology, Biochemistry
IM2.6,2.7,2.8	Examination of patient with IHD	<ol style="list-style-type: none"> 1. Elicit appropriate history including onset evolution, presentation risk factors, family history, comorbid conditions, complications, medication 2. Perform, demonstrate and document a physical examination including a vascular and cardiac examination that is appropriate for the clinical presentation 3. Generate and present a differential diagnosis based on clinical presentation and prioritize based on "cannot miss", most likely diagnosis and severity 	Small group discussion followed by bedside clinics	Physical examination station in OSCE Short case	

IM2.9		1. Distinguish and differentiate between stable and unstable angina and AMI based on the clinical presentation 2. Discuss emergent management of a case of acute coronary syndrome prior to referral to a tertiary centre	Case based discussion	History station in OSCE	
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Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM2.11,2 .12, 2.13	Investigations in IHD	1. Order and interpret markers of acute myocardial infarction 2. Choose and interpret a lipid profile and identify the desirable lipid profile in the clinical context 3. Discuss and enumerate the indications for and findings on echocardiogram, stress testing and coronary angiogram	Small group discussion Case based discussion	Data interpretation station OSCE Viva voce	
IM2.14,2 .15, 2.16, 2.18, 2.19, 2.20 ,2.23	Acute coronary syndrome	1. Discuss pathogenesis, recognition and management of ACS & its complications 2. Discuss indications for admission to a CCU 3. Discuss indications for acute thrombolysis, PTCA and CABG 4. Discuss indications, formulations, doses, side effects and monitoring for drugs used in the management of dyslipidemia 5. Describe indications for nitrates, anti-platelet agents, gpIIb IIIa inhibitors, beta blockers, ACE inhibitors etc. in the management of coronary syndromes	Lecture	SEQ MEQ	
IM2.17	Discuss and describe the indications and methods of cardiac rehabilitation		Small group discussion Interdisciplinary learning with physiotherapy team	Short answer	

IM2.20	Discuss and describe the assessment and relief of pain in acute coronary syndromes		Lecture	Short answer	Pharmacology
IM2.21	Observe and participate in a controlled environment an ACLS program		Skill lab session	NA	
IM2.22	Perform and demonstrate in a mannequin BLS		Skill lab session	Skill assessment	

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM2.24	Counselling	1. Counselling patient with IHD 2. Communication with empathy of lifestyle changes in patients with atherosclerosis	Small group discussion Clerkship	Counselling station in OSCE	AETCOM
IM3.1,3.2,3.3,	Pneumonia	1. Define community acquired pneumonia, nosocomial pneumonia and ventilator associated pneumonia 2. Discuss etiology of pneumonia depending on setting and patient immune status 3. Describe pathogenesis, clinical features and complications of pneumonia	Lecture	Short essay	Human Anatomy, Pathology, Microbiology
3.11, 3.12, 3.13, 3.15, 3.16	Investigations and treatment of pneumonia	1. Enumerate indications for HRCT, Viral cultures, PCR 2. Select appropriate empirical antimicrobial based on the likely etiology 3.. Describe and enumerate the indications for hospitalization in patients with pneumonia 4. Describe and enumerate the indications for isolation and barrier nursing in patients with pneumonia	Lecture	Case based MCQ Short answer	

IM3.4,3. 5.3.6,3.7	History and examination in pneumonia	<ol style="list-style-type: none"> 1. Elicit document and present an appropriate history including the evolution, risk factors including immune status and occupational risk 2. Demonstrate general & systemic examination to confirm diagnosis, severity and complications 3. Generate differential diagnosis based on history and examination 4. Order and interpret diagnostic tests based on the clinical presentation 	<p>Small group discussion Bedside clinic</p>	Short case	
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Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM3.8	Perform ABG	Demonstrate in a mannequin & interpret results of an arterial blood gas examination	Skill lab	Skill assessment	
IM3.9	Perform pleural aspiration	Demonstrate in a mannequin and interpret results of a pleural fluid aspiration	Skill lab	Skill assessment	
IM3.10	Blood culture	Demonstrate the correct technique in a mannequin and interpret results of a blood culture	DOAP session	Skill assessment	Microbiology
IM3.14	Gram stain & AFB	Perform and interpret a sputum gram stain and AFB	Clerkship (side lab)	Documentation in logbook	Microbiology
IM3.17	Oxygen therapy	Discuss advantages & disadvantages of methods of supplemental oxygen delivery Choose method of supplemental oxygen delivery	Lecture	Short answer	
IM3.18 IM3.19	Counselling	Communicate and counsel patient and family on the diagnosis and therapy of pneumonia Educate and motivate patients for pneumococcal and influenza vaccine	Small group discussion Clerkship	Documentation in logbook	

Number	COMPETENCY The student should be able to	SLOs: By the end of the session the student will be able to describe/discuss/demonstrate	TL methods	Suggested Assessment methods	Vertical Integration
IM4.1,4.2,4.4,4.5	Describe and discuss the febrile response	<ol style="list-style-type: none"> 1. The influence of host immune status, risk factors and comorbidities on the febrile response 2. The influence of special populations on the febrile response including: the elderly, immune suppression, malignancy and neutropenia, HIV 3. The pathophysiology and manifestations of inflammatory causes of fever 4. The pathophysiology and manifestations of malignant causes of fever including hematologic and lymph node malignancies 	Lecture	<ol style="list-style-type: none"> 1. LEQ 2. MEQ 	Microbiology
IM4.3	Discuss and describe the common causes, pathophysiology and manifestations of fever in various regions in India	<ol style="list-style-type: none"> 1. Pathophysiology, clinical features of Dengue 2. Pathophysiology, clinical features of Chikungunya 3. Pathophysiology, clinical features of typhus 	Lecture	SEQ	Microbiology, Community Medicine
IM4.6, 4.23,4.26	Discuss and describe the pathophysiology clinical features, diagnosis and treatment of malaria	<ol style="list-style-type: none"> 1. Epidemiology, etiopathogenesis of malaria 2. Diagnosis of malaria 3. Complications and treatment of malaria 4. Prescribe drugs for malaria based on the species identified, prevalence of drug resistance and national programs. 5. Discuss the pharmacology, indications, drug reactions, and basis of resistance in antimalarial drugs 6. Counsel the patient on malarial prevention 	Lecture followed by Case based learning	SEQ	Microbiology Pharmacology

IM4.7	Discuss and describe the pathophysiology and manifestations of the sepsis syndrome	<ol style="list-style-type: none"> 1. Etiopathogenesis of sepsis 2. Clinical features and Diagnosis of sepsis 3. Management of sepsis : antibiotics, vasopressors, mechanical ventilation 	Lecture	EQ	
IM4.8, 4.16	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	<ol style="list-style-type: none"> 1. Definition of FUO 2. Causes of PUO, as relevant to India 3. Investigation and Diagnosis of PUO 4. 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 	Lecture followed by Small group discussion	Written	Microbiology
IM4.9,4.10,	History and examination in fever case	<ol style="list-style-type: none"> 1. evolution and pattern of fever 2. associated symptoms 3. immune status, comorbidities, risk factors, exposure 4. Perform physical examination in a case of fever : including skin mucosae, lymph node examination, chest, liver, spleen 	Case based discussion Bedside clinic	History station in OSCE	Microbiology

Number	COMPETENCY The student should be able to	SLOs	TL methods	Suggested Assessment methods	Vertical Integration
IM4.11,4.21,4.24, 4.25	Generate a differential diagnosis and prioritize based on clinical features that help distinguish between infective, inflammatory, malignant and rheumatologic causes	<ol style="list-style-type: none"> 5. List differentials for PUO after history and examination 6. Develop and present an appropriate diagnostic plan based on the clinical presentation, most likely diagnosis in a prioritized and cost-effective manner 	Case based discussion Bedside clinic	EQ Viva Communication station in OSCE	

		<p>7. Develop an appropriate empiric treatment plan based on the patient's clinical and immune status pending definitive diagnosis</p> <p>8. Communicate diagnosis and treatment to patient family</p>			
IM4.12,4.18	Order and interpret the following diagnostic tests based on the differential diagnosis	<p>1. 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</p> <p>2. Enumerate the indications for use of imaging in the diagnosis of febrile syndromes</p>	<p>Small group discussion</p> <p>Clerkship(learner doctor)</p>	<p>SEQ</p> <p>Viva</p> <p>Log book</p>	<p>Pathology,</p> <p>Microbiology</p>
IM4.13,4.14, 4.15, 4.17,4.19 ,4.20	Perform and interpret relevant investigations in case of fever	<p>1.sputum gram stain 2. sputum AFB 3. malarial smear</p> <p>4. Observe & assist in performance of bone marrow aspiration & biopsy in simulated environment 5. Assist in the collection of blood and wound cultures</p> <p>6. Interpret a PPD</p>	Clerkship(learner doctor)	Log book	Microbiology

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM5.1	Hyperbilirubinemia	Describe and discuss the physiologic and biochemical basis of hyperbilirubinemia	Lecture	Written/viva voce	
IM5.2 IM5.3	Hepatic injury	1. Describe and discuss the aetiology and pathophysiology of liver injury 2. Describe and discuss the pathologic changes in various forms of liver disease	Lecture	Written/viva voce	
IM5.4	Hepatitis	1. Describe and discuss the epidemiology, microbiology, immunology and clinical evolution of infective (viral) hepatitis 2. Discuss the management of Hepatitis B & C	Lecture	Written/viva voce	
IM5.5	Alcoholic liver disease	Discuss the etiopathogenesis, clinical features, diagnosis & management of alcoholic liver disease	Lecture	Written/viva voce	
IM5.6	Cirrhosis & PHT	Describe and discuss the pathophysiology, clinical evolution and complications of cirrhosis and portal hypertension including ascites, spontaneous bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy	Lecture	Written/viva voce	
IM5.16	Management of cirrhosis with PHT	Describe management of hepatitis, cirrhosis, portal hypertension, ascites spontaneous, bacterial peritonitis and hepatic encephalopathy	Lecture	Written/viva voce	

IM5.7	Drug induced liver injury	Enumerate and describe the causes and pathophysiology of drug induced liver injury	SDL	Short answer	
IM5.8	Cholecystitis, cholelithiasis	Describe and discuss the pathophysiology, clinical evolution and complications cholelithiasis and cholecystitis	Lecture	Essay Viva voce	General Surgery
IM5.9 5.10 5.11	History & examination in liver disease	1. Elicit medical history in a case of liver disease including clinical presentation, risk factors, drug use, sexual history, vaccination history and family history 2. Perform a systematic examination that establishes the diagnosis and severity and complications of liver disease 3. Generate a differential diagnosis and prioritize based on clinical features that suggest a specific aetiology for the presenting symptom	Small group discussion Bedside clinic	Skill assessment	
IM5.12 5.13 5.14	Investigations in liver disease	Choose and interpret appropriate diagnostic tests including: CBC, bilirubin, function tests, Hepatitis serology and ascitic fluid examination in patient with liver diseases. Enumerate modalities of investigations in liver disease and discuss indications, advantages and disadvantages of each Outline a diagnostic approach to liver disease based on hyperbilirubinemia, liver function changes and hepatitis serology	Lecture	Skill assessment	Pathology

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM5.15	Ascitic tap	1. Assist in the performance of an ascitic fluid analysis interpret the findings of ascitic fluid analysis	DOAP session Clerkship	documentation in log book	
IM5.17	Vaccination in liver disease	1. Enumerate the indications for vaccination in liver disease 2. counsel patients for vaccination in liver disease	1. Visit to immunization clinic 2. Clerkship	1. Viva voce 2. documentation in log book	Microbiology
IM5.18	Hepatic transplantation	Enumerate the indications for hepatic transplantation	Lecture SDL	Written/ Viva voce	

Number	COMPETENCY The student should be able to	SLOs	Suggested TL methods	Suggested Assessment methods	Vertical Integration
IM6.8,6.9, 6.10, 6.11,6.16, 6.12, 6.17, 6.18,6.13	Diagnosis and management of HIV AIDS , and opportunistic infections	1.Enumerate the indications and describe the findings for CT , MRI, ABG, CXR 2. Describe and enumerate the indications and side effects of drugs for bacterial, viral and other types of diarrhoea 3. Discuss and describe the principles of HAART, the classes of antiretrovirals used, adverse reactions and interactions	Lecture	Short answer MCQ	

		4. Discuss and describe the principles and regimens used in post exposure prophylaxis 5. Enumerate the indications and discuss prophylactic drugs used to prevent HIV related opportunistic infections			
IM6.14	Perform and interpret AFB sputum		DOAP session	Skill assessment	Microbiology
IM6.15	Demonstrate in a model the correct technique to perform a lumbar puncture		Simulation	Skill assessment	Microbiology

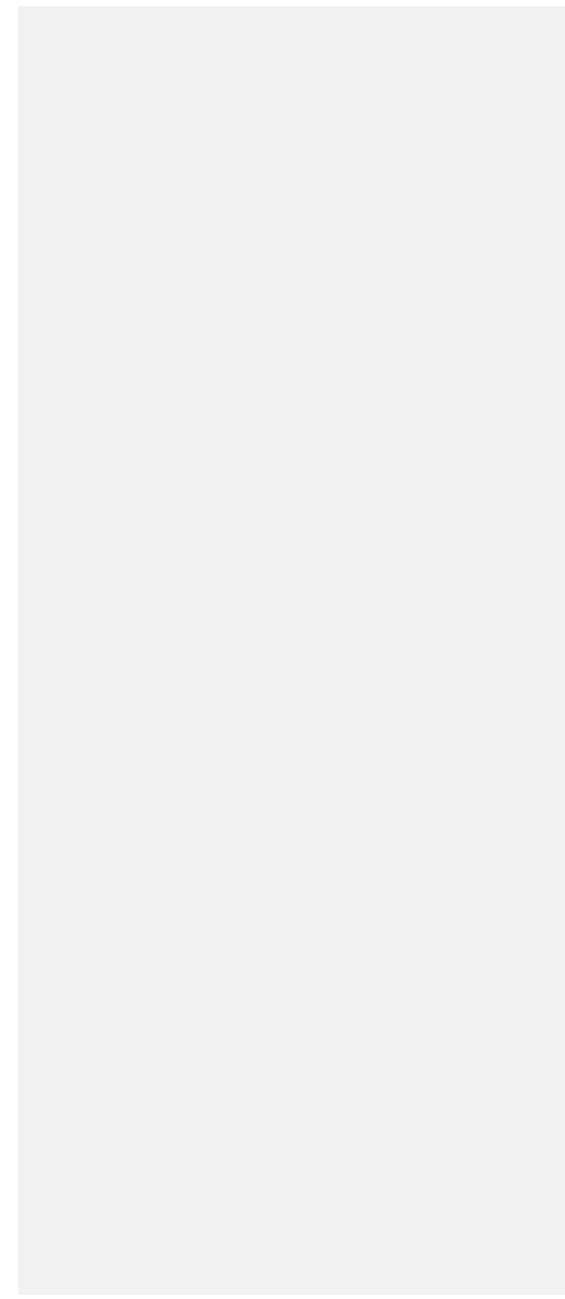
Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM6.19,6.20,6.21 6.22,6.23	Counsel patients at diagnosis of HIV, and prevention of HIV transmission	<ol style="list-style-type: none"> 1. Communicate diagnosis, treatment plan and subsequent follow up plan to patients 2. Communicate with patients on the importance of medication adherence 3. Demonstrate understanding of ethical and legal issues regarding patient confidentiality and disclosure in patients with HIV 4. Demonstrate a non-judgmental attitude to patients with HIV and to their lifestyles 	Small group discussion Clinical clerkship Tag along	Communication station of OSCE	AETCOM

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	Competencies	SLOs	Suggested TL methods	Suggested assessment	Vertical Integration
IM7.1 IM7.2 7.15	Introduction to autoimmunity	1. Describe the pathophysiology of autoimmune disease 2. Describe the genetic basis of autoimmune disease 3. Enumerate the indications for and interpret the results of : CBC, anti- CCP, RA, ANA, DNA and other tests of autoimmunity	Lecture	Short essay Viva voce	Pathology
7.22 7.23 7.19	Rheumatoid arthritis	1. Describe the systemic manifestations of rheumatoid arthritis 2. Etiopathogenesis, clinical features, diagnosis of rheumatoid arthritis 3. Select, prescribe and communicate treatment option for rheumatoid arthritis 4. Describe the basis for biologic and disease modifying therapy in rheumatoid arthritis 5. Develop an appropriate treatment plan for patients with rheumatoid arthritis	Lecture	Essay question MEQ	Pathology
	SLE	1. Describe the systemic manifestations of Systemic Lupus Erythematosus 2. Etiopathogenesis, clinical features, diagnosis of Systemic Lupus Erythematosus 3. Select, prescribe and communicate treatment option for Systemic Lupus Erythematosus 4. Describe the therapy of Systemic Lupus Erythematosus 5. Develop an appropriate treatment plan for patients with Systemic Lupus Erythematosus	Lecture		
	Systemic sclerosis	Etiopathogenesis, clinical features & management of systemic sclerosis	Lecture		
IM7.3 7.4 7.5	Approach to joint pain	1. Classify cause of joint pain based on the pathophysiology 2. Develop a systematic clinical approach to joint	Lecture	Written/ Viva voce	

<p>7.6 7.7 7.8 7.10</p>		<p>pain 3. Describe and discriminate acute, subacute and chronic causes of joint pain 4. Discriminate, describe and discuss arthralgia from arthritis and mechanical from inflammatory causes of joint pain 5. Discriminate articular from periarticular complaints 6. Determine the potential causes of joint pain based on the presenting features of joint involvement 7. Describe the common signs and symptoms of articular and periarticular diseases</p>			
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Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM7.11 IM7.12 IM7.13 7.14	History & examination in Rheumatoid arthritis	Elicit document and present a medical history that will differentiate the etiologies of disease 2. Perform a systematic examination of all joints, muscle and skin that will establish the diagnosis and severity of disease 3. Generate a differential diagnosis and prioritize based on clinical features that suggest a specific aetiology 4. the appropriate diagnostic work up based on the presumed aetiology	Bedside clinic Small group discussion	Physical examination station in ISCE Short case	
IM7.16,7 .17	Investigations in rheumatologic disease	Enumerate the indications for arthrocentesis Enumerate the indications and interpret plain radiographs of joints	Case based discussion	Written/ Viva voce	
IM7.18- 7.27	Management & counselling in autoimmune diseases	1.Communicate diagnosis, treatment plan and subsequent follow up plan to patients 2.Select, prescribe and communicate appropriate medications for relief of joint pain 3.Select, prescribe and communicate preventive therapy for crystalline arthropathies 4.Communicate and incorporate patient preferences in the choice of therapy 5.Develop and communicate appropriate follow up and monitoring plans for patients with rheumatologic conditions 6. Demonstrate an understanding of the impact of rheumatologic conditions on quality of life, well-being, work and family 7.. Determine the need for specialist consultation	Clerkship Case based discussion	Communication station in OSCE Short answer	
	Competency	SLOs	Suggested TL	Suggested assessment	Integration
IM8.1, IM8.2 IM8.3 IM8.4	Hypertension	1. Discuss the epidemiology, aetiology and the prevalence of primary and secondary hypertension 2. Discuss the pathophysiology of hypertension 3.define and classify hypertension and discuss the	Lecture	Long essay	Pathology, physiology

IM8.5 8.7 IM8.20 8.14		differences between primary and secondary hypertension 4. discuss etiology and clinical features of secondary HTN 5. Develop an appropriate treatment plan for essential hypertension 6..determine the need for specialist consultation			
IM8.6 IM8.8 IM 8.15	Acute & chronic complications of HTN	1. Discuss and recognize hypertensive urgency and emergency 2. Manage hypertensive emergencies 3. Discuss and identify target organ damage due to hypertension	Lecture	Clinical scenario based short essay	

Number	Competency The student should be able to	SLOs	Suggested learning methods	Suggested assessment methods	Vertical integration
IM8.9 IM8.10 IM8.11 IM8.12	Examination of a case of hypertension	1.elicit medical history in a case of HTN 2.perform systematic including measurement of bp, fundus, examination of vasculature and heart 3. Generate a differential diagnosis 4. Describe the appropriate diagnostic work up based on the presumed aetiology	Small group discussion Bedside clinics	Short case	
IM8.16 IM8.18 IM8.19		1.develop and communicate to the patient lifestyle modification including weight reduction, moderation of alcohol intake, physical activity and sodium intake 2. Incorporate patient preferences in the management of HTN 3. Demonstrate understanding of the impact of hypertension on quality of life, well-being, work and family	Small group discussion Clerkship	Documentation in log book	
IM8.17	Perform and interpret a 12 lead ECG		DOAP session	Documentation in log book/ skills station	

IM9.1, 9.2, ,9.6, 9.7,9.8, 9.9,9.12 9.13	Iron deficiency anemia	1.Define & classify anemia 2. Describe morphology, aetiology and prevalence of various causes of anemia 3. Describe the diagnostic work up of anemia 4.describe the interpretation of the hemogram and the tests for iron deficiency	Lecture	Essay question	Pathology
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IM9.3	Elicit, document and present medical history in a case of anemia	<ol style="list-style-type: none"> 1. Enquire for symptoms of anemia 2. Possible causes : GI bleeding, prior history, medications, menstrual history, and family history 	Bed side clinic	OSCE history station	
IM9.4	Perform a general physical and relevant systemic examination in a case of anemia	<ol style="list-style-type: none"> 1. examination for pallor, icterus, lymphadenopathy, sternal tenderness, evidence of CTD 2. check for hyper dynamic circulation, spleen, liver 	Bedside clinic	OSCE – physical examination station – general physical examination/abdomen	
IM9.5,9.11	Generate a differential diagnosis in a case of anemia in order of likelihood and prioritize based on clinical features that suggest a specific aetiology	<ol style="list-style-type: none"> 1. given clinical features and hemogram in a case of anemia , to generate a differential diagnosis in order of likelihood 	Small group discussion Case based learning	Modified essay question Data interpretation question	Pathology
IM9.9,9.13	Macrocytic anemia	<ol style="list-style-type: none"> 1. list causes of macrocytic anemia 2. describe pathogenesis of various types of macrocytic anemia 3. Order and interpret for diagnosis of macrocytic anemia 4. Describe treatment of different causes of macrocytic anemia 	Lecture class	SEQ	Pathology
IM9.10	Perform bedside investigations in a case of anemia	<ol style="list-style-type: none"> 1. Perform and interpret peripheral blood smear 2. Check stool for occult blood 	Clerkship(learner doctor)	Log book	Pathology

Number	COMPETENCY The student should be able to	SLOs	Suggested TL methods	Suggested Assessment methods	Vertical Integration
IM9.11	Bone marrow biopsy	<ol style="list-style-type: none"> 1. Student should be able to enumerate the indications for bone marrow biopsy and 	Small group discussion	Written/ Viva voce/ Skill assessment	Pathology

		describe the procedure of bone marrow biopsy			
IM9.14	Describe the national programs for anemia prevention		Lecture	Written/ Viva voce	Pharmacology, Community Medicine
IM9.15,9.16 9.20	Patient counselling in anemia	<ol style="list-style-type: none"> 1. Communicate the diagnosis and the treatment appropriately to patients 2. Incorporate patient preferences in treatment of anemia Communicate and counsel patients with methods to prevent nutritional anemia 	DOAP session	Skill assessment	
IM9.17,9.18	Blood transfusion	Describe the indications for blood transfusion and the appropriate use of blood components Describe the precautions required necessary when performing a blood transfusion	Lecture, Small group discussion	Viva voce	Pathology
IM9.19	Assist in a blood transfusion		Clerkship (learner doctor)	document in log book	
	Polycythemia	<ol style="list-style-type: none"> 1.define and classify polycythemia 2. discuss clinical features and differentiation of primary and secondary polycythemia 3.describe investigations and management of polycythemia rubra vera 	Lecture		
	Leukemia	<ol style="list-style-type: none"> 1. Enumerate leukemias common in adults 2. Describe clinical features of leukemia in adults 3. Discuss diagnosis and management of leukemia 	Lecture		
	Multiple myeloma	Describe the clinical features, diagnosis and management of multiple myeloma	Lecture		

		SLOs	Suggested TL method	Suggested assessment	Vertical integration
IM10.1 IM10.2 IM10.3 IM10.4 IM10.25	AKI	<ol style="list-style-type: none"> 1. Define renal insufficiency. Distinguish between acute & chronic renal insufficiency 2. Describe the pathophysiology & causes of pre renal, renal and post renal AKI 3. Describe the evolution, natural history and treatment of AKI 4. Identify and describe the priorities in the management of ARF including diet, volume management, alteration in doses of drugs, monitoring and indications for dialysis 	Lecture	Essay question	Pathology

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM10.5 IM10.6 IM10.7 IM10.8 IM 10.27 IM 10.28	CKD	<ol style="list-style-type: none"> 1. Discuss the aetiology of CKD 2. Stage Chronic Kidney Disease 3. discuss the pathophysiology & clinical features of uremia 4. discuss the significance of proteinuria in CKD 5. discuss the indications for hemodialysis 6. discuss renal replacement therapy 	Lecture	Short essay	Pathology
IM10.9 IM10.10 IM10.11 IM10.26	Complications of CKD	<ol style="list-style-type: none"> 1. discuss pathophysiology of anemia & hyperparathyroidism in CKD 2. discuss association between CKD glycemia and hypertension 3. discuss relationship between CAD risk factors and CKD 4. discuss supportive therapy in CKD 	Lecture	Short answer	Pathology
IM10.12 IM10.13 IM10.14	Examination of patient with renal disease	<ol style="list-style-type: none"> 1. Elicit history to differentiate between AKI & CKD and to suggest aetiology of renal disease 2. Perform systematic examination to establish diagnosis and stage of CKD, and features of uremia 3. Generate differential diagnosis to suggest specific etiology 	Small group discussion Bedside clinic	Short case	

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Number required to certify	Vertical Integration
IM10.15 IM10.16 IM10.17 IM10.18 IM10.19 IM10.20	Investigations in renal disease	1. Describe the appropriate diagnostic work up based on presumed aetiology 2. Enumerate indications for and interpret the results of : renal function tests, calcium, phosphorus, PTH, urine electrolytes, osmolality, Anion gap 3. Describe and calculate indices of renal function 4. Identify ECG findings in hyperkalemia 5. Enumerate indications and describe findings in renal ultrasound 6. discuss indications to perform arterial blood gas analysis: interpret the data	Lecture	Skill assessment / Written/ Viva voce		
IM10.21 IM10.22	Femoral/jugular catheterization	1. discuss indications for and insert a peripheral intravenous catheter 2. discuss the indications, demonstrate in a model and assist in the insertion of a central venous or a dialysis catheter	DOAP session, skill lab	documentation in logbook		

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM10.24 IM10.29 IM10.30	Patient counselling & ethical issues	1. Counsel patients on a renal diet 2. discuss and communicate the ethical and legal issues	Small group discussion	Documentation in logbook	

IM10.31 IM10.23		involved in renal replacement therapy 3. Recognize the impact of CKD on patient's quality of life well-being work and family 4. Incorporate patient preferences in to the care of CKD 5. Communicate diagnosis treatment plan and subsequent follow up	Clerkship		
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Number	COMPETENCY The student should be able to	SLOs	Suggested TL methods	Suggested Assessment methods	Vertical Integration
IM11.1 IM11.2 IM11.3 IM11.4	Diabetes	1. Define and classify diabetes 2. Discuss the epidemiology and pathogenesis and risk factors and clinical evolution of type 1 diabetes 3. Discuss the epidemiology , pathogenesis and risk factors economic impact and clinical evolution of type 2 diabetes 4. Describe and discuss the genetic background and the influence of the environment on diabetes	Lecture		
IM11.5 IM11.6	Complications of diabetes	1. Describe and discuss the pathogenesis and temporal evolution of microvascular and macrovascular complications of diabetes 2. Describe and discuss the pathogenesis and precipitating factors, recognition and management of diabetic emergencies	Lecture		

IM11.7,11.8	History and examination of a patient with diabetes	<ol style="list-style-type: none"> 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 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) 	Bedside clinic	History station in OSCE Examination station in OSCE (GPE, foot examination, checking for DPN)	
IM 11.12,11.13	Bedside investigations in a patient with diabetes	<ol style="list-style-type: none"> Perform and interpret a capillary blood glucose test Perform and interpret a urinary ketone estimation with dipstick 	Small group discussion Clerkship – learner doctor	Skill assessment	Pathology, Biochemistry
IM11.11,11.16,11.17 11.18, 11.22	Management of diabetes	<ol style="list-style-type: none"> Order and interpret laboratory tests to diagnose diabetes and its complications Discuss and describe the pharmacologic therapies for diabetes their indications, contraindications, adverse reactions and interactions 	Lecture followed by small group discussion	Short essay	Pharmacology
		<ol style="list-style-type: none"> Outline a therapeutic approach to therapy of T2Diabetes based on presentation, severity and complications in a cost-effective manner 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, 		MEQ	

		nephropathy, retinopathy, hypertension, dyslipidemia and cardiovascular disease 4.Enumerate the causes of hypoglycemia and describe the counter hormone response and the initial approach and treatment			
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Number	COMPETENCY The student should be able to		Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM11.19,11.20, 11.21	Education and counselling of patient with diabetes	1.Demonstrate and counsel patients on the correct technique to administer insulin 2.Demonstrate to and counsel patients on the correct technique of self-monitoring of blood glucoses 3.Recognise the importance of patient preference while selecting therapy for diabetes	Small group discussion Clerkship – learner doctor	OSCE – communication station	Pharmacology
IM12.1,12.2,12.3, 12.4,12.12, 12.13, 12.14, 12.15	Etiopathogenesis, diagnosis and management of thyroid disorders	<ol style="list-style-type: none"> 1. Discuss the etiopathogenesis if hypothyroidism and hyperthyroidism 2. Describe and discuss the physiology of the hypothalamopituitary - thyroid axis, principles of thyroid function testing 3. Describe and discuss the principles of radio iodine uptake in the diagnosis of thyroid disorders 4. Describe the pharmacology, indications, adverse reaction, interactions of thyroxine and antithyroid drugs 5. Discuss iodization programs of GOI 6. Write and communicate to the patient appropriately a prescription for thyroxine 	Lecture	Essay question, short essay	Pathology, Physiology

		based on age, sex, and clinical and biochemical status			
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Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM,12.6 12.7,12.8,	History, examination and bedside diagnosis of thyroid disorders	1.Elicit document and present an appropriate history that will establish the diagnosis cause of thyroid dysfunction and its severity 2. Perform and demonstrate examination of thyroid, including 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	Bedside clinic	OSCE Short case	
		3.Generate a differential diagnosis based on the clinical presentation and prioritize it based on the most likely diagnosis			
IM12.9,12.10, 12.11,		1.Order and interpret diagnostic testing for thyroid disease 2. Identify atrial fibrillation, pericardial effusion and bradycardia 3.Interpret TFT	Small group discussion	Short essay question Modified essay question	

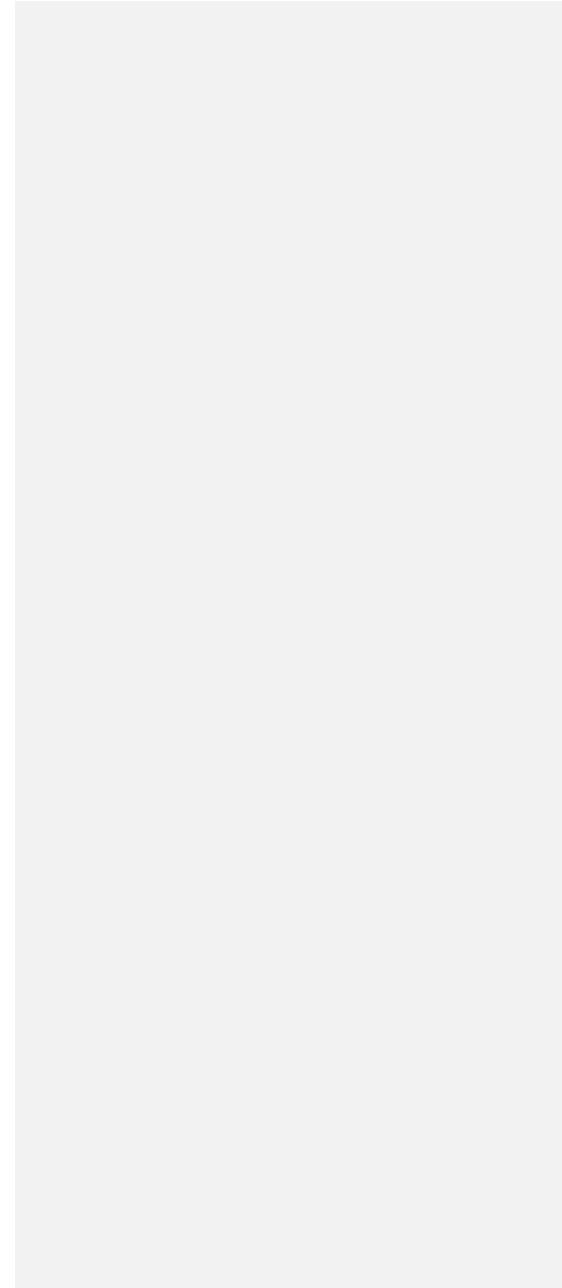
	Etiopathogenesis, diagnosis and management of Cushing's syndrome	<ol style="list-style-type: none"> 1. Discuss the etiopathogenesis of Cushing's syndrome 2. Describe the clinical features of Cushing's syndrome 3. Describe the diagnosis and management of Cushing's syndrome 	Lecture		
	Etiopathogenesis, diagnosis and management of Addison's disease	<ol style="list-style-type: none"> 1. Discuss the etiopathogenesis of Addison's disease 2. Describe the clinical features of Addison's disease 3. Describe the diagnosis and management of Addison's disease 	Lecture		

	Competency	SLOs	TL method	Assessment	Integration
IM13.1 IM13.2 IM13.3 IM13.4	Introduction to cancer	<ol style="list-style-type: none"> 1. Describe clinical epidemiology , inherited & modifiable risk factors for common malignancies in India 2. Describe the genetic basis of selected cancers 3. Describe the relationship between infection and cancers 4. Describe the natural history, presentation, course, complications and cause of death for common cancers 	Lecture	Short note	Pathology, Biochemistry
IM13.5 IM13.6 IM13.16 IM13.17 IM13.18 IM13.19	Palliative care & pain relief	<ol style="list-style-type: none"> 1. Describe common issues encountered in patients at the end of life and principles of management 2. distinguish between curative and palliative care in patients with cancer 3. Demonstrate an understanding of needs and preferences of patients when choosing curative and palliative therapy 4. Discuss indications, use, side effects of narcotics in pain alleviation in patients with cancer 5. Discuss ethical & medico legal issues involved in end-of-life care 6. Describe therapies used in alleviating suffering in patients at the end of life 	Lecture	Short note/ Viva voce	
IM13.7 IM13.8 IM13.10	History & examination in a case of cancer	<ol style="list-style-type: none"> 1. Elicit history that will help establish aetiology of cancer 	Small group discussion	Skill assessment/ Short case	

		2. Perform physical examination including general and local examination to identify diagnosis, extent of spread and complications of cancer 3. Generate a differential diagnosis based on the presenting symptoms and clinical features	Bedside clinic		
IM13.9		Demonstrate in a mannequin the correct technique for performing breast exam, rectal examination and cervical examination and pap smear	Skill lab	Skill assessment/ Short case	Human Anatomy

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM13.11 IM13.12 IM13.13 IM13.14 IM13.15	Investigation & management in cancer	1. Order and interpret diagnostic testing based on clinical diagnosis including CBC and stool occult blood and prostate specific antigen 2. Describe indications and interpret results of Chest X Ray, mammogram, skin and tissue biopsies and tumor markers used in common cancers 3. Describe and assess pain and suffering objectively in a patient with cancer 4. Describe the indications for surgery, radiation and chemotherapy for common malignancies 5. Describe the need, tests involved, their utility in the prevention of common malignancies	Small group discussion	Short note/ Viva voce	Radiodiagnosis

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	Competency	SLOs	TL methods	Assessment	Integration
IM14.1 IM14.2 IM14.3 IM14.5	Overview	Define and measure obesity as it relates to the Indian population Describe and discuss the aetiology of obesity including modifiable and non-modifiable risk factors and secondary causes Describe and discuss the monogenic forms of obesity Describe and discuss the natural history of obesity and its complications	Lecture	Written/viva voce	
IM14.6 IM14.7 IM14.8	Examination	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 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 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	Small group discussion Bedside clinic	Short case	
IM14.9 IM14.10	Investigation of obesity	Order and interpret diagnostic tests based on the clinical diagnosis including blood glucose, lipids, thyroid function tests etc. Perform, document and demonstrate a physical examination based on the history that includes general examination, measurement of	Lecture	Written/viva voce	

		abdominal obesity, signs of secondary causes and comorbidities			
IM14.11 IM14.12	Counselling & education	Communicate and counsel patient on behavioural, dietary and lifestyle modifications Demonstrate an understanding of patient's inability to adhere to lifestyle instructions and counsel them in a non-judgmental way	Clerkship Case based discussion	Documentation in logbook	
IM14.13 IM14.14 IM14.15	Management of obesity	Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for obesity Describe and enumerate the indications and side effects of bariatric surgery Describe and enumerate and educate patients, health care workers and the public on measures to prevent obesity and promote a healthy lifestyle	Lecture	Written/viva voce	

	Competency	SLOs	TL methods	Assessment	Integration
IM15.1 IM15.2	GI bleed	1. Discuss the aetiology of upper and lower GI bleeding 2. Discuss the evaluation & stabilization of patient who presents with GI bleed	Lecture	Short essay	Pathology
IM15.3		Discuss the physiologic effects of acute blood and volume loss	SDL – pre reading	Viva voce	Pathology, Physiology
IM15.4 IM15.5 IM15.6 IM15.8	Examination of patient with GI bleed	1. Elicit history to identify source of GI bleed, amount of bleed & hemodynamic compromise 2. Perform physical examination including general examination, volume assessment and abdominal examination 3. Distinguish between upper & lower GI bleed 4. Generate a differential diagnosis based on the presenting symptoms and clinical features and prioritize based on the most likely diagnosis	Small group discussion Bedside clinic	Long case	
IM15.7		Demonstrate the correct technique to perform an anal and rectal examination in a mannequin or equivalent	DOAP session	Skill assessment	

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM15.9 IM15.10 IM15.11 IM15.12 IM15.14 IM15.16 IM15.17 IM15.15	Investigation & management of GI bleed	<p>Choose and interpret diagnostic tests : CBC, PT and PTT, stool occult blood, LFT H.pylori test.</p> <p>Enumerate the indications for endoscopy, colonoscopy</p> <p>Develop treatment plan including fluid resuscitation, blood and blood component transfusion and arresting bleed</p> <p>Enumerate indications for whole blood, component and platelet transfusion and describe the clinical features and management of a mismatched transfusion</p> <p>Discuss pharmacotherapy of acute GI bleed</p> <p>Enumerate the indications for endoscopic interventions and Surgery</p> <p>Determine appropriate level of specialist consultation</p> <p>Describe pharmacotherapy of acid peptic disease including Helicobacter pylori</p>	Case based discussion	Modified essay Question	

IM15.13	Observe cross matching and blood / blood component transfusion		Small group discussion Clerkship	Documentation in logbook	Pathology
IM15.18	Counsel the family and patient in an empathetic non-judgmental manner on the diagnosis and therapeutic options		Small group discussion Clerkship	Documentation in logbook	

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM16.3 16.6 16.12 16.13 16.14	Diarrhoea	<ol style="list-style-type: none"> 1. Describe and discuss the chronic effects of diarrhoea including malabsorption 2. Distinguish between diarrhoea and dysentery based on clinical features 3. Enumerate and discuss the indications for further investigations including antibodies, colonoscopy, diagnostic imaging and biopsy in the diagnosis of chronic diarrhoea 4. Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for parasitic causes of diarrhoea 5. Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy for bacterial and viral diarrhoea 	Lecture	Short note	
IM16.4 16.5 16.7 16.8	History, examination and diagnosis in a case of diarrhoea	<ol style="list-style-type: none"> 1. Elicit and document and present an appropriate history that includes the natural history, dietary history, travel, sexual history and other concomitant illnesses 2. Perform, document and demonstrate a physical examination based on the history that includes GPE & abdomen exam 3. Generate a differential diagnosis based on the presenting symptoms and clinical features 	Bedside clinic	Short case OSCE history station	Microbiology, Pathology

		4.Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination			
IM16.9 16.10 16.11	Investigations in diarrhoea	Identify common parasitic causes of diarrhoea under the microscope in a stool specimen Identify vibrio cholera in a hanging drop specimen Enumerate the indications for stool cultures and blood cultures in patients with acute diarrhoea	DOAP session (1 hour)	Skill assessment	Microbiology

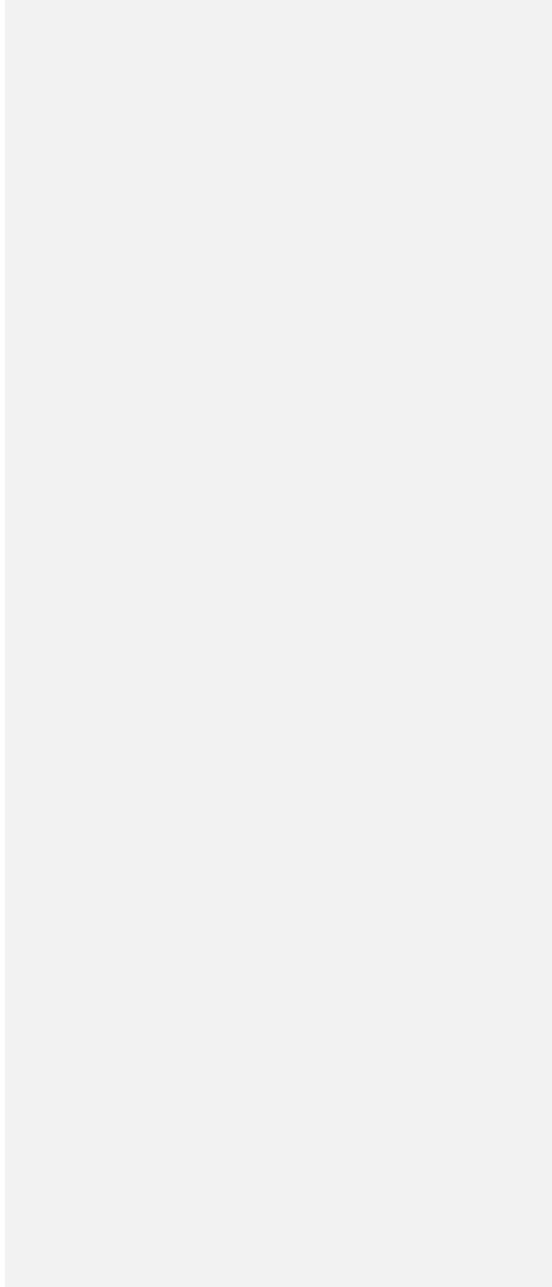
Number	COMPETENCY The student should be able to		Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM16.15 16.16 16.17	IBD	Choose and interpret diagnostic tests based on the clinical diagnosis including complete blood count, and stool examination Describe and enumerate the indications, pharmacology and side effects of pharmacotherapy including immunotherapy Describe and enumerate the indications for surgery in inflammatory bowel disease	Lecture followed by case-based discussion	Short note	Pathology

	Competency	SLOs	TL methods	Assessment	
IM17.1 IM17.3 IM17.10	Headache - introduction	1. Define & classify headache & describe clinical features of various types of headache 2.Classify migraine and describe the distinguishing features between	Lecture	Short essay Viva voce	

		classical and non-classical forms of migraine 3.Enumerate indications for emergency care, admission and immediate supportive care in patients with headache			
IM17.11 IM17.12	Vascular headache	1.Describe indications, pharmacology, dose, side effects of abortive therapy in migraine 2.Describe the indications, pharmacology, dose, side effects of prophylactic therapy in migraine	Lecture	Short essay	
IM17.2 IM17.4 IM17.5 IM17.6	History & examination in headache case	1.Elicit history including aura, precipitating aggravating and relieving factors, associated symptoms to identify the cause 2.Perform neurologic examination & look for signs of raised ICT 3. Generate differential diagnosis based on clinical features, & prioritize the diagnosis based on the presentation 4.Choose & interpret diagnostic testing based on clinical diagnosis including imaging	Small group discussion Bedside clinic	History station in OSCE	
17.9 IM17.7 IM17.13	Meningitis	1.Etiopathogenesis & clinical features of meningitis 2. describe the findings in the CSF in patients with meningitis	Lecture	Short essay Viva voce	

		3. Describe the pharmacology, dose, adverse reactions and regimens of drugs used in the treatment of bacterial, tubercular and viral meningitis			
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Number	COMPETENCY The student should be able to		Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM17.8	Lumbar puncture	Demonstrate in a mannequin or equivalent the correct technique for performing a lumbar puncture	Skill lab	Skill assessment	Microbiology, Pathology
IM17.9	CSF analysis	Interpret the CSF findings when presented with various parameters of CSF fluid analysis	Case based discussion	Problem based short essay question	Microbiology, Pathology
IM17.14	Counselling	Counsel patients with migraine and tension headache on lifestyle changes and need for prophylactic therapy	Small group discussion Clerkship	Documentation in logbook	Pharmacology
	Competency	SLOs			
IM18.1	Neuroanatomy	Describe the functional and the vascular anatomy of the brain	Lecture	Short answer Diagram	Human Anatomy
IM18.2	Cerebrovascular accident	Classify cerebrovascular accidents & describe aetiology, predisposing risk factors & pathogenesis of hemorrhagic and non-hemorrhagic stroke	Lecture	SEQ	Pathology

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM18.3 IM18.4 IM18.5 IM18.6 IM18.7 IM18.8	History & examination of a case of stroke	<ol style="list-style-type: none"> 1.Elicit history including onset, progression, precipitating and aggravating relieving factors, associated symptoms that help identify the cause of stroke 2. Identify the nature of stroke based on the temporal evolution and resolution of the illness 3. Perform physical examination including general and a detailed neurologic examination as appropriate, based on the history 4. Distinguish lesion based on upper vs lower motor neuron, side, site and most probable nature of the lesion 5. Describe clinical features and distinguish, based on clinical examination, the various disorders of speech 6. Describe and distinguish, based on the clinical presentation, the types of bladder dysfunction seen in CNS disease 	Small group discussion Bedside clinic	<ol style="list-style-type: none"> 1. Long case 2. Physical examination station in OSCE 	
IM18.9 IM18.10 IM18.11 IM18.12 IM18.13 IM18.14 IM18.15	Investigations & treatment of stroke	<ol style="list-style-type: none"> 1. Choose and interpret appropriate diagnostic & imaging tests to delineate site & underlying cause of lesion 2. Choose and interpret appropriate diagnostic testing in young patients with a cerebrovascular accident (CVA) 3. Describe the initial supportive management of a patient presenting with a cerebrovascular accident (CVA) 4. Enumerate the indications for and describe acute therapy of non- 	Lecture	<ol style="list-style-type: none"> 1. data interpretation station in osce 2. Short answer 	Radiodiagnosis

		hemorrhagic stroke including the use of thrombolytic agents 5. Enumerate the indications for and describe the role of anti-platelet agents in non-hemorrhagic stroke 6. Describe the initial management of a hemorrhagic stroke 7. Enumerate the indications for surgery in a hemorrhagic stroke			
IM18.16	Rehabilitation of stroke	observe the multidisciplinary rehabilitation of patients with a CVA	DOAP session		
IM18.17	Counselling	Counsel patient and family about the diagnosis and therapy in an empathetic manner	Small group discussion Clerkship	Documentation in logbook	

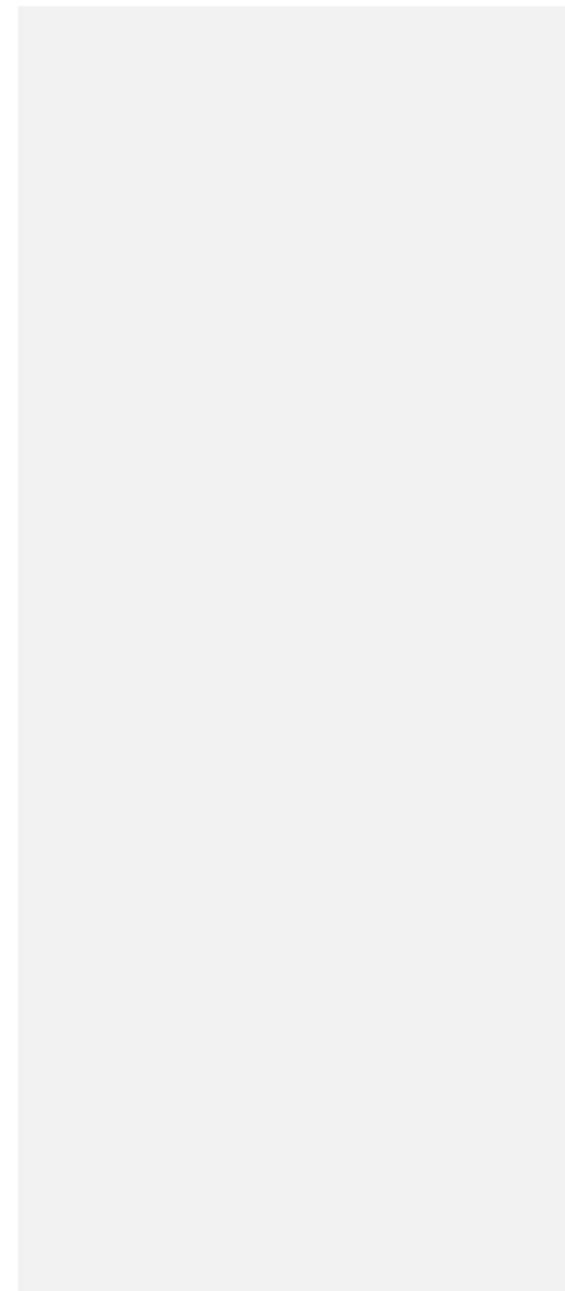
	Competency	SLOs			
IM19.1	Neuroanatomy basal ganglia	Describe the functional anatomy of the locomotor system of the brain	Lecture	Written/ Viva voce	Human Anatomy, Physiology
IM19.2	Movement disorders and Parkinson's disease	3. Classify movement disorders based on distribution, rhythm, repetition, exacerbating and relieving factors 4. Describe the clinical features of Parkinson's disease	Lecture	Written/ Viva voce	
IM19.3 IM19.4 IM19.5	History & examination of movement	1. Elicit history including onset, progression precipitating and	Small group discussion Bedside clinic	Short case Examination station in OSCE	

IM19.6		aggravating relieving factors, associated symptoms to identify cause of movement disorders disorder 3.Perform physical examination that includes a general and detailed neurologic examination 4.Generate differential diagnosis & prioritize based on history & physical examination 5.Reach clinical diagnosis of location, nature and cause of lesion based on clinical presentation			
IM19.7 IM19.8 IM19.9	Investigation & management of movement disorders	Choose and interpret diagnostic and imaging tests in the diagnosis of movement disorders Discuss pharmacology, dose, side effects and interactions used in the drug therapy of Parkinson's syndrome Enumerate the indications for use of surgery and botulinum toxin in the treatment of movement disorders	Lecture	Skill assessment/ Written/ Viva voce	Radiodiagnosis

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM20.1 IM20.3 IM20.6 IM20.7	Snake bite	1.Enumerate local poisonous snakes & describe the distinguishing marks of each 2. Choose & interpret appropriate diagnostic testing in patients with snake bite	Lecture	Essay question Viva voce	Forensic Medicine, Pharmacology

		3. Describe initial approach to stabilization of patient with snake bite 4. Describe pharmacology, dose, adverse reactions, hypersensitivity reactions of anti-snake venom			
IM20.2	Patient Education	Demonstrate and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	DOAP session Role play for patient education	Viva voce	Forensic Medicine
IM20.4 IM20.5	Examination of snake bite case	1. Elicit history including circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite 2. Perform general, local, appropriate cardiac and neurologic examination in case of snake bite	Small group discussion Bedside clinic	OSCE examination station on simulated patient	Forensic Medicine
IM20.8		Describe the diagnosis, initial approach, stabilization and therapy of scorpion envenomation	Lecture	Written/ Viva voce	Pharmacology
IM20.9		Describe the diagnosis initial approach stabilization and therapy of bee sting allergy	SDL	Written/ Viva voce	Pharmacology
		Clinical features, stabilization , management of attempted hanging	Lecture		
		Clinical features, stabilization , management of attempted drowning	Lecture		
		Heat stroke	SDL		

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Number	COMPETENCY The student should be able to		Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM21.1 IM21.2	Poisoning	1.Describe the initial approach to the stabilization of the patient who presents with poisoning 2.describe toxicology, clinical features and management of common plant poisons	Lecture	Viva voce Structured essay	
IM21.3 IM21.4		1.describe toxicology, clinical features and management of common corrosive poisons 2.describe toxicology, clinical features and management of patients admitted with common drug overdose	Lecture	Short answer	
	Hepatotoxic poisons	1.Describe toxicology, clinical features, management in a patient admitted with paracetamol/rodenticide poisoning 2.Discuss the role of liver transplant in. these cases	Lecture	Short essay	
IM21.8		1.describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	Small group discussion	viva	

IM21.5		Observe and describe the functions and role of a poison center in suspected poisoning	DOAP session	document in log book	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	SDL – revision & pre reading	Viva voce	Forensic Medicine, Pharmacology
IM21.7	Counselling	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	Small group discussion Clerkship	Communication station in osce	Forensic Medicine, Pharmacology
	Competency	SLOs	TL method	Assessment method	Integration
IM22.1 IM22.2 IM22.3	Hypercalcemia	Enumerate causes of hypercalcemia ; distinguish features of PTH vs non PTH mediated hypercalcemia Describe etiology, clinical features, diagnosis and approach to primary hyperparathyroidism Describe the approach to the management of hypercalcemia	Lecture	Short essay	Pathology, Physiology
	Hypocalcemia	Clinical features, diagnosis and treatment of hypocalcemia	Lecture	Short essay	
IM22.4		Enumerate the components and describe the genetic basis of the multiple endocrine neoplasia syndrome	SDL	Viva voce	Pathology

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM22.5 IM22.6	Abnormalities of sodium metabolism	Enumerate the causes , describe clinical features & lab and approach to diagnosis and management of hyponatremia Enumerate the causes , describe clinical features & lab and approach to diagnosis and management of hypernatremia	Lecture	Short answer Viva voce	
IM22.7 IM22.8	Abnormalities of potassium metabolism	Enumerate the causes , describe clinical features & lab and approach to diagnosis and management of hypokalemia Enumerate the causes , describe clinical features & lab and approach to diagnosis and management of hyperkalemia	Lecture		
IM22.9 IM22.10 IM22.11 IM22.12	Acidosis & alkalosis	1. Discuss the clinical and laboratory features of metabolic acidosis and alkalosis 2. Discuss the clinical and laboratory features of respiratory acidosis and alkalosis	Lecture	Short essay MCQs	Physiology
IM22.13		Identify the underlying acid base disorder based on ABG report and clinical situation	Assignments Problem solving	Problem based short essay question	Physiology

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM23.1 IM23.2	Nutrition in illness	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses Discuss and describe the causes and consequences of protein caloric malnutrition in the hospital	Lecture	Short answer	
IM23.3	Vitamins	Discuss and describe the aetiology, causes, clinical manifestations, complications, diagnosis and management of common vitamin deficiencies	Lecture	Short answer	Physiology, Biochemistry
IM23.4	Nutrition in the critically ill	Enumerate the indications for enteral and parenteral nutrition in critically ill patients	Lecture	Short answer	Physiology, Biochemistry
IM23.5		Counsel and communicate to patients in a simulated environment with illness on an appropriate balanced diet	DOAP session Clerkship	Documentation in logbook	
	Competency	SLOs	TL methods	Assessment	Integration
IM24.17 IM24.1 IM24.4 IM24.8 IM24.9 IM24.10	Common illnesses in the elderly	1.Describe the impact of demographic changes in ageing on the population 2.Describe the epidemiology, pathogenesis, clinical evolution, presentation and course of common diseases in the elderly: vascular events, osteoporosis, CVA, COPD	Lecture	Long essay	

IM24.2	Examination of the elderly	Perform multidimensional geriatric assessment that includes medical, psycho-social and functional components	Small group discussion Bedside clinic	Short case	Psychiatry
IM24.3 IM24.6 IM24.22 IM24.5 IM24.7	Delirium , dementia and depression	Discuss etiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of acute confusional states, nutritional disorders dementia in the elderly depression in the elderly personality changes in the elderly	Lecture	Long essay	

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM24.11 IM24.12 IM24.13 IM24.14 IM24.15	Multidisciplinary care of the elderly	Describe etiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of elderly with : degenerative joint disease, falls, fractures,, visual & hearing loss Describe and discuss the etiopathogenesis , clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of the elderly undergoing surgery	Multidisciplinary panel discussion Team teaching	Short answer	

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM24.16 IM24.19 IM24.20 IM24.21	Physical & mental rehabilitation of elderly	<p>1. discuss principles of physical & social rehabilitation, functional assessment, role of physiotherapy and occupational therapy in the management of disability in the elderly</p> <p>2. Enumerate & describe social problems in the elderly including isolation, abuse, change in family structure and their impact on health.</p> <p>3. Enumerate and describe social interventions in the care of elderly including domiciliary services, rehabilitation facilities, old age homes and state interventions</p> <p>4. Enumerate and describe ethical issues in the care of the elderly</p>	Case based discussion	Written/ Viva voce	

Number	COMPETENCY The student should be able to	SLOs	Suggested Learning methods	Suggested Assessment methods	Vertical Integration
IM25.4	Leptospirosis	<ol style="list-style-type: none"> 1. Epidemiology & Etiopathogenesis of leptospirosis 2. Clinical features of leptospirosis 3. Diagnosis and management of leptospirosis 	lecture	SEQ	
IM25.5	Enteric fever	<ol style="list-style-type: none"> 1. Epidemiology & Etiopathogenesis of enteric fever 2. Clinical features of enteric fever 3. Diagnosis and management of enteric fever 	lecture	Short answer	
	Tuberculosis	<ol style="list-style-type: none"> 1. Epidemiology & Etiopathogenesis of Tuberculosis 2. Clinical features of Tuberculosis 3. Diagnosis and management of Tuberculosis 	lecture		

Pandemic Module

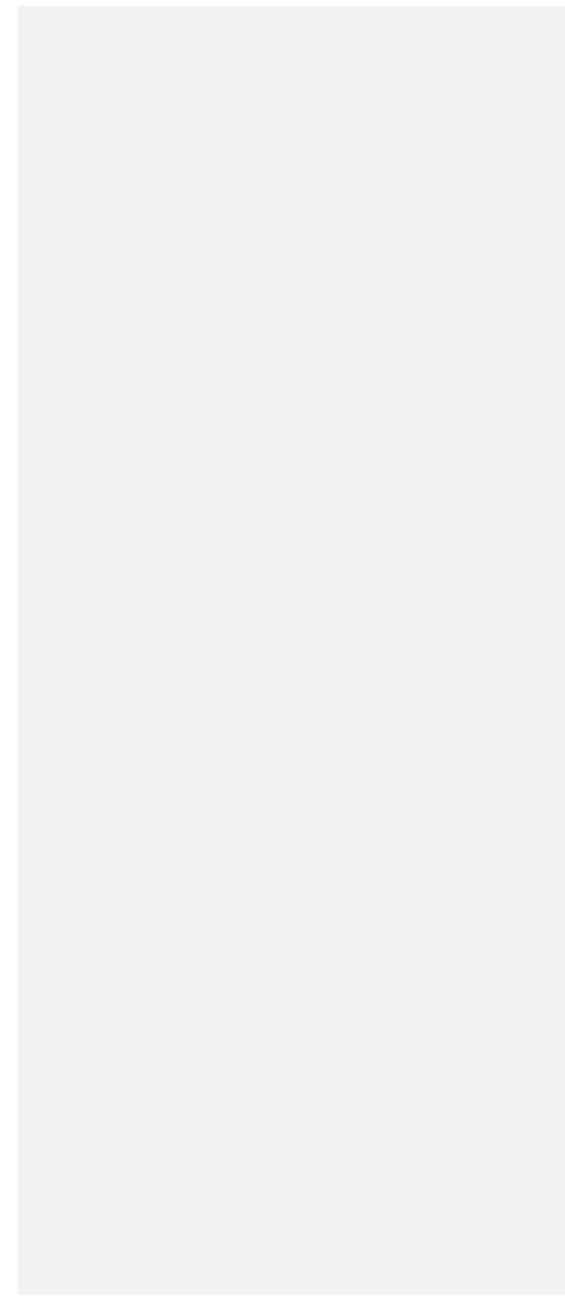
	Competency	Hours	TL method
4.1	Care of patients	6	Small group discussion
4.2	Emergency procedures	8	Small group discussion
4.3	Death related management	2	Small group discussion
4.4	Communications & media management	4	Small group discussion
4.5	Intensive care	4	Small group discussion
4.6	Palliative care	4	

Competencies to be covered in AETCOM sessions

	Competency
IM26.1	Enumerate and describe professional qualities and roles of a physician
IM27.1	Describe and discuss the commitment to lifelong learning as an important part of physician growth
IM26.3	Describe and discuss the role of non-maleficence as a guiding principle in patient care
IM26.4	Describe and discuss the role of autonomy and shared responsibility as a guiding principle in patient care
IM26.5	Describe and discuss the role of beneficence of a guiding principle in patient care
IM26.6	Describe and discuss the role of a physician in health care system
IM26.7	Describe and discuss the role of justice as a guiding principle in patient care

IM26.8	Identify discuss medicolegal, socioeconomic and ethical issues as it pertains to organ donation
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
IM26.10	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to confidentiality in patient care

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Number	COMPETENCY The student should be able to
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 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
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
IM26.14	Identify, discuss and defend medicolegal, socio-cultural and ethical issues as it pertains to research in human subjects
IM26.15	Identify, discuss and defend, medicolegal, socio-cultural and ethical issues as they pertain to consent for surgical procedures
IM26.16	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues as it pertains to the physician patient relationship (including fiduciary duty)

IM26.17	Identify, discuss physician's role and responsibility to society and the community that she/ he serves
IM26.18	Identify, discuss and defend medicolegal, socio-cultural, professional and ethical issues in physician-industry relationships
IM26.19	Demonstrate ability to work in a team of peers and superiors
IM26.20	Demonstrate ability to communicate to patients in a patient, respectful, non-threatening, non-judgmental and empathetic manner
IM26.21	Demonstrate respect to patient privacy

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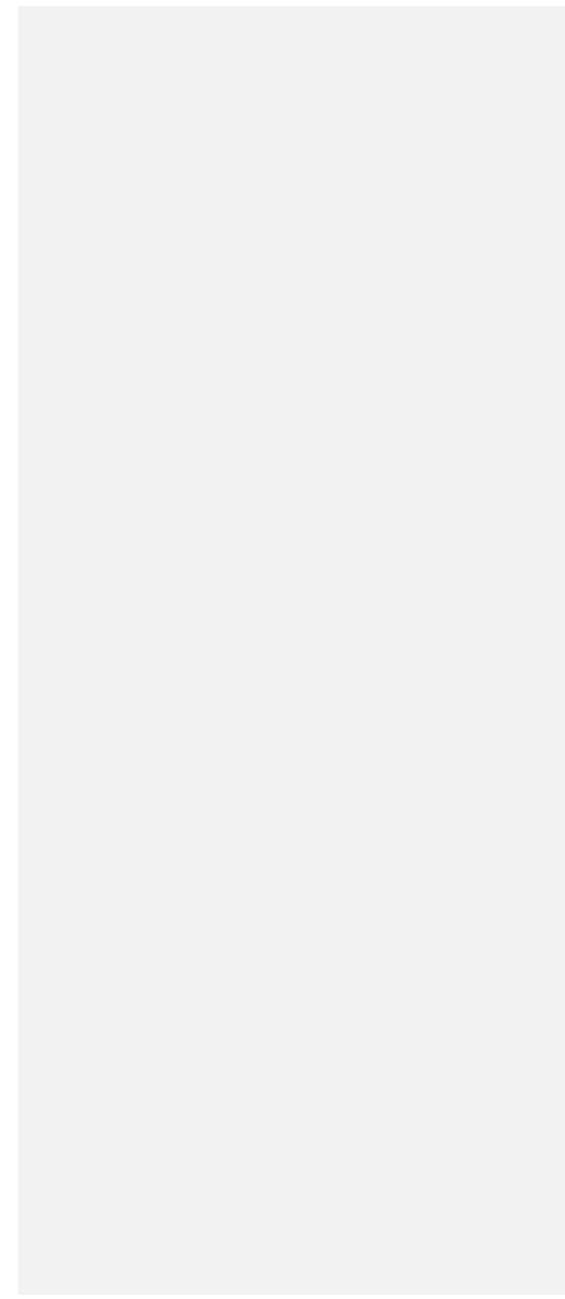
Number	COMPETENCY The student should be able to
IM26.22	Demonstrate ability to maintain confidentiality in patient care
IM26.23	Demonstrate a commitment to continued learning
IM26.24	Demonstrate respect in relationship with patients, fellow team members, superiors and other health care workers
IM26.25	Demonstrate responsibility and work ethics while working in the health care team
IM26.26	Demonstrate ability to maintain required documentation in health care (including correct use of medical records)
IM26.27	Demonstrate personal grooming that is adequate and appropriate for health care responsibilities
IM26.28	Demonstrate adequate knowledge and use of information technology that permits appropriate patient care and continued learning
IM26.29	Communicate diagnostic and therapeutic options 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
IM26.32	Demonstrate appropriate respect to colleagues in the profession
IM26.33	Demonstrate an understanding of the implications and the appropriate procedures and response to be followed in the event of medical errors
IM26.34	Identify conflicts of interest in patient care and professional relationships and describe the correct response to these conflicts

Number	COMPETENCY The student should be able to
IM26.35	Demonstrate empathy in patient encounters
IM26.36	Demonstrate ability to balance personal and professional priorities
IM26.37	Demonstrate ability to manage time appropriately
IM26.38	Demonstrate ability to form and function in appropriate professional networks
IM26.39	Demonstrate ability to pursue and seek career advancement
IM26.40	Demonstrate ability to follow risk management and medical error reduction practices where appropriate
IM26.41	Demonstrate ability to work in a mentoring relationship with junior colleagues

IM26.42	Demonstrate commitment to learning and scholarship
IM26.43	Identify, discuss and defend medicolegal, sociocultural, economic and ethical issues as they pertain to in vitro fertilization donor insemination and surrogate motherhood
IM26.44	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues pertaining to medical negligence
IM26.46	Identify, discuss and defend medicolegal, socio-cultural professional and ethical issues in dealing with impaired physicians

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Numb er	COMPETENCY The student should be able to
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
IM26. 48	Demonstrate altruism
IM26. 49	Administer informed consent and appropriately address patient queries to a patient being enrolled in a research protocol in a simulated environment

Acknowledgements

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