

SRI VENKATESWARA INSTITUTE OF MEDICAL SCIENCES
SVIMS-SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN
TIRUPATI – 517 507



MBBS COURSE

Agenda

3rd BOARD OF STUDIES MEETING

1st MBBS, 2nd MBBS, 3rd MBBS Part-I & II PROFESSIONALS

*As per NMC Regulations on Graduate Medical Education as amended up to 2023
(Applicable for students admitted to First MBBS from Academic Year 2019-20 Onwards)*

**24-07-2024 (1st MBBS), 25-07-2024 (2nd MBBS),
31-07-2024 (3rd MBBS Part-I), 30-07-2024 (3rd MBBS Part-II)**

SVIMS UNIVERSITY
(A University established by an act of A.P State Legislature)
TIRUPATI

SRI VENKATESWARA INSTITUTE OF MEDICAL SCIENCES
SVIMS-SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN
Tirupati

MBBS COURSE

3rd Board of Studies Meeting held on
24.07.2024(1st MBBS), 25.07.2024 (2nd MBBS),
3rd MBBS Part-I (31.07.2024) & 3rd MBBS Part-II (30.07.2024)

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**SRI VENKATESWARA INSTITUTE OF MEDICAL SCIENCES
SVIMS-SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN
TIRUPATI**

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2. Dr. Usha Kalawat Principal SVIMS-SPMCW, Tirupati	-Member Secretary
3. Dr. Aparna R. Bitla Registrar SVIMS, Tirupati	-Member
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I. CBME Regulations

1. Preamble:

The new Graduate Medical Education Regulations attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students (past and present). It intends to take the learner to provide healthcare to the evolving needs of the nation and the world.

About 25years have passed since the existing Regulations on Graduate Medical Education, 1997 were notified, necessitating are look at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values, advancements in medical education and expectations of stake holders. Emerging healthcare issues particularly in the context of emerging diseases, impact of advances in science and technology and shorter distances on diseases and their management also need consideration. The strong and forward-looking fundamentals enshrined in the Regulations on Graduate Medical Education, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Graduate Medical Education Regulations, 2019 will reveal that the 2019 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new regulations is continuation and evolution of thought in medical Education making it more learner-centric, patient-centric, gender- sensitive, outcome -oriented and environment appropriate. The result is an outcome driven curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. This has necessitated a deviation from using "broad competencies"; instead, the reports have written end of phase subject (sub) competencies. These "sub-competencies" can be mapped to the global competencies in the Graduate Medical Education Regulations.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has been placed on collaborative and inter-disciplinary team work, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

2. Objectives of the Indian Graduate Medical Training Programme:

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

3. National Goals:

At the end of under graduate program, the SVIMS-SPMCW Graduate should be able to:

1. Recognize "health for all" as a national goal and health right of all citizens and by undergoing training for medical profession fulfill her social obligations towards realization of this goal.
2. Learn key aspects of National policies on health and devote herself to its practical implementation.
3. Achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
4. Develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
5. Become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

4. Institutional Goals:

The Indian Medical Graduates coming out of a SVIMS-Sri Padmavathi Medical College should:

- i. Be competent in diagnosis and management of common health problems of the individual and the community, commensurate with her position as a member of the health team at the primary, secondary or tertiary levels, using her clinical skills based on history, physical examination and relevant investigations.
- ii. Be competent to practice preventive, promotive, curative, palliative and rehabilitative medicine in respect to the commonly encountered health problems.
- iii. Appreciate rationale for different therapeutic modalities; be familiar with the administration of the "essential drugs" and their common side effects.
- iv. Appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.
- v. Possess the attitude for continued self-learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- vi. Be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:

1. Family Welfare and Maternal and Child Health (MCH);
2. Sanitation and water supply;
3. Prevention and control of communicable and non-communicable diseases;
4. Immunization;
5. Health Education and advocacy;
6. Indian Public Health Standards(IPHS) at various level of service delivery;
7. Bio-medical waste disposal
8. Organizational and or institutional arrangements.

- vii. Acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, general and hospital management, principal inventory skills and counseling.
- viii. Be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures with maximum community participation.
- ix. Be able to work as a leading partner in health care teams and acquire proficiency in communication skills.
- x. Be competent to work in a variety of health care settings.
- xi. Have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility and depend ability and ability to relate to or show concern for other individuals.

5. Goals for the Learner:

In order to fulfill these goals, the Indian Medical Graduate must be able to function in the following roles appropriately and effectively:-

- i. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.
- ii. Leader and member of the health care team and system with capabilities to collect, analyze, synthesize and communicate health data appropriately.
- iii. Communicator with patients, families, colleagues and community.
- iv. Lifelong learner committed to continuous improvement of skills and knowledge.
- v. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.
- vi. Critical thinker who demonstrates problem solving skills in professional practice
- vii. Researcher who generates and interprets evidence

6. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education. Curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfill the roles, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

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

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

- Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.
- Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.
- Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmers and policies for the following:
 - Disease prevention,
 - Health promotion and cure,
 - Pain and distress alleviation, and
 - Rehabilitation and palliation.
- Demonstrate ability to provide a continuum of care at the primary(including home care) and/or secondary level that addresses chronicity, mental and physical disability,
- Demonstrate ability to appropriately identify and refer patients whom may require specialized or advanced tertiary care.
- Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

Leader and member of the healthcare team and system

- Work effectively and appropriately with colleagues in an inter-professional healthcare team respecting diversity of roles, responsibilities and competencies of other professionals.
- Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.
- Educate and motivate other members of the team and work in a collaborative and

collegial fashion that will help maximize the health care delivery potential of the team.

- Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national healthcare priorities and policies, as well as be able to collect, analyze and utilize health data.
- Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.
- Recognize and advocate health. promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancer, in collaboration with other members of the health care team.

Communicator with patients, families, colleagues and community

- Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.
- Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.
- Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.
- Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision- making.

7. Lifelong learner committed to continuous improvement of skills and knowledge

- Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.
- Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.
- Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

- Demonstrate ability to search (including through electronic means), and critically re-evaluate the medical literature and apply the information in the care of the patient.
- Be able to identify and select an appropriate career path way that is professionally rewarding and personally fulfilling.

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

- Practice selflessness, integrity, responsibility, accountability and respect.
- Respect and maintain professional boundaries between patients, colleagues and society.
- Demonstrate ability to recognize and manage ethical and professional conflicts.
- Abide by prescribed ethical and legal codes of conduct and practice.
- Demonstrate a commitment to the growth of the medical profession as a whole

II. Phase Wise Training and Time Distribution For Professional Development

The Competency based Undergraduate Curriculum and Attitude, Ethics and Communication (AETCOM) course, as published by the Medical Council of India and also made available on the Council's website, shall be the curriculum for the batches admitted in MBBS from the academic year 2019-20 onwards.

In order to ensure that training is in alignment with the goals and competencies required for a medical graduate, there shall be Foundation Course to orient medical learners to MBBS programme, and provide them with requisite knowledge, communication (including electronic), technical and language skills.

1.Training period, time distribution & University examinations:

SVIMS University shall organize admission timing and admission process in such a way that teaching in the first Professional year commences with induction through the Foundation Course by the 1st of August of each year from academic year 2024-25. There shall be no admission of students in respect of any academic session beyond 30th August from academic year 2024-25 or as per the guidelines notified by NMC from time to time. The University shall not grant admission of any student after the last date specified by NMC.

Every learner shall undergo a period of certified study extending over 4½ academic years, divided into four professional years from the date of commencement of course to the date of completion of examination which shall be followed by one year of compulsory rotating internship.

Each academic year will have at least 39 teaching weeks with a minimum of eight hours of working on each day including one hour as lunch break.

Didactic lectures shall be one third of the schedule two third of the schedule shall include interactive sessions, practical, clinical or/and group discussions. The learning process shall include clinical experiences, problem- oriented approach, case studies and community health care activities.

Teaching and learning shall be aligned and integrated across specialties both vertically and horizontally for better learner comprehension. Learner centered learning methods shall include Early Clinical Exposure, problem-oriented learning, case studies, community- oriented learning, self- directed, experiential learning & Electives.

At the end of each professional year university examination will be conducted. If any student fails to clear university examination, s h e will appear in supplementary

examination.

Supplementary examinations and declaration of results shall be processed within 3-6 weeks from the date of declaration of the results of the main examination for every professional year, so that the candidates, who pass, can join the main batch for progression.

If the candidate fails in the supplementary examination of first MBBS, she shall join the batch of next academic/subsequent year. There shall be no supplementary batches. Partial attendance of examination in any subject shall be counted as an attempt.

If the MBBS students' attendance is less than 75% for theory and less than 80% for practical/ clinical training, the student cannot appear in supplementary examination following the regular annual examination. Such student is required to take classes with junior batch commencing in the next academic year to compensate for her attendance deficit, especially the course, she has missed. She will be eligible to appear in the examination in the next academic year only.

However, the college authorities will arrange additional classes to compensate for attendance deficit before the commencement of annual examination.

A candidate, who fails in the First Professional examination, shall not be allowed to join the Second Professional.

No student shall be allowed more than four (04) attempts for first year (first professional MBBS). In these four years, the maximum number of attempts permitted shall be four (04) which include supplementary examination also.

- A candidate, who fails in the second Professional examination, shall be allowed to join the third Professional Part I training, however she shall not be allowed to appear for the examination unless she has passed second professional examination.
- A candidate who fails in the third Professional (Part I) examination shall be allowed to join third Professional part II training, however she shall not be allowed to appear for the examination unless she has passed third Professional (Part I) examination.

Phase wise duration

The period of 4½ years is divided as follows:

Phase I - Total 12 months

Phase I First Professional phase of 12 months including Foundation Course of one week and university exams. It shall consist of - Anatomy,

Physiology, Biochemistry, introduction to Community Medicine, Humanities, Professional development including Attitude, Ethics & Communication (AETCOM) module, family adoption program through village outreach where-in each student shall adopt minimum of three(03) families and preferably at least five (05) families, Pandemic module and early clinical exposure, ensuring alignment & all types of integration and simulation-based learning.

Phase II - Total 12 months

Phase II - Second Professional (12 months) including university exams. It will consist of Pathology, Pharmacology, Microbiology, family visit under Community Medicine, General Surgery, General Medicine & Obstetrics & Gynecology Professional development including AETCOM module, simulation-based learning and introduction to clinical subjects ensuring both alignment & all types of integration.

The clinical exposure to learners will be in the form of learner-doctor method of clinical training in all phases. The emphasis will be on primary, preventive and comprehensive healthcare. Apart of training during clinical postings should take place at the primary level of healthcare. It is desirable to provide learning experiences in secondary health care, wherever possible. This will involve

- i. Experience in recognizing and managing common problems seen in outpatient, inpatient and emergency settings,
- ii. Involvement in patient care as a team member,
- iii. Involvement in patient management and performance of basic procedures.

Phase III - 30months

a. Third Professional Part I (12months, including University exams)

Forensic Medicine and Toxicology, Community Medicine, Medicine & allied, Surgery & allied, Pediatrics and Obstetrics& Gynecology including AETCOM, Pandemic module, Clinical teaching in General Medicine, General Surgery, Obstetrics & Gynecology, Pediatrics, Orthopedics, Dermatology, Community Medicine, Psychiatry, Respiratory Medicine, Radio-diagnosis (& Radiotherapy) and Anesthesiology & Professional development.

b. Electives –one month in 2 blocks, 15 days each will be commenced after annual exam of III MBBS Part I.

**c. Third Professional Part II (18months, including University exam)-
Subjects include:**

- Medicine and allied specialties (General Medicine, Psychiatry, Dermatology, Venereology and Leprosy (DVL), Respiratory Medicine including Tuberculosis)
- Surgery and allied specialties (General Surgery, Otorhinolaryngology, Ophthalmology, Orthopedics, Dentistry, Physical Medicine and rehabilitation, Anesthesiology and Radio diagnosis).
- Obstetrics and Gynecology (including Family Welfare)
- Pediatrics
- AETCOM module

2. Distribution of teaching hours phase wise.

First, second and third Professional part-I, teaching hours;

Time allotted: 12 months (approx. 52weeks)

Time available: Approx. **39weeks** (excluding 13weeks) (39hours/week)

Prelim/University Exam & Results: 9weeks

Vacation: 2 weeks

Public Holidays : 2 weeks

Time distribution in weeks: 39 weeks x 39hours =1521 hours for Teaching-Learning

Final MBBS part-2, teaching hours:

Time allotted: 18months (approx. 78weeks)

Time available: Approx. 62 weeks (excluding 16 weeks) (39
hours/ week) Prelim / University Exam & Results: 10 weeks

Vacation: 3 Weeks

Public Holidays: 3 Weeks

Time distribution in weeks: 62 x 39 hrs = 2418 hrs available for Teaching-Learning

(Clinical Postings: 15 hours/week II MBBS on wards included in academic schedule)

These are attached in separate annexure with all relevant tables.

Academic calendar shall be as per the Table 1.

Distribution of subjects for Professional Phase -wise training is given in Table

2. Minimum teaching hours prescribed in various disciplines are given in
Tables 3-7. Distribution and duration of clinical postings is given in Table 8.

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

Second professional clinical postings shall commence before/ after declaration of results of the first professional phase examinations, as decided by the institution/University.

Third Professional parts I and part II clinical postings shall start no later than two weeks after the completion of the previous professional examination.

A total of 25% of allotted time of third Professional shall be utilized for integrated learning with phase I and II subjects. This will be included in the assessment of clinical subjects.

Note:

- The period of training is minimum suggested. Adjustments where required depending on availability of time may be made by the concerned college/institution. This period of training does not include university examination period.
- An exposure to skills lab for atleast two (02) weeks prior to clinical postings shall be made available to all students.

3. New teaching/learning elements

a. Foundation Course

Goal: The goal of the Foundation Course is to prepare a learner to study medicine effectively.

Objectives:

(a) Orient the learner to:

- The medical profession and the physician's role in society
- The MBBS programme
- Alternate health systems i.e. AYUSH in India and history of Medicine
- Medical ethics, attitudes and professionalism
- Healthcare system and its delivery
- National health programmes and policies
- Universal precautions and vaccinations
- Patient safety and biohazard safety
- Principles of primary care (general and community based care)

- The academic ambience
- (b) Enable the learner to acquire enhanced skills in:**
- Language
 - Interpersonal relationships
 - Communication
 - Learning including self-directed learning
 - Time management
 - Stress management
 - Use of information technology, and artificial intelligence
- (c) Train the learner to provide:**
- First-aid
 - Basic life support
 - In addition to the above, learners may be enrolled in one of the following programmes which will be run concurrently:
 - Local language programme
 - English language programme
 - Computer skills
 - These may be done in the last two hours of the day. These sessions must be as interactive as possible.
 - Sports (to be used through the Foundation Course as protected 04hours/week).
 - Leisure and extracurricular activity (to be used through the Foundation Course as projected 02 hours per week).
 - Institutions shall develop learning modules and identify the appropriate resource persons for their delivery.
 - The time committed for the Foundation Course may not be used for any other curricular activity.

- The Foundation Course shall have a minimum of 75% attendance of all students mandatorily. This will be certified by the Dean of the college.
- The Foundation Course shall be organized by the Coordinator appointed by the Dean of the college and shall be under supervision of the Heads of MBBS phase1 departments.
- Every college shall arrange for a meeting with parents/wards of all students and records of the same shall be made available to UGMEB of NMC.

b. Early Clinical Exposure

Objectives: The objectives of early clinical exposure of the first-year medical learners are to enable the learner to:

- Recognize the relevance of basic sciences in diagnosis, patient care and management,
- Provide a context that will enhance basic science learning,
- Relate to experience of patients as a motivation to learn,
- Recognize attitude, ethics and professionalism as integral to doctor- Patient relationship,
- Understand the socio-cultural context of disease through the study of humanities.

Elements

- Basic science correlation: i.e. apply and correlate principles of basic sciences as they relate to patient care (this shall be part of integrated modules).
- Clinical skills: to include basic skills in interviewing patients, doctor-patient communication, ethics and professionalism, critical thinking and analysis and self-learning (this training shall be imparted in the time allotted for early clinical exposure).
- Humanities: to introduce learners to a broader understanding of the socio-economic frame work and cultural context with in which health is delivered through the study of humanities and social sciences.

c. Electives:

Objectives: To provide the learner with opportunities:

- For diverse learning experiences,
- It is mandatory for learners to do an elective. The elective time shall not be used to make up for missed clinical postings, shortage of attendance or other purposes.
- Institutions will pre-determine the number and nature of electives, names of the supervisors, and the number of learners in each
- Elective based on the local conditions, available resources and faculty.
- Electives on topics in areas such as Research methodology, Use of Artificial intelligence and computers in Health and Medical Education, Health Management, Health economics, Indian system of medicine, Medical photography /clinical photography, Global health, Evidence based medicine, Art and music in medicine, Literary activities, etc. may be provided by the college/ institution.
- It shall be preferable that elective choices are made available to the learners in the beginning of the academic year.
- The learner must submit a learning log book based on both blocks of the electives.
- 75% attendance in the electives and submission of log book maintained during electives is required for eligibility to appear in the final MBBS examination/ NEXT.
- Institutions may use part of this time for strengthening basic skill certification.
- The student has to choose electives after completion of 3rd MBBS Part-I Examinations for a period of 1 month, 15 days in each block of laboratory & Clinical specialty departments of SVIMS.

Block1	Block2
Laboratory Experience:	Clinical Specialty Experience:
Pathology	Emergency room
Microbiology	CICU (Department of Cardiology)
Biochemistry	Psychiatry
Endocrinology lab	Dermatology
Pharma co-vigilance and clinical pharmacology	Oncology
Rural Community Health center	Endocrinology and Diabetes
Research	Nephrology
Student initiated research	Neurosurgery
Participation in faculty research	Cardiology / Cardiac Surgery
Community and epidemiologic surveys	GI surgery
Virology	Neurology
Blood Bank	Primary Health Center

d. Professional Development including Attitude, Ethics and Communication Module (AETCOM)

Objectives of the programme: At the end of the programme, the learner must demonstrate ability to:

- Understand and apply principles of bioethics and law as they apply to medical practice and research, understand and apply the principles of
- Clinical reasoning as they apply to the care of the patients,
- Understand and apply the principles of system-based care as they relate to the care of the patient,
- Understand and apply empathy and other human values to the care of the patient,
- Communicate effectively with patients, families, colleagues and other health care professionals,
- Understand the strengths and limitations of alternative systems of medicine,
- Respond to events and issues in a professional, considerate and humane fashion,
- Translate learning from the humanities in order to further his professional and personal growth.

Learning experiences:

- This will be a longitudinal programme spread across the continuum of the MBBS programme including internship,
- Learning experiences shall include small group discussions, patient care scenarios, workshops, seminars, role plays, lectures etc.
- Attitude, Ethics & Communication Module (AETCOM module) developed by the erstwhile Medical Council of India should be used longitudinally for purposes of instruction.

- 75% attendance in Professional Development Programme (AETCOM Module) shall be mandatory for eligibility to appear for final examination in each professional year.

Internal Assessments shall include:

- Written tests comprising of short notes and creative writing experiences, OSCE based clinical scenarios/viva voce.
- At least one question in each paper of each clinical specialty in the University examination shall 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.

e. Learner-doctor method of clinical training (Clinical Clerkship)

a. Goal:

- To provide learners with experience in
- Longitudinal patient care,
- Being part of the health care team,
- Hands-on care of patients in outpatient and in-patient setting.

b. Structure:

- The first clinical posting in second professional shall orient learners to the patient, their roles and the specialty.
- The learner-doctor programme shall progress as outlined in Table 9.
- The learner shall function as a part of the health care team with the following responsibilities:
 - Be a part of the units out-patient services on admission days,
 - Remain with the admission unit until at least 6 PM except during designated class hours,
 - Be assigned patients admitted during each admission day for whom he 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,
- 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 observations in a prescribed log book/case record.

No learner will be given independent charge of the patient in the capacity of primary physician of the concerned patient.

The supervising physician shall be responsible for all patient care decisions and guide the learner from time to time as required.

f. Assessment:

- 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.
- The logbook/ 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.
- The log book shall also include records of outpatients assigned. Submission of the log book/ case record to the department is required for eligibility to appear for the final examination of the subject.

i. Eligibility to appear for Professional examinations

The performance in essential component soft training are to be assessed, based on:

(a) Attendance

- There shall be a minimum of 75% attendance 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. There shall be minimum of 80% attendance in family visits under Family adoption programme. Each student shall adopt minimum 3 families and preferably five families. The details shall be as per Family Adoption Program guidelines.
- If an examination comprises more than one subject (for e.g., General Surgery and allied branches), the candidate must have a minimum of 75% attendance in each subject including its allied branches, and 80% attendance in each clinical posting.
- Learners who do not have at least 75% attendance in the electives will not be eligible for the Third Professional –Part II examination/ NEXT.
- A candidate lacking in the prescribed attendance and progress in any subject(s) in theory or practical should not be permitted to appear for the examination in that subject(s).

(b) Internal Assessment:

Internal assessment shall be based on day-to-day assessment. It shall relate to different ways in which learners participate in learning process including assignments, preparation for seminar, clinical case presentation, preparation of clinical case for discussion, clinical case study/problem solving exercise, participation in project for healthcare in the community. Internal assessments shall not be added to summative assessment. However, internal assessment should be displayed under a separate column in detailed marks card.

(c) Learners must have completed the required certifiable competencies for that phase of training and completed the logbook Appropriate for that phase of training to be eligible for appearing at the final university examination of that subject.

(d) Regular periodic examinations shall be conducted throughout the course. There shall be no less than three internal assessment examinations in each subject of first and second professional year, and no less than two examinations in each subject of final professional year. An end of posting clinical assessment shall be conducted for each clinical posting in each professional year.

- When subjects are taught in more than one phase, the internal assessment must be done in each phase and must contribute proportionately to final assessment. For example, General Medicine must be assessed in second Professional, third Professional Part I and third Professional Part II, independently.
- Day to day records and log book (including required skill certifications) should be given importance in internal assessment. Internal assessment should be based on competencies and skills.
- The final internal assessment in a broad clinical specialty (e.g., Surgery and allied specialties etc.) shall comprise of marks from all the constituent specialties. The proportion of the marks for each constituent specialty shall be determined by the time of instruction allotted to each.
- Learners must secure at least 50% marks of the total marks (combined in theory and practical / clinical; not less than 40% marks in theory and practical separately) for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject. Internal assessment marks will reflect as separate head of passing at the summative examination.
- The results of internal assessment should be displayed on the notice board within

one week of the test.

- Universities shall guide the colleges regarding formulating policies for remedial measures for students who are either not able to score qualifying marks or have missed on some assessments due to any reason.

ii. University Examinations:

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

Assessment shall be carried out on an objective basis to the extent possible.

- Nature of questions shall include different types such as structured essays (Long-Answer Questions -LAQ), Short-Answer Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). Marks for each part shall be indicated separately. MCQs shall be accorded a weightage of not more than 20% of the total theory marks. Practical/clinical examinations shall be conducted in the laboratories and /or hospital wards. The objective will be to assess proficiency and skills to conduct experiments, interpret data and form logical conclusion. Clinical cases kept in the examination must be common conditions that the learner may encounter as a physician of first contact in the community. Selection of rare syndromes and disorders a examination cases is to be discouraged. Emphasis should be on candidate's capability to elicit history, demonstrate physical signs, write a case record, analyze the case and develop a management plan.
- Viva/oral examination should assess approach to patient management, emergencies, and 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.

University Examinations shall be held as under:

(a) First Professional

The first Professional examination shall be held at the end of first Professional training (in the 12th month of that training), in the subjects of Anatomy, Physiology and Biochemistry.

(b) Second Professional

The second Professional examination shall be held at the end of second professional training(12th month of that training),in the subjects of Pathology, Microbiology, and Pharmacology.

(C) Third Professional

- Third Professional Part I examination shall be held at end of third Professional part 1 of training (12th month of that training) in the subjects of Community Medicine, and Forensic Medicine including Toxicology
- Third Professional Part II / National Exit Test (NExT) as per NExT regulations- (Final Professional) examination shall be at the end of 17th/18th month of that training, in the subjects of General Medicine, General Surgery, Ophthalmology, Otorhinolaryngology, Obstetrics & Gynecology, and Pediatrics, and allied subjects as per NExT REGULATIONS.

Note:

- At least one question in each paper of each PHASE shall test the knowledge, and competencies acquired during the professional development programme (AETCOM module).
- Skills competencies acquired during the Professional Development Programme (AETCOM module) shall be tested during clinical, practical and viva.

Criteria for passing in a subject: As per the F.No. U/14021/8/2023-UGMEB, dt 1st September, 2023 & clarification provided by NMC vide N-U015 (29)/15/2024-UGMEB/014139, dated 03/04/2024. candidates have to score 50% aggregate of theory & practical and minimum 40% in each separately in Theory and in practical in order to be declared as passed in every subject. No grace marks shall be given. It is also added that these shall be applicable to every examination conducted after the publication of these guidelines, irrespective to batch.

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

- Internal assessment marks will reflect as a separate head of passing at the university examination.

iii. Appointment of Examiners

- Person appointed as an examiner in the particular subject must have at least four years of total teaching experience as Assistant Professor after obtaining postgraduate degree following MBBS, in the subject in a college affiliated to a recognized medical college (by UGMEB of NMC).

- For Practical /Clinical examinations, there shall be at least four examiners for every learner, out of whom not less than 50% must be external examiners. Of the four examiners, the senior-most internal examiner shall act as the Chairman and coordinator of the whole examination programme so that uniformity in the matter of assessment of candidates is maintained.
- A University having more than one college shall have separate sets of examiners for each college, with internal examiners from the concerned college. External examiner may be from outside the college/university/ state/ union territory.
- There shall be a Chairman of the Board of paper-setters who shall be an internal examiner and shall moderate the questions.
- All eligible examiners with requisite qualifications and experience can be appointed internal examiners by rotation in their subjects.
- All theory paper assessment should be done as central assessment program (CAP) of concerned university.
- Internal examiners shall be appointed from the same institution for unitary examination in the same institution. For pooled examinations at one centre, the approved internal examiners from same university may be appointed.
- The Examiners for General Surgery and allied subjects as well as for General Medicine and allied subjects, shall be from General Surgery and General Medicine respectively.
- There shall be no grace marks to be considered for passing in an examination.

III Re-admission after discontinuation of study:

Every student shall attend her classes (theory, practical and clinical) on all working days unless the leave of absence is sanctioned by the principal/dean. If a student absents continuously for a period of 91 days or more, before one year after discontinuation and seeks permission to attend the course, her application shall be addressed to the dean of the college and shall be forwarded to the registrar while permitting the student to rejoin. The vice-chancellor may grant leave of absence applying such conditions as deemed necessary. Candidates who are absent for continuous period of one year or more without permission shall be deemed to have forfeited the admission and her studentship shall stand cancelled without any further notice.

IV Migration / Transfer of candidates:

To the extent permissible as per the prevailing regulations of the NMC on migration of students from one medical college to another medical college within or outside the state.

V Submission of Laboratory/ Clinical Record.

At the time of Practical Examination each candidate shall submit to the Examiners her laboratory record duly certified by the Head of the Department as a bonafide record of the work done by the candidate.

VI Guidelines for Log Book:

1. The log book is a record of the academic / non-academic activities of the student.
2. Each medical student is responsible for maintaining their logbook.
3. Entries in the log book will be in accordance with activities done in the pre-clinical departments.
4. Some sections of the logbook are subject specific and have to be scrutinized by the head of the concerned department
5. It is the responsibility of the student to enter their activity in respective pages and get them duly signed by the supervising faculty.
6. The log book shall be kept as record work of the candidate for that department specialty and be submitted to department as a Bonafide record of the candidate before appearing for the university examination.

VII Malpractice:

Punishment for use of unfair means (malpractice) in university examinations:

The regulations of malpractice for MBBS course will as per the guidelines of SVIMS University approved vide resolution no. 17 of 30th Academic Senate meeting held on 30/04/2012.

VIII Declaration of Class:

- A candidate having appeared in all the subjects in the same examination and passed that examination in the first attempt and secures 75% of marks or more of grand total marks (university examination) prescribed will be declared to have passed the examination with distinction.
- A candidate having appeared in all the subjects in the same examination and passed that examination in the first attempt and secures 65% of marks or more but less than 75% of grand total marks (university examination) prescribed will be declared to have passed the examination in First Class.
- A candidate having appeared in all the subjects in the same examination and passed that examination in the first attempt and secures 50% of marks or more but less than 65% of grand total marks (university examination) prescribed will be declared to have passed the examination in Pass Class.
- A candidate passing a university examination in more than one attempt shall be placed in Pass class irrespective of the percentage of marks secured by her in the examination.

Note: Please note fraction of marks will not be rounded off for clauses (a), (b) and (c)

IX Award of Degree:

The university on satisfactory completion of the compulsory internship shall award the degree.

X.ACADEMIC CALENDAR PROPOSED BY NMC

Table1: Time distribution of MBBS Programme & Examination Schedule

Proposed Academic Calendar for CBME 2023-24 Batch

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2023									1	2	3	4
2024	5	6	7	8	9	10	11	12-1st Prof, exam, result	13- 2 nd MBBS	14	15	16
2025	17	18	19	20	21	22	23	24- 2 nd Prof exam, result	25- Final 1st	26	27	28
2026	29	30	31	32	33	34	35	36- Final 1 st exam, result	37- Final 2 nd	38	39	40
2027	41	42	43	44	45	46	47	48	49	50	51	52
2028	53	54 NEXT-1	1- CRM	2	3	4	5- 2 nd proposed NEXT	6	7	8	9	10
2029	11	12-NEXT-Step 2										

Legends:

AETCOM: Attitude, Ethics and Communication skills

FAP: Family Adoption Programme (village outreach)

SDL: Self Directed Learning

SGL: Small Group Learning (tutorials/ Seminars/ Integrated Learning)

PCT (mentioned in Assessments): Part Completion Test

Table 2: Distribution of subjects in each Professional Phase

Phase & year of MBBS training	Subjects & Teaching Elements	Duration (months)	University Examination
First Professional MBBS	i. Foundation course -1week, remaining spread over 6 months at the discretion of college ii. Anatomy, Physiology & Biochemistry, Introduction to Community Medicine, including Family adoption programme (FAP) through village outreach iii. Early Clinical Exposure iv. Attitude, Ethics, and communication Module (AETCOM) including Humanities	12 months	1st professional
Second Professional MBBS	i. Pathology, Microbiology, Pharmacology ii. Introduction to clinical subjects iii. Clinical postings, Family visits for FAP iv. AETCOM	12 months	2nd professional
Third Professional part 1, MBBS, including Electives 1 month	i. Community Medicine, Forensic Medicine and Toxicology, Medicine & allied, Surgery & allied, Pediatrics, Obstetrics & Gynecology ii. Family visits for FAP iii. Clinical postings iv. AETCOM v. Electives-1 month, 2 blocks, 15 days each	12 months	Final professional -Part 1
Third Professional part 2, MBBS	i. General Medicine, Dermatology, Psychiatry, Respiratory medicine, Pediatrics, General Surgery, Orthopedics, Oto-rhinolaryngology, Ophthalmology, Radiodiagnosis, Anesthesiology, Obstetrics & Gynecology (ii) Clinical postings (iii) AETCOM	18 months	Final Professional- Part II

Table 3: Foundation Course

(one week + spread over 6 months at the discretion of college)

Subjects/Contents	Teaching hours
Orientation	30
Skills Module	34
Field visit to Community Health Center	08
Introduction to Professional Development & AETCOM module	40
Sports, Yoga and extra-curricular activities	16
Enhancement of language/computer skills	32
Total	160

Table .4 Distribution of Subject Wise Teaching Hours for 1st MBBS

Subject	Lectures	SGL	SDL	Total
Foundation Course				39
Anatomy	210	400	10	620
Physiology	130	300	10	440
Biochemistry*	78	144	IO	232
Early Clinical Exposure**	27	-	0	27
Community Medicine	20	20		40
FAP			27	27
(AETCOM)***	-	26	-	26
Sports and extra-curricular activities	-	-	-	10
Formative Assessment and Term examinations	-	-	-	60
Total	464	918	30	1521#

* Including Molecular Biology

** Early Clinical exposure hours to be divided equally in all three subjects.

*** AETCOM module shall be a longitudinal programme.

Includes hours for Foundation course also

Table .5 Distribution of Subject Wise Teaching Hours for 2nd MBBS

Subjects	Lectures	SGL	Clinical Postings*	SDL	Total
Pathology	80	165	-	10	255
Pharmacology	80	165	-	10	255
Microbiology	70	135	-	10	215
Community Medicine	15	0	0	10	25
FAP	0	0	30		30
Forensic Medicine and Toxicology	12	22	-	08	42
Clinical Subjects	59		540	-	599
AETCOM	-	29	-	8	37
Sports, Yoga and extra-curricular activities	-	-	-	20	35
Pandemic module				28	28
Final total	316	516	585	104	1521

Pl. note: Clinical postings shall be before 3 hours per day, Monday to Friday.

There will be 15 hours per week for all clinical postings.

Table 6-Distribution of Subject Wise Teaching Hours for 3rd MBBS part 1

Subject	Lectures	SGL	SDL	Total
Electives	0	156	0	156
Gen. Med.	30	50	10	90
Gen Surgery	30	50	10	90
Obs.&Gyn	30	50	10	90
Pediatrics	25	30	10	65
Orthopedics	15	20	10	45
For. Med. & Tax.	40	70	20	130
Community Med	55	70	20	145
FAP(Visits +log book submission)	-	21	10	31
Otorhinolaryngology(ENT)	15	20	10	45
Ophthalmology	15	20	10	45
Clinical posting			540	540
AETCOM	0	19	12	31
Pandemic module	18	0	0	18
Total	273	546	672	1521

Table 7: Distribution of Subject wise Teaching Hours for 3rd MBBS part-II

Subjects	Lectures	SGL	SDL	Total
General Medicine	95	155	55	260
General Surgery	80	140	40	260
Obstetrics and Gynecology	80	140	40	260
Pediatrics	30	60	30	120
Orthopedics	25	35	25	85
AETCOM	30	0	22	52
Dermatology	15	10	15	40
Psychiatry	15	15	15	45
Otorhinolaryngology (ENT)	15	25	15	55
Ophthalmology	15	25	15	55
Radiodiagnosis	8	15	15	38
Anesthesiology	8	15	15	38
Pandemic module	28	-	-	28
TOTAL	444	610	302	1356

Extra hours may be used for preparation of NExT or SDL.

Table no, 8; Clinical Posting Schedules in weeks

Subjects	Period of training in weeks			Total Weeks
	II MBBS	III MBBS Part I	III MBBS Part II	
Electives	0	4	0	4
General Medicine	9	4	14	27
General Surgery	7	4	10	21
Obstetrics &Gynecology	7	4	10	21
Pediatrics	4	4	5	13
Community Medicine	4	4	0	8
Orthopedics	2	2	4	8
Otorhinolaryngology	0	3	4	7
Ophthalmology	0	3	4	7
Psychiatry	0	2	4	6
Radio-diagnosis	0	0	2	2
Dermatology	2	2	2	6
Dentistry	1	0	0	1
Anesthesiology	0	0	J	3
Total	36	36	62	134

Table 9 : Learner-Doctor programme(Clinical Clerkship)

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

Table 10: Marks distribution for various subjects for University Annual Examinations

Phase of Course	Theory	Practical's	Passing criteria
1st MBBS			
Anatomy-2 papers	Paper1-100	100	Mandatory to get 40% marks separately in theory and in practicals; and totally 50%for theory plus practicals.
	Paper2-100		
Physiology-2 papers	Paper1-100	100	
	Paper2-100		
Biochemistry-2 papers	Paper1-100	100	
	Paper2-100		
2nd MBBS			
Pathology-2 papers	Paper1-100	100	
	Paper2-100		
Microbiology-2 papers	Paper1-100	100	
	Paper2-100		
Pharmacology-2papers	Paper1-100	100	
	Paper2-100		
Final MBBS part 1			
Forensic Med.Tox.-1paper	Paper1- 100	50	
Community Med-2 papers	Paper1-100	100	
	Paper2-100		

For NEXT, as per NEXT regulations.

Phase wise marks distribution of internal assessment – Theory & Practical

<i>THEORY</i>											
Name of the Institute:											
DEPARTMENT OF Anatomy/ Physiology/ Biochemistry											
Faculty: MBBS		Year/Phase-I						Date: dd/mm/yyyy			
		Formative Assessment Theory			Continuous Internal Assessment Theory						
Roll. No	Name of Student	1st PCT Theory	2nd PCT Theory	Prelims Theory (Paper I & II)	Home Assignment	Continuous Class Test (LMS)	Seminar	Museum study	Library Assignments	Attendance Theory	Total
							<i>Self-Directed Learning</i>				
				100	100	200	15	30	15	15	15

Professor & Head

Department of

Name of the Institute

PRACTICAL

Name of the Institute:

DEPARTMENT OF Anatomy/ Physiology/ Biochemistry

Faculty MBBS		Year/Phase-I								Date:dd/mm/yyyy		
			Formative Assessment			Continuous Internal Assessment (Practical)						
S. No	Roll No.	Name of Student	1st PCT Practical/First Ward Leaving Examination	2nd PCT Practical/First Ward Leaving Examination	Prelims Practical	Log Book (150)				Journal (Record book/Portfolio)	Attendance (Practical)	Total
						Certifiable skill based competencies (Through OSPE/OSCE/Sports/Exercise/Other)	AETCOM Competencies	SVL Lab Activity	Research			
			100	100	100	60	30	40	20	40	10	500

Professor & Head

Department of

Name of the Institute

THEORY											
Name of the Institute:											
DEPARTMENT OF Pathology/ Pharmacology / Microbiology											
Faculty: MBBS		Year/Phase-II							Date: dd/mm/yyyy		
		Formative Assessment Theory			Continuous Internal Assessment Theory						
Roll. No	Name of Student	1st PCT Theory	2nd PCT Theory	Prelims Theory (Paper I & II)	Home Assignment	Continuous Class Test (LMS)	Seminar	Museum study	Library Assignments	Attendance Theory	Total
							Self-Directed Learning				
		100	100	200	15	30	15	15	15	10	500
Professor & Head Department of Name of the Institute											

PRACTICAL

Name of the Institute:

DEPARTMENT OF Pathology/ Pharmacology/ Microbiology

Faculty MBBS		Year/Phase-II										Date: dd/mm/yyyy	
			Formative Assessment			Continuous Internal Assessment (Practical)							
S. No	Roll No.	Name of Student	1st PCT Practical/First Ward Leaving Examination	2nd PCT Practical/First Ward Leaving Examination	Prelims Practical	Log Book (150)				Journal (Record book/Portfolio)	Attendance (Practical)	Total	
						Certifiable skill based competencies (Through OSPE/OSCE/Sports/Exercise/Other)	AETCOM Competencies	SVL Lab Activity	Research				
			100	100	100	60	30	40	20	40	10	500	

Professor & Head

Department of

Name of the Institute

THEORY														Cumulative percent of Theory Practical
Name of the Institute:														
DEPARTMENT OF Community Medicine														
Faculty: final MBBS		Year/Phase-3 Part-I							Date: dd/mm/yyyy					
		Formative Assessment Theory			Continuous Internal Assessment Theory									
Roll. No	Name of Student	1st PCT Theory	2nd PCT Theory	Prelims Theory (Paper I & II)	Home Assignment	Continuous Class Test (LMS)	Seminar	Museum study	Library Assignments	Attendance Theory	Total	Percentage theory (minimum cut of 40%)	Theory + Practical = 500+500 =1000 (minimum cut off 50%)	
							Self-Directed Learning						Note: Minimum 40% separately for theory practical and 50% cumulative in IA for eligibility in summative examination.	
				100	100	200	15	15	30	15	15	10	500	%
Professor & Head Department of Name of the Institute														

THEORY														Cumulative percent of Theory Practical
Name of the Institute:														
DEPARTMENT OF Forensic Medicine														
Faculty: final MBBS		Year/Phase-3 Part-I							Date: dd/mm/yyyy					
		Formative Assessment Theory			Continuous Internal Assessment Theory							Percentage theory (minimum cut of 40%)	Theory + Practical = 375+500 =875 (minimum cut off 50%)	
Roll. No	Name of Student	1st PCT Theory	2nd PCT Theory	Prelims Theory (Paper I & II)	Home Assignment	Continuous Class Test (LMS)	Seminar	Museum study	Library Assignments	Attendance Theory	Total			
														Self-Directed Learning
		100	100	100	10	10	25	10	10	10	375	%		
Professor & Head Department of Name of the Institute														

PRACTICAL													
Name of the Institute:													
DEPARTMENT OF Community Medicine													
Faculty Final MBBS		Year/Phase-3 part-I									Date:dd/mm/yyyy		
			Formative Assessment			Continuous Internal Assessment (Practical)							
S. No	Roll No.	Name of Student	1st PCT Practical/First Ward Leaving Examination	2nd PCT Practical/First Ward Leaving Examination	Prelims Practical	Log Book (150)			Journal (Record book/Portfolio)	Attendance (Practical)	Total	Percentage Practical (Minimum cut off 40%)	
						Certifiable skill based competencies (Through OSPE/OSCE/Sports/Exercise/Other)	Family adoption programme competencies in comm. medicine	AETCOM Competencies					
			100	100	100	60	30	30	40	10	500	%	
Professor & Head Department of Name of the Institute													

PRACTICAL													
Name of the Institute:													
DEPARTMENT OF Forensic Medicine													
Faculty Final MBBS		Year/Phase-3 part-I									Date:dd/mm/yyyy		
			Formative Assessment			Continuous Internal Assessment (Practical)							
S. No	Roll No.	Name of Student	1st PCT Practical/First Ward Leaving Examination	2nd PCT Practical/First Ward Leaving Examination	Prelims Practical	Log Book (150)			Journal (Record book/Portfolio)	Attendance (Practical)	Total	Percentage Practical (Minimum cut off 40%)	
						Certifiable skill based competencies (Through OSPE/OSCE/Sports/Exercise/Other)	AETCOM Competencies	SVL Lab Activity					
			100	100	100	70	40	40	40	10	500	%	
Professor & Head Department of Name of the Institute													

THEORY

Name of the Institute:

DEPARTMENT OF Paediatrics/ ENT/ Ophthalmology

Faculty: final MBBS

Year/Phase- Part-II

Date: dd/mm/yyyy

Formative Assessment

Continuous Internal Assessment

Roll.
No

Name of Student

1st PCT
Theory

2nd PCT
Theory

Prelims
Theory
(Paper I & II)

Home
Assignment

Continuous
Class Test
(LMS)

Seminar

Museum
study

Library
Assignments

Attendance
Theory

Total

Self-Directed Learning

100

100

100

10

25

10

10

10

10

375

Professor & Head

Department of

Name of the Institute

PRACTICAL

Name of the Institute:

DEPARTMENT OF Paediatrics/ ENT/ Ophthalmology

Faculty: final MBBS		Year/Phase Part-II								Date:dd/mm/yyyy		
			Formative Assessment			Continuous Internal Assessment (Practical)						
S. No	Roll No.	Name of Student	1st PCT Practical/First Ward Leaving Examination	2nd PCT Practical/First Ward Leaving Examination	Prelims Practical	Log Book (150)				Journal (Record book/Portfol io)	Attenda nce (Practica l)	Total
						Certifiable skill based competencies (Through OSPE/OSCE/Sports/ Exercise/Other)	AETCOM Competencies	SVL Lab Activity	Research			
			100	100	100	60	30	50	20	40	10	500

Professor & Head

Department of

Name of the Institute

THEORY

Name of the Institute:

DEPARTMENT OF Medicine/ Surgery/ OBG

Faculty: final MBBS

Year/Phase- Part-II

Date: dd/mm/yyyy

Formative Assessment

Continuous Internal Assessment

Roll. No	Name of Student	1st PCT Theory	2nd PCT Theory	Prelims Theory (Paper I & II)	Home Assignment	Continuous Class Test (LMS)	Seminar	Museum study	Library Assignments	Attendance Theory	Total
		100	100	200	15	30	<i>Self-Directed Learning</i>			10	500
							15	15	15		

Professor & Head

Department of

Name of the Institute

PRACTICAL

Name of the Institute:

DEPARTMENT OF Medicine/ Surgery/ OBG

Faculty:
final MBBS

Year/Phase- Part-II

Date:
dd/mm/yyyy

			Formative Assessment			Continuous Internal Assessment						
S. No	Roll No.	Name of Student	1st PCT Practical/First Ward Leaving Examination	2nd PCT Practical/second Ward Leaving Examination	Prelims Practical	Log Book (200)				Journal (Record book/Portfolio)	Attendance (Practical)	Total
						Certifiable skill based competencies (Through OSPE/OSCE/Sports/Exercise/Other)	AETCOM Competencies	SVL Lab Activity	Research			
			100	100	200	100	40	40	20	40	10	650

Professor & Head

Department of

Name of the Institute

Department of Pathology

PREAMBLE

Pathology bridges the gap between basic sciences and clinical medicine, so a proper understanding of pathological processes is crucial for medical practice. The main goals of undergraduate pathology teaching have always been to provide a language or framework for the description of disease and to provide students with knowledge of the functional and structural changes in disease so that clinical signs and symptoms can be understood and interpreted. The understanding of the pathological basis of disease is so vital for practice of medicine that its teaching needs to be integrated throughout the medical course.

The new Graduate Medical Education Regulations provides for an outcome driven undergraduate curriculum, to provide the orientation and the skills necessary for life-long learning, to enable proper care of the patient. The undergraduate medical curriculum has thus evolved from being teacher-centered to student centered, from discipline-based to integrated core and options-based and from passive acquisition of knowledge imparted by teachers to active problem-based learning. Skill acquisition is an indispensable component of the learning process in modern medicine. However the need for development of professional attitude, behaviour and communication skills befitting a medical practitioner is well perceived and emphasized by the new curriculum with incorporation of AETCOM sessions.

Pathology teaching is perceived as fact-based, but the present curriculum will evolve pathology into clinical oriented specialty. The key elements of the curriculum such as integrating basic science with clinical oriented learning, direct faculty feedback, interactive with experiential learning and competency-based student assessments will bring in remarkable changes in pathology teaching. These changes will provide the Indian Medical Graduate a strong foundation in the pathophysiological basis of disease which is critical to the formation of a competent clinician.

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GOAL AND OBJECTIVES

GOAL

The broad goal of the teaching of undergraduate student in Pathology is to provide the students with a comprehensive knowledge of the mechanisms and causes of disease, in order to enable him/her to achieve complete understanding of the natural history and clinical manifestations of disease.

OBJECTIVES

a) KNOWLEDGE

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

1. Describe the structure and ultrastructure of a sick cell, mechanisms of cell degeneration, cell death and repair and be able to correlate structural and functional alterations.
2. Explain the pathophysiological processes which govern the maintenance of homeostasis, mechanisms of their disturbance and the morphological and clinical manifestations associated with it.
3. Describe the mechanisms and patterns of tissue response to injury such that she/he can appreciate the pathophysiology of disease processes and their clinical manifestations.
4. Correlate normal and altered morphology (gross and microscopic) of different organ systems in common diseases to the extent needed for understanding of disease processes and their clinical significance.

b) SKILLS

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

1. Describe the rationale and principles of technical procedures of the diagnostic laboratory tests and interpretation of the results.
2. Perform the simple bed-side tests on blood, urine and other biological fluid samples.
3. Draw a rational scheme of investigations aimed at diagnosing and managing the cases of common disorders.
4. Understand biochemical/physiological disturbances that occur as a result of disease in collaboration with preclinical departments.

c) INTEGRATION

At the end of training he/she should be able to integrate the causes of disease and relationship of different etiological factors (social, economic and environmental) and that contribute to the natural history of diseases most prevalent in India.

TERMS AND TEACHING GUIDELINES

1. LECTURE

Is a teaching learning method which includes traditional and interactive sessions involving a large group.

2. SMALL GROUP DISCUSSION

Is an instructional method involving small groups of students in an appropriate learning context.

3. DOAP (Demonstration- Observation - Assistance - Performance)

A practical session that allows the student to observe demonstration, assists the performer, perform in a simulated environment, perform under supervision or perform independently.

4. SELF DIRECTED LEARNING

A process in which individuals take the initiative, with or without the help of others in diagnosing their learning needs, formulating learning goals, identifying human and material sources for learning , choosing and implementing appropriate learning methods.

5. SKILL ASSESSMENT

Is a session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands.

6. CORE

A competency that is necessary in order to complete the requirements of the subject (traditional must know)

7. NON – CORE

A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know.

MINIMUM TEACHING HOURS

SI No	Topic	Number of competencies	Lectures	SMALL GROUP LEARNING (TUTORIALS+ DOAP+INTEGRATED TEACHING+ SEMINARS)	SDL
1	Introduction to pathology	3	1	2	0
2	Cell Injury and Adaptation	8	5	8	0
3	Amyloidosis	2	0	2	0
4	Inflammation	4	4	6	1
5	Healing and repair	1	1	2	0
6	Hemodynamic disorders	7	5	5	0
7	Neoplastic disorders	5	6	8	0
8	Basic diagnostic Cytology	3	0	5	0
9	Immunopathology and AIDS	7	5	3	1
10	Infections and Infestations	4	1	6	0
11	Genetic and Paediatric diseases	3	3	2	0
12	Environmental and Nutritional diseases	3	2	2	0
13	Introduction to haematology	5	2	4	0
14	Microcytic Anaemia	3	1	2	0
15	Macrocytic Anaemia	4	1	2	0
16	Haemolytic Anaemia	7	3	4	0

17	Aplastic anaemia	2	1	0	0
18	Leucocytic disorders	2	2	6	1
19	Lymph node and spleen	7	1	6	0
20	Plasma cell disorder	1	0	3	0
21	Haemorrhagic disorders	5	3	5	0
22	Blood banking and transfusion	6	2	3	0
23	Clinical Pathology	3	0	6	0
24	Gastrointestinal Tract	7	4	6	1
25	Hepatobiliary system	6	2	6	1
26	Respiratory system	7	5	6	0
27	Cardiovascular system	10	2	10	1
28	Urinary tract	16	4	10	2
29	Male genital tract	5	2	2	0
30	Female genital tract	9	4	4	0
31	Breast	4	2	3	0
32	Endocrine system	9	2	6	1
33	Bone and soft tissue	5	2	5	1
34	Skin	4	1	0	0
35	Central Nervous system	3	1	5	0
36	Eye	1	-	-	-

	Revision at the end of first block (one)	-	-	2	-
	Revision at the end of second block (one)	-	-	2	-
	Revision at the end of third block (three)	-	-	6	-
	Total	181	80	165	10

COMPETENCIES, SPECIFIC LEARNING OBJECTIVES, TEACHING LEARNING AND ASSESSMENT METHODS

Number	COMPETENCY The student should be able to	Domain K/S/ A /C	Level K/ KH /SH /P	Core (Y/N)	Specific learning objectives (SLO)	Teaching-Learning Methods (TLM)	Assessment Method
TOPIC- INTRODUCTION TO PATHOLOGY (PA-1)							
PA 1.1	Describe the role of a pathologist in diagnosis and management of disease	K	K	Y	1.1.1. Describe the role of Pathologist in diagnosis and treatment. 1.1.2. Describe the role of Pathology in correlating clinical findings and disease process 1.1.3. Enumerate different sections of Pathology and its diagnostic role.	Department orientation SGD (2hrs)	Written , Viva voce

PA 1.2	Enumerate common definitions and terms used in Pathology	K	K	Y	1.2.1. Define Etiology, Pathogenesis and Pathology. 1.2.2. Correlate the clinical findings with pathology.	Lecture (1hr)	Written, Viva voce
PA 1.3	Describe the history and evolution of Pathology	K	K	N	1.3.1. Describe the brief history and evolution of Pathology		
TOPIC- CELL INJURY AND ADAPTATION (PA-2)							
PA 2.1	Demonstrate knowledge of the causes, mechanisms, types and effects of cell injury and their clinical significance	K	KH	Y	2.1.1. Enumerate the different causes of cell injury.	Lecture (1hr)	Written, Viva voce
PA 2.2	Describe the etiology of cell injury. Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury	K	KH	Y	2.2.1. Describe the pathogenesis of cell injury.(At least a few causes) 2.2.2. Enumerate the microscopic differences between reversible and irreversible cell injury. 2.2.3. Describe the mechanism of reversible and irreversible cell injury. 2.2.4. Enumerate few biochemical changes frequently associated with irreversible cell injury.	Lecture (1hr)	Written, Viva voce

					2.2.5. What is lipofuscin and mention its importance.		
PA 2.3	Intracellular accumulation of fats, proteins, carbohydrates, pigments	K	KH	Y	2.3.1. Enumerate the causes of intracellular and extracellular hyaline deposition 2.3.2. Enumerate the causes of fatty degeneration. Name the organs affected. 2.3.3. Discuss the pathogenesis of fatty liver. Describe the morphology of fatty liver. 2.3.4. Enumerate special stains used to demonstrate Fat, Glycogen and Calcium. 2.3.5 Enumerate the causes of intracellular accumulation of proteins. 2.3.6. Enumerate different types of pigments in health and disease. 2.3.7. Name special stains to demonstrate hemosiderin and melanin.	Lecture (1hr)	Written, Viva voce
PA 2.4	Describe and discuss Cell death- types, mechanisms, necrosis, apoptosis(basic as contrast with necrosis),autolysis	K	KH	Y	2.4.1. Define necrosisand enumerate the different types with examples. Discuss the morphology and fate of coagulative, liquefactive and caseous necrosis. 2.4.2. Discuss the pathogenesis and morphology of fat necrosis.	Lecture (1hr)	Written, Viva voce

					2.4.3. Discuss the pathogenesis and pathology of Apoptosis. 2.4.4. Describe the clinical significance of Apoptosis and Necrosis. 2.4.5. Difference between apoptosis and necrosis. 2.4.6 Define autolysis. Explain the mechanism with example.		
PA 2.5	Describe and discuss pathologic calcifications, gangrene	K /S	KH/SH	Y	2.5.1. Describe the pathogenesis of Fatty liver in various conditions. 2.5.2 Describe the macro and microscopic changes in Fatty liver. 2.5.3 Enumerate causes of Pathologic calcifications. 2.5.4. Differentiate between metastatic and dystrophic calcifications. 2.5.5. Recognize calcification grossly, microscopically and name special stains for calcium. 2.5.6 Enumerate several conditions associated with extracellular and intracellular protein accumulations.	DOAP(2hrs)	Skill assessment

					2.5.7 Enumerate causes of accumulation of Glycogen and special stains used for detection of glycogen. 2.5.8. Identify the changes of fatty degeneration in Liver. 2.5.9. Identify and describe Monckeberg's medial calcification. 2.5.10. Identify the gross specimen of gangrene. 2.5.11. Enumerate the types of gangrene and discuss their pathogenesis.		
PA 2.6	Describe and discuss cellular adaptations: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia	K	KH	Y	2.6.1. Define the term Adaptation. 2.6.2. Mention different types of Adaptation 2.6.3. Describe the pathogenesis and clinical significance of each Adaptation.	SGD(2hr)	Written, Viva voce
PA 2.7	Describe and discuss the mechanisms of cellular aging and apoptosis	K	KH	N	2.7.1. Discuss the mechanism of cellular aging	Lecture (1hr)	Written, Viva voce
PA 2.8	Identify and describe various forms of cell injuries, their manifestations and consequences in gross and microscopic Specimens.	S	SH	Y	2.8.1. Identify the morphology of coagulative, liquefactive and caseous necrosis. 2.8.2. Define and morphologically identify different types of Gangrene. 2.8.3. Correlate clinical presentation and morphological changes in Necrosis and Gangrene	DOAP (2hr)	Skill assessment

PA2					Cell Injury	Tutorial/Formative assessment (2hr)	Written, Viva voce
TOPIC: AMYLOIDOSIS (PA- 3)							
PA 3.1	Describe the pathogenesis and pathology of amyloidosis	K	KH	Y	3.1.1. Describe the pathogenesis and pathology of Amyloidosis. 3.1.2. Enumerate the diseases associated with amyloid deposition and name the common organs affected. 3.1.3. Enumerate the Investigations used in diagnosis of amyloidosis. 3.1.4. Special stains used to demonstrate the amyloid	SGD (2hrs)	Written, Viva voce
PA 3.2	Identify and describe amyloidosis in a pathology specimen	S	SH	N	3.2.1 Identify the gross specimen of amyloid kidney/spleen. (Optional) 3.2.2. Identify the amyloid deposition microscopically. 3.2.3 Interpretation of the special stain done.		
TOPIC: INFLAMMATION (PA- 4)							
PA 4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	Y	4.1.1. Define and differentiate acute and chronic inflammation. 4.1.2. Describe the pathogenesis of acute and chronic inflammation. 4.1.3. Describe the various vascular and cellular events involved in acute inflammation.	Lecture (2hrs)	Written, Viva voce

					4.1.4. Define and describe chemotaxis, phagocytosis and opsonisation.		
PA 4.2	Enumerate and describe the mediators of acute inflammation	K	KH	Y	4.2.1. Enumerate the chemical mediators of acute inflammation. 4.2.2. Describe the role of important mediators of acute inflammation. 4.2.3. Enumerate the sequelae of acute inflammation. 4.2.4. Describe the clinical outcome of acute inflammation.	Lecture (1hr)	Written, Viva voce
PA 4.3	Define and describe chronic inflammation including causes, types enumerate types, non-specific and granulomatous; and examples of each	K	KH	Y	4.3.1. Define the chronic inflammation 4.3.2. Enumerate types of chronic inflammation 4.3.3. Describe the pathogenesis of granuloma formation. 4.3.4. Enumerate the examples of granulomatous diseases.	Lecture (1hr)	Written, Viva voce
PA 4.4	Identify and describe acute and chronic inflammation in gross and microscopic specimens.	S	SH	Y	4.4.1. Identify the granulomas microscopically. 4.4.2 Identify epithelioid cell and giant cell microscopically. 4.4.3. Identify the different morphological features of chronic inflammation. 4.4.4 Recognize grossly the granulomatous inflammation of lymph node, Actinomycosis. 4.4.5. Identify and describe the specimen of acute appendicitis and pneumonia. 4.4.6. Recognize microscopic features of acute	DOAP (4hrs)	Skill assessment

					inflammation		
PA4					Inflammation	Tutorial/Formative assessment (2hrs)	Written, Viva voce
TOPIC: HEALING AND REPAIR (PA- 5)							
PA 5.1	Define and describe the process of repair and regeneration including wound healing and its types	K	KH	Y	5.1.1. Define and differentiate regeneration from repair. 5.1.2. Describe various steps in healing. 5.1.3. Differentiate primary healing from secondary healing 5.1.4. Describe various steps involved in fracture healing. 5.1.5 The classification of tissues based on the proliferative capacity of cells. 5.1.6 Complications and factors affecting wound healing. 5.1.7 Complications and factors affecting healing of fracture. 5.1.8 Mechanism of repair by connective tissue deposition	Lecture (1hr)	Written, Viva voce
PA 5					Healing and repair	Tutorial /Formative assessment (1hr)	Written, Viva voce

TOPIC: HEMODYNAMIC DISORDERS(PA-6)							
PA 6.1	Define and describe edema, its types, pathogenesis and clinical correlations.	K	KH	Y	6.1.1 Define oedema and explain the fluid balance. 6.1.2 Mention the differences between transudate and exudate. 6.1.3 Enumerate the types of oedema and describe their pathophysiology(Renal, Cardiac, pulmonary, cerebral, nutritional and hepatic), clinical features and consequences	Lecture (1hr)	Written, Viva voce
PA 6.2	Define and describe hyperemia, congestion, haemorrhage	K/S	KH/SH	Y	6.2.1. Identify the difference between hyperaemia, congestion and haemorrhage 6.2.2. Enumerate the causes and identify the gross and microscopy of Chronic venous congestion Lung, Liver and Spleen 6.2.3 Enumerate the consequences of congestion and haemorrhage.	DOAP (1hr)	Skill assessment
PA 6.3	Define and describe shock, its pathogenesis and its stages	K	KH	Y	6.3.1. Define Shock and discuss the concept of adequate cardiac output and its importance 6.3.2. Enumerate the types and discuss the mechanisms of the various types of shock 6.3.3. Describe the various stages of shock with their clinical manifestations and morphological changes in various organs	Lecture (1hr)	Written, Viva voce
PA-6.4a	Define and describe normal haemostasis	K	KH	Y	6.4a.1. Describe the role of endothelial cells, platelets and coagulation factors in maintaining hemostasis. 6.4a.2. Write the coagulation cascade	SDL (1hr)	Written, Viva voce

PA 6.4b	Describe the etiopathogenesis and consequences of thrombosis	K	KH	Y	6.4b.1. Define thrombosis and explain Virchow's triad 6.4b.2. Enumerate hypercoagulable states. 6.4b.3. List the types of thrombus and its morphology 6.4b.4. List the differences between a postmortem and antemortem thrombus. 6.4b.5. Fate of thrombus and its clinical consequences 6.4b.6 Difference between arterial and venous thrombus. 6.4b.7. Contribution of alteration in blood flow to thrombosis.	Lecture (1hr)	Written, Viva voce
PA 6.5	Define and describe embolism and its causes and common types.	K	KH	Y	6.5.1. Define an embolism and enumerate the differences between a thrombus and an embolus. 6.5.2. Enumerate the types of embolism and describe their etiopathogenesis with examples and clinical manifestations	Lecture (1hr)	Written, Viva voce
PA 6.6,	Define and describe Ischaemia/infarction its types, etiology, morphologic changes and clinical effects.	K	KH	Y	6.6.1. Define infarction and enumerate the different types of infarction. 6.6.2. Describe the etiopathogenesis of infarction	DOAP (1hr)	Skill assessment
PA 6.7	Identify and describe the gross and microscopic features of infarction in a pathology specimen	S	SH	Y	6.7.1. Identify the gross features of infarction in various organs 6.7.2. Identify the microscopic features of infarction in various organs		
PA6		K	KH	Y	Hemodynamic Disorder	Tutorial/Formative	Written, Viva

						assessment (2hrs)	voce
TOPIC: NEOPLASTIC DISORDERS (PA-7)							
PA 7.1a	Define and classify neoplasia, biologic behaviour and spread.	K	KH	Y	7.1a.1. Define and classify neoplasia 7.1a2. For both males and females, list in descending order: • the five most common cancers • the five most common causes of cancer death 7.1a3. Define and differentiate with examples: Ectopia, Heterotopia, Hamartoma, Teratoma. 7.1a4. Outline the classification and nomenclature for benign and malignant neoplasms using appropriate prefixes and suffixes and indicating specific exceptions to rules of nomenclature. 7.1a5. Discuss the differences between benign and malignant neoplasms. 7.1a.6. Enumerate the routes of spread. Compare and contrast the route of spread of Carcinoma versus Sarcoma with exceptions. 7.1a.7. Define metastasis and discuss the mechanism of metastasis. 7.1a.8. Define staging and grading of tumours and its clinical significance.	Lecture (2hrs)	Written, Viva voce

					7.1a.9. List the most common sites of origin of: adenoma, adenocarcinoma, squamous cell carcinoma, melanoma		
PA 7.1b	Describe the characteristics of neoplasia including gross, microscopy. Differentiate between benign from malignant neoplasm	S	SH	Y	7.1b.1. Identify the gross and microscopic features of benign neoplasms. 7.1b.2. Identify the gross and microscopic features of malignant neoplasms.	DOAP (4hrs)	Skill assessment
PA 7.2	Describe the molecular basis of cancer.	K	KH	Y	7.2.1. Describe the cell cycle. 7.2.2. Write a note on cell signalling pathways 7.2.3. Describe role of proto-oncogenes, oncogenes and onco-proteins in carcinogenesis 7.2.4. Describe the role of important tumour suppressor genes (Rb gene, p53, APC) in carcinogenesis. 7.2.5. Enumerate and discuss the steps of multistep carcinogenesis.	Lecture (2hrs)	Written, Viva voce
PA 7.3	Enumerate carcinogens and describe the process of carcinogenesis	K	KH	Y	7.3.1. Define and classify carcinogens. 7.3.2. Classify and enumerate chemical carcinogens 7.3.3. Describe the mechanism of chemical carcinogenesis 7.3.4. Discuss the mechanism of Radiation carcinogenesis (UV rays and Ionizing radiation) and name the associated cancers. 7.3.5. Classify microbial carcinogens and enumerate associated neoplasms. 7.3.6. Discuss the mechanism of microbial carcinogenesis.	Lecture (2hrs)	Written, Viva voce

					7.3.7. Elaborate the role of the following in the development of human cancer in relation to at least 2 specific neoplasms associated with each: • physical agents • chronic inflammatory conditions • hormones		
PA-7.4	Describe the effects of tumour on the host including paraneoplastic syndrome	K	KH	Y	7.4.1. Discuss the local and systemic effects of tumour on the host. 7.4.2. Define and discuss Para-neoplastic syndromes. 7.4.3. Discuss the different types and clinical significance of tumour markers and their role in lab diagnosis.	SGD (2hrs)	Written, Viva voce
PA 7.5	Describe immunology and the immune response to cancer	K	KH	N	7.5.1. Describe host immune response to cancer.		
PA7					Neoplasia	Tutorial/ Formative assessment (2hrs)	Written, Viva voce
TOPIC: BASIC DIAGNOSTIC CYTOLOGY (PA-8)							
PA 8.1	Describe the diagnostic role of cytology and its application in clinical care.	K	KH	Y	8.1.1. Describe the procedure of FNAC, its advantages and limitations.	SGD (2hrs)	Written, Viva voce

PA 8.2	Describe the basis of exfoliative cytology including the technique & stains used	K	KH	Y	8.2.1. Describe the sites of exfoliative cytology (PAP smear, body fluids, sputum, urine) 8.2.2. Enumerate the steps and name different stains used in pap stain.	SGD (2hrs)	Written, Viva voce/ Skill assessment
PA 8.3	Observe a diagnostic cytology and its staining and interpret the specimen	S	KH	Y	8.3.1. Observe and interpret the cytology reports		
TOPIC: IMMUNOPATHOLOGY AND AIDS (PA-9)							
PA 9.1	Describe the principles and mechanisms involved in immunity.	K	KH	Y	9.1.1 Define innate immunity. 9.1.2 Describe the components and mechanism of innate immunity. 9.1.3 Define and enumerate the types of Adaptive immunity. 9.1.4 Describe the cells of the immune system and their role in immunity. 9.1.5 Describe the mechanism of humoral immunity. 9.1.6 Describe the mechanism of cell mediated immunity. 9.1.7 Define and describe the mechanism of Major Histocompatibility Complex (MHC).	SGD (1hr)	Written, Viva voce
PA 9.2	Describe the mechanism of hypersensitivity reactions.	K	KH	Y	9.2.1 Define and classify Hypersensitivity reactions. 9.2.2 Describe the mechanism of Type I hypersensitivity reactions with schematic diagram with examples.	SGD (1hr)	Written, Viva

					9.2.3 Describe the mechanism of Type II hypersensitivity reactions with schematic diagram with examples 9.2.4 Describe the mechanism of Type III hypersensitivity reactions with schematic diagram with examples 9.2.5 Describe the mechanism of Type IV hypersensitivity reactions with schematic diagram with examples. 9.2.6 Categorize the given clinical scenarios into different types of hypersensitivity reactions.		voce
PA 9.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection.	K	KH	Y	9.3.1 Define HLA system and Major Histocompatibility Complex molecules. 9.3.2 Describe the function of MHC class I and class II molecules. 9.3.3 Describe the mechanism of recognition and rejection of allografts with schematic diagrams. 9.3.4 Describe the mechanism and morphology of rejection of Kidney grafts. 9.3.5 Describe the methods of increasing graft survival. 9.3.6 Describe the mechanism and types of Graft Versus Host Disease (GVHD)	Lecture (1hr)	Written, Viva voce
PA 9.4	Define autoimmunity. Enumerate autoimmune disorders.	K	KH	Y	9.4.1 Define Autoimmune disease 9.4.2 Classify Autoimmune diseases 9.4.3 Define and enumerate the types of immunologic	Lecture (1hr)	Written, Viva

					tolerance. 9.4.4 Describe the mechanism of central tolerance. 9.4.5 Describe the mechanism of peripheral tolerance. 9.4.6 Describe the mechanism of autoimmunity with a neat labelled schematic diagram. 9.4.7 Describe the general features associated with autoimmune diseases		voce
PA 9.5	Define and describe the pathogenesis of Systemic Lupus Erythematosus	K	KH	Y	9.5.1 Define SLE and enumerate and describe various types of SLE 9.5.2 Describe the revised criteria for classification of SLE 9.5.3 Enumerate and describe the spectrum of autoantibodies in SLE. 9.5.4 Describe the etiopathogenesis of SLE with a neat labelled schematic diagram. 9.5.5 Describe the morphological features in SLE. 9.5.6 Enumerate the clinical features of SLE.	Lecture (1hr)	Written, Viva voce
PA 9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	9.6.1 Define AIDS and Describe the epidemiology and aetiology of AIDS. 9.6.2 Describe the structure and life cycle of HIV with a neat labelled schematic diagram. 9.6.3 Describe the pathogenesis of HIV and pathology of AIDS with schematic diagram. 9.6.4 Enumerate and describe the clinical features of AIDS.	Lecture (1hr)	Written, Viva voce

					9.6.5 Enumerate and describe AIDS defining opportunistic infections. 9.6.6 Enumerate neoplasms found in patients with HIV infections		
PA 9.7	Define and describe the pathogenesis of other common autoimmune diseases	K	KH	N	9.7.1 Define Sjögren Syndrome. 9.7.2 Describe the etiopathogenesis of Sjögren syndrome. 9.7.3 Describe the clinical features of morphological findings in Sjögren syndrome. 9.7.4.Enumerate organ specific autoimmune diseases and systemic autoimmune diseases	Lecture (1hr)	Written, Viva voce
TOPIC-INFECTIONS AND INFESTATIONS (PA-10)							
PA 10.1	Define and describe the pathogenesis and pathology of malaria.	K	KH	Y	10.1.1 Enumerate parasite causing malaria 10.1.2 Describe the life cycle of malarial parasite 10.1.3 Describe morphology of malarial parasite 10.1.4 Discuss the lab diagnosis in malaria.	SGD (2hrs)	Written, Viva voce
PA 10.2	Define and describe the pathogenesis and pathology of cysticercosis.	K	KH	Y	10.2.1 Enumerate cause of cysticercosis 10.2.2 Discuss etiopathology of cysticercosis		
PA 10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	10.3.1 Define and Classify Leprosy 10.3.2 Discuss the pathogenesis of leprosy 10.3.3 Differentiate morphology of tuberculoid and	Lecture (1hr)	Written, Viva voce

					lepromatous leprosy		
PA 10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases.	K	KH	N	10.4.1 Describe general principle of microbial pathogenesis 10.4.2 Describe the aetiology, pathogenesis and organ changes in Typhoid fever. 10.4.3 Describe the aetiology, clinical features and organ changes in Bacillary dysentery. 10.4.4 Describe the clinical manifestations, mode of transmission, salient diagnostic methods of Measles, Herpes and Rabies 10.4.5 Describe the aetiology, clinical manifestations and organ changes in Amoebic dysentery and amoebic abscess 10.4.6 Describe the aetiology, clinical features, organ changes and laboratory findings in Filariasis/ Hydatid cyst 10.4.7 Describe the aetiology, pathogenesis, organ changes, clinical manifestations and laboratory diagnosis of fungal lesions(Candida, Aspergillosis, Mucormycosis, Cryptococcosis) 10.4.8 Describe the causative agent, types, clinical manifestations and laboratory diagnosis of Syphilis.	SGD (4hrs)	Written, Viva voce
PA 10					Study on Corona Virus	SDL (1hr)	Written, Viva voce

TOPIC: GENETIC AND PAEDIATRIC DISEASES (PA-11)							
PA 11.1	Describe the pathogenesis and features of common cytogenetic abnormalities and mutations in childhood	K	KH	N	11.1.1 Define gene, mutation, the types of mutation 11.1.2 Discuss the transmission patterns of single gene disorders with examples for each 11.1.3 Describe the normal Karyotype 11.1.4 Discuss the various structural abnormalities of chromosomes	Lecture (1hr)	Written, Viva voce
PA 11.2	Describe the pathogenesis and pathology of tumour and tumour like conditions in infancy and childhood	K	KH	N	11.2.1 Describe the tumour like lesions in infancy and childhood with few examples for each. 11.2.2 Name some common benign tumours in children. 11.2.3 Discuss the morphology of common benign tumours. 11.2.4 Classify common childhood malignant tumours. 11.2.5 Discuss the molecular pathogenesis and morphology of Neuroblastoma. 11.2.6 Discuss the molecular pathogenesis and syndromes associated with Wilm's tumour. 11.2.7 Enumerate the morphology and clinical features in Wilm's tumour. 11.2.8 Discuss the molecular pathogenesis and morphology of Retinoblastoma.	Lecture (1hr)	Written, Viva voce
PA 11.3	Describe the pathogenesis of common storage disorders in	K	KH	N	11.3.1 Discuss the pathogenesis lysosomal storage diseases. 11.3.2 Name the lysosomal storage diseases and	Lecture (1hr)	Written, Viva

	infancy and childhood				associated enzyme deficiency. 11.3.3 Describe the morphology of Niemann-Pick disease, Gaucher's disease		voce
TOPIC: ENVIRONMENTAL AND NUTRITIONAL DISEASES (PA-12)							
PA 12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol.	K	KH	Y	12.1.1 Enumerate the disorders caused by air pollution, tobacco and alcohol 12.1.2 Describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol. 12.1.3 Enumerate the health effects of indoor and outdoor air pollution. 12.1.4 Describe the organ specific effects of tobacco smoke constituents. 12.1.5 Describe the acute and chronic adverse effects of alcohol abuse.	SDL (2hrs)	Written, Viva voce
PA 12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	K	KH	Y	12.2.1 Enumerate causes and types of Malnutrition 12.2.2 Describe the clinical features and morphology of Marasmus and Kwashiorkor	Lecture (1hr)	Written, Viva voce
PA 12.3	Describe the pathogenesis of obesity and its consequences	K	KH	Y	12.3.1 Define Obesity and describe the pathogenesis of Obesity with reference to the role of leptins, adipose tissue and gut hormones. 12.3.2 Discuss the clinical consequences of Obesity.	Lecture (1hr)	Written, Viva voce

TOPIC: INTRODUCTION TO HAEMATOLOGY (PA-13)							
PA-13.1	Describe hematopoiesis and extramedullaryhematopoiesis.	K	KH	Y	13.1.1 Describe normal haematopoiesis 13.1.2 List sites of extra medullary haematopoiesis.	SDL (1hr)	Written, Viva voce
PA-13.3	Define and classify anemia	K	KH	Y	13.3.1 Define Anaemia. 13.3.2 Classify anaemia based on morphology and etiology	Lecture (1hr)	Written, Viva voce
PA-13.4	Enumerate and describe the investigation of anemia	K	KH	Y	13.4.1 Write the investigations required for the laboratory diagnosis of anaemia 13.4.2 What is CBC, ESR, PCV 13.4.3 Peripheral smear and bone marrow examination in the diagnosis of anemias	Lecture (1hr)	Written, Viva voce
PA 13.2	Describe the role of anticoagulants in hematology	K	KH	Y	13.2.1 List and write the mechanism of action of anticoagulants used in haematology. 13.2.2 Discuss the appropriate use of anticoagulants in haematology and blood bank.	DOAP (2hrs)	Skill assessment
PA 13.5	Perform, Identify and describe the peripheral blood picture in anemia	S	SH	Y	13.5.1 Make a peripheral blood smear and stain the smear using Leishman’s stain 13.5.2 Write the principle of Romanowsky stains 13.5.3 Identify blood cells in a normal peripheral blood smear.		
TOPIC: MICROCYTIC ANAEMIA (PA-14)							
PA-14.1	Describe iron metabolism	K	KH	Y	14.1.1 Describe iron metabolism	Lecture (1hr)	Written, Viva voce
	Describe the etiology,	K	KH	Y	14.2.1 List the causes of microcytic hypochromic		

PA 14.2	investigations and differential diagnosis of microcytic hypochromic anemia				anaemia. 14.2.2 Describe the investigations in a case of iron deficiency anaemia. 14.2.3 Discuss the differential diagnosis of microcytic hypochromic anaemia. 14.2.4 Write the peripheral blood and bone marrow findings in iron deficiency anaemia.		
PA-14.3	Identify and describe the peripheral smear in microcytic Anemia	S	SH	Y	14.3.1 Identify and describe the peripheral blood picture of microcytic anaemia	DOAP (1hr)	Skill assessment
TOPIC: MACROCYTIC ANAEMIA (PA-15)							
PA 15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	K	KH	Y	15.1.1 Describe the metabolism of vitamin B12. 15.1.2 Discuss the etiology and pathogenesis of vitamin B12 deficiency.	Lecture (1hr)	Written, Viva voce
PA 15.2	Describe laboratory investigations of macrocytic anemia	K	KH	Y	15.2.1 List the causes of macrocytic anaemia 15.2.2 Describe laboratory investigations of macrocytic anaemia. 15.2.3 Describe the peripheral blood and bone marrow picture in megaloblastic anaemia		
	Enumerate the differences and describe the distinguishing	K	KH	Y	15.4.1 Discuss the etiology of megaloblastic anaemia 15.4.2 Describe the distinguishing features of		

PA 15.4	features of megaloblastic and non-megaloblastic macrocytic anemia				megaloblastic and non megaloblastic macrocytic anaemia. 15.4.3 Enumerate the differences between megaloblastic and non megaloblastic macrocytic anaemia.		
PA 15.3	Identify and describe the peripheral smear in macrocytic anemia	S	SH	Y	15.3.1 Identify and describe the peripheral blood picture of macrocytic anaemia	DOAP (1hr)	Skill assessment
TOPIC: HEMOLYTIC ANAEMIA (PA-16)							
PA-16.1	Define and classify hemolytic anemia	K	KH	Y	16.1.1 Define haemolytic anaemia 16.1.2 List the causes of inherited and acquired haemolytic anaemia by mechanisms.	Lecture (1hr)	Written, Viva voce
PA 16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	16.2.1 Describe the pathogenesis of intravascular and extravascular haemolytic anaemias 16.2.2 Enumerate clinical features in haemolytic anaemia 16.2.3 Enumerate the laboratory investigations in haemolytic anaemia.		
PA 16.5	Describe the peripheral blood picture in different hemolytic Anaemias	K	KH	Y	16.5.1 Describe the peripheral blood picture in different haemolytic anemias with respect to RBC morphology.		
PA-16.3	Describe the pathogenesis, features, hematologic indices	K	KH	Y	16.3.1 Describe the pathogenesis, hematologic features and laboratory diagnosis of sickle cell	Lecture (1hr)	Written,

	and peripheral blood picture of sickle cell anemia and thalassemia				anaemia 16.3.2 Describe the pathogenesis, hematologic features and laboratory diagnosis of thalassemia. 16.3.3 List the features to distinguish thalassemia from iron deficiency anaemia.		Viva voce
PA-16.4a	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	K	KH	Y	16.4.1 Explain the etiopathogenesis of acquired haemolytic anaemia. 16.4.2 Describe the laboratory diagnosis of acquired haemolytic anaemia.	Lecture (1hr)	Written, Viva voce
PA-16.4b	Case based discussion	K	KH	Y	1. Sickle cell anemia 2. Thalassemia 3. Hereditary spherocytosis 4. Autoimmune hemolytic anemia	SGD (2hrs)	Written, Viva voce
PA-16.6	Prepare a peripheral blood smear and identify hemolytic anaemia from it	S	P	Y	16.6.1 Prepare a peripheral smear 16.6.2 Stain the smear 16.6.3 Interpret the smear findings 16.6.4 Interpret the clinical and hematological features in the chart of hemolytic anemia.	DOAP (2hrs)	Skill assessment
TOPIC: APLASTIC ANEMIA (PA-17)							
PA-17.1	Enumerate the etiology, pathogenesis and findings in aplastic anemia	K	K	N	17.1.1 Enumerate the causes of aplastic anemia 17.1.2 Enumerate the pathogenesis of aplastic anemia 17.1.3 Enumerate the bone marrow findings in aplastic anemia	Lecture (1hr)	Written, Viva voce

PA-17.2	Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	K	K	N	17.2.1 List the types of bone marrow study 17.2.2 List the indications and contraindications for bone marrow study 17.2.3 Describe the bone marrow findings with specific examples of involvement		
TOPIC: LEUKOCYTE DISORDERS (PA-18)							
PA-18.1	Enumerate and describe the causes of leucocytosis leucopenia, lymphocytosis and leukemoid reactions	K	KH	Y	18.1.1 List the causes for leucocytosis and leucopenia 18.1.2 Define leukemoid reaction 18.1.3 List the differences between leukemoid reaction and chronic myeloid leukemia	SGD (2hrs)	Written, Viva voce
PA-18.2	Describe the etiology, genetics, pathogenesis classification, features, hematologic features of acute and chronic leukemia	K/ S	KH/ SH	Y	18.2.1 Describe the etiology, genetics, pathogenesis of acute and chronic leukemia 18.2.2 Enumerate the classification of acute and chronic leukemia (FAB and WHO) 18.2.3 Describe the hematologic features of acute and chronic leukemia 18.2.4 Briefly describe Chronic myeloproliferative disorders 18.2.5 Demonstrate hematological findings and interpret charts 18.2.6 Identify the hematological findings in the smears	Lecture (2hrs) DOAP (2hrs)	Written, Viva voce Skill assessment

PA 13, 14, 15, 16,17,18					Anaemias and leucocyte disorders	Tutorial/ Formative assessment (2hrs)	Written, Viva voce
TOPIC: LYMPH NODE AND SPLEEN (PA-19)							
PA-19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	Y	19.1.1. Enumerate causes of lymphadenopathy. 19.1.2. Describe the differentiating features of lymphadenopathy	SGD (2hrs)	Written, Viva voce/ Skill assessment
PA-19.6	Enumerate and differentiate the causes of splenomegaly.	K	KH	Y	19.6.1. Categorise and enumerate the causes of Splenomegaly 19.6.2. Discuss the differential diagnosis of an enlarged spleen in a given specimen		
PA-19.7	Identify and describe the gross specimen of an enlarged spleen	S	SH	Y	19.7.1. Identify Gross features of enlarged enlarged spleen in a given specimen		
PA-19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	K	KH	Y	19.2.1. Describe Pathogenesis and pathology of tuberculous lymphadenitis	SGD (2hrs)	Written, Viva voce
PA-19.3	Identify and describe the features of tuberculous	S	SH	Y	19.3.1. Identify the gross features of tuberculous lymphadenitis in a given	DOAP (2hrs)	Skill assessment

	lymphadenitis in a gross and microscopic specimen				specimen 19.3.2. Describe gross and microscopy of tuberculous lymphadenitis 19.3.3. Describe microscopy of tuberculous lymphadenitis with neat diagram 19.3.4. Mention the special stain used to demonstrate tubercle bacilli		t
PA 19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen.	S	SH	Y	19.5.1. Identify microscopy of Hodgkin's Lymphoma of a given slide with neat diagram		
PA-19.4	Describe and discuss the pathogenesis, pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	K	KH	Y	19.4.1. Classify Lymphoid neoplasm (WHO) and enumerate the clinical features of Lymphoma 19.4.2. Classify Hodgkin's lymphoma 19.4.3. Enumerate the clinical features of Hodgkin's Lymphoma 19.4.4. Write on etiopathogenesis of Hodgkin's lymphoma 19.4.5. Describe the gross & microscopy of Hodgkin's lymphoma with the help of neat labelled diagram 19.4.6. Tabulate the differences between Hodgkin's and non-Hodgkin's lymphoma	Lecture (1hr)	Written, Viva voce

TOPIC: PLASMA CELL DISORDERS (PA-20)							
PA-20.1	Describe the features of plasma cell myeloma	S	SH	Y	20.1.1. Describe clinical features and laboratory findings in plasma cell myeloma 20.1.2. Describe the complications of plasma cell myeloma	SGD (2hrs)	Skill assessment
TOPIC: HEMORRHAGIC DISORDERS (PA-21)							
PA-21.1	Describe normal haemostasis and haemophilia.	K	KH	Y	21.1.1. Define haemostasis 21.1.2. Describe normal haemostasis 21.1.3. Describe the vessel wall in normal haemostasis 21.1.4. Discuss the mechanism of primary haemostasis with a flow chart 21.1.5. Discuss the mechanism of secondary haemostasis with a flow chart 21.1.6. Brief the fate of haemostatic plug 21.1.7. Discuss the extravascular factors that influence haemostasis 21.1.8. List tests for intrinsic pathway abnormalities and give the procedure and normal values 21.1.9. List tests for extrinsic pathway abnormalities and give the procedure and normal values 21.2.1. Describe the clinical findings, inheritance and lab findings in haemophilia A & B	Lecture (1hr)	Written, Viva voce
PA 21.2	Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including	K	KH	Y	21.2.1. Classify bleeding disorders 21.2.2. Enumerate the causes of bleeding due to vessel wall abnormality. 21.2.3. Enumerate bleeding disorder due to platelets.	Lecture (1hr)	Written, Viva voce

	ITP				21.2.4.List causes of thrombocytopenia 21.2.5.List the laboratory investigations of platelet disorders 21.2.6.Describe the etiopathogenesis of idiopathic thrombocytopenia 21.2.7.List the laboratory investigations of idiopathic thrombocytopenia 21.2.8.Describe clinical findings, inheritance in von Willebrand disease 21.2.9.List the laboratory findings in von Willebrand disease		
PA-21.3	Differentiate platelet from clotting disorders based on the clinical and hematologic features. Differentiate platelet from clotting disorders based on the clinical and hematologic features.	S	SH	Y	21.3.1.Differentiate platelet and clotting disorders clinically 21.3.2.Differentiate platelet and clotting disorders hematologically.	SGD (2hrs)	Written, Viva voce
PA 21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation	K	KH	Y	21.4.1.Define Disseminated Intravascular Coagulation (DIC) 21.4.2.Mention the causes DIC 21.4.3.Describe pathogenesis of DIC using flow chart 21.4.4.Discuss laboratory findings in Disseminated Intravascular Coagulation	Lecture (1hr)	Written, Viva voce
PA 21.5	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of	K	KH	Y	21.5.1.List Vitamin K dependent factors 21.5.2.Describe the approach to diagnosis of Vitamin K deficiency using flow chart		

	Vitamin K deficiency.						
TOPIC: BLOOD BANKING AND TRANSFUSION (PA-22)							
PA-22.1	Classify and describe blood group systems (ABO and RH)	K	KH	Y	22.1.1 Classify different blood group system. 22.1.2 Mention importance of Rh factor. 22.1.3 Describe Bombay blood group. Mention its clinical importance. 22.1.4 Describe ABO & Rh incompatibility. 22.1.5 Mention different methods of blood grouping 22.1.6 Enumerate steps of ABO grouping & Rh typing and demonstrate the same.	DOAP (2hrs)	Skill assessment (OSPE)
PA-22.2	Enumerate the indications, describe the principles, enumerate and demonstrate the steps of compatibility testing.	S	SH	Y	22.2.1 Mention indications & principles of Major and minor cross matching. 22.2.2 Describe Coombs test, its principle & usage. 22.2.3 Describe criteria for Donor selection & rejection. 22.2.4 Describe Precautions to be taken during transfusion		
PA-16.7	Describe the correct technique to perform a cross match	S	SH	Y	16.7.1 Enumerate steps of major & minor cross matching and demonstrate the same.		
PA-22.4	Enumerate blood components and describe their clinical uses.	K	KH	Y	22.4.1 Enumerate different blood components 22.4.2 Mention anticoagulants used in blood banks. 22.4.3 Mention different blood bags and their uses.	Lecture (1hr)	Written, Viva

					22.4.4 Mention storage and shelf life of different blood components 22.4.5 Describe indications for clinical use of different blood components		voce
PA-22.5	Enumerate and describe infections transmitted by blood transfusion.	K	KH	Y	22.5.1 Enumerate different infections transmitted through blood transfusion. 22.5.2 Enumerate diseases tested for before transfusion and mention the methods of testing.		
PA 22.6	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction.	K	KH	Y	22.6.1 Describe transfusion reactions. 22.6.2 Mention types of transfusion reactions. 22.6.3 Describe clinical features of transfusion reactions. 22.6.4 Mention immediate steps to be taken following transfusion reaction 22.6.5 Enumerate steps in investigating blood transfusion reactions including documentation check, serological investigations, tests for haemolysis and microbiological tests.	Lecture (1hr))	Written, Viva voce
PA 22.7	Enumerate the indications and describe the principles and procedure of autologous transfusion.	K	KH	Y	22.7.1 Define autologous blood transfusion. Enumerate advantages and indications for autologous blood transfusion.		

TOPIC: CLINICAL PATHOLOGY (PA-23)							
PA 23.1	Describe abnormal urinary findings in disease states and identify and describe common urinary abnormalities in a clinical specimen	S	SH	Y	23.1.1 Mention different methods of collection of urine and preservation 23.1.2 Enumerate disease conditions associated with variation in total urine volume. 23.1.3 Enumerate disease conditions associated with variation in urine pH. 23.1.4 Enumerate disease conditions associated with variation in urine colour. 23.1.5 Enumerate disease conditions associated with variation in urine odour. 23.1.6 Enumerate disease conditions associated with variation in urine clarity/appearance. 23.1.7 Enumerate disease conditions associated with variation in urine specific gravity 23.1.8 Define glycosuria. Enumerate pathological conditions associated with glycosuria. Demonstrate the test for glycosuria. 23.1.9 Define ketonuria. Enumerate pathological conditions associated with ketonuria. Demonstrate the test for ketonuria, 23.1.10 Define proteinuria. Enumerate pathological conditions associated with proteinuria. Demonstrate the test for proteinuria. 23.1.11 Define haematuria, enumerate pathological conditions associated with haematuria. Demonstrate	DOAP (2hrs)	Skill assessment (OSPE)

					the test for haematuria. 23.1.12 Describe principles of chemical tests and Dipsticks tests for determination of Sugar, Ketone bodies, Proteins and Blood in urine. 23.1.13 Describe urinary microscopic findings with reference to cells, crystals and casts in disease states. 23.1.14 Interpret urinary findings in Nephritic syndrome, Nephrotic syndrome, Diabetic ketoacidosis, Urinary tract infection.		
PA 23.2	Describe abnormal findings in body fluids in various disease states.	K	KH	Y	23.2.1 Mention different body fluids, method of collection and preservation. 23.2.2 Mention differences between transudate and exudate. 23.2.3 Mention changes in body fluid parameters in tuberculosis 23.2.4 Mention changes in body fluid parameters in malignancy 23.2.5 Mention changes in body fluid parameters in pyogenic infections. 23.2.6 Identify etiology of pleural effusion and ascitis by interpreting given body fluid parameters.	SGD (2hrs)	Written, Viva voce/ Skill assessment
PA 23.3	Describe and interpret the abnormalities in a panel	S	SH	Y	23.3.1 Describe indications for semen analysis and interpretation of semen analysis report.		

	containing semen analysis.						
TOPIC: GASTROINTESTINAL TRACT (PA-24)							
PA24.1	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers include salivary gland tumors	K	KH	N	24.1.1 Describe Leukoplakia and Erythroplakia. 24.1.2 Describe aetiology, pathogenesis of squamous cell carcinoma of oral cavity. 24.1.3 Describe gross and microscopic features of squamous cell carcinoma of oral cavity 24.1.4 Classify salivary gland tumours 24.1.5 Describe Morphology & clinical features of Pleomorphic adenoma, Warthin tumour & Mucoepidermoid carcinoma. 24.1.6 Barrett's oesophagus 24.1.7 Describe the aetiology, pathogenesis, types, morphological features of carcinoma oesophagus	Lecture (1hr)	Written, Viva voce
PA-24.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease.	K	KH	Y	24.2.1 Define peptic ulcer disease. 24.2.2 Describe aetiology and pathogenesis of PUD, 24.2.3 Describe gross and microscopic features of Peptic ulcer. 24.2.4 Describe clinical features and complications of PUD. 24.2.5 Define Gastritis and discuss its types 24.2.6. Describe etiopathogenesis, morphology and clinical features of Acute Gastritis	Lecture (1hr)	Written, Viva voce

PA-24.4	Describe and aetiology and pathogenesis and pathologic features of carcinoma of the stomach	K	KH	Y	24.4.1. Describe epidemiology, etiopathogenesis and clinical features of carcinoma stomach. 24.4.2. Describe gross and microscopy of Carcinoma stomach. 24.4.3. Mention gross morphological differences between benign and malignant gastric ulcers.	SGD(2hrs)	Written, Viva voce
PA-24.6	Describe and aetiology and pathogenesis and pathologic and distinguishing features of Inflammatory bowel disease	K	KH	Y	24.6.1 Define IBD , 24.6.2 Describe epidemiology, aetiology and pathogenesis of IBD. 24.6.3 Describe gross and microscopy, clinical features and complications of Crohn's disease. 24.6.4 Describe gross and microscopy, clinical features & complications of ulcerative colitis. 24.6.5 Enumerate the differences between Ulcerative Colitis and Crohn's disease	Lecture (1hr)	Written, Viva voce
PA-24.7	Describe the aetiology, pathogenesis, pathology and distinguishing features of carcinoma of the colon	K	KH	Y	24.7.1 Enumerate polyps and adenomas of colon. 24.7.2 Describe Familial Adenomatous Polyposis. 24.7.3 Describe aetiology, pathogenesis of Carcinoma of colon. 24.7.4 Describe gross morphology and microscopy of Carcinoma of colon. 24.7.5 Describe clinical features, investigations, staging and prognosis of carcinoma of colon. 24.7.6 Enumerate pre-neoplastic lesions of Intestine	Lecture (1hr)	Written, Viva voce
PA-24.3	Describe and identify the microscopic features of peptic ulcer. – include slides of Pleomorphic adenoma and specimen of Ca Stomach, Ca	S	SH	Y	24.3.1 Identify microscopic features of pleomorphic adenoma. 24.3.2 Identify gross features in specimen of carcinoma of stomach. 24.3.3 Identify gross features in specimen of	DOAP(2hrs)	Written, Viva voce/ Skill

PA-24.5	Colon, TB intestine, Peptic ulcer Describe and aetiology, pathogenesis and pathologic features of Tuberculosis of the intestine	K	KH	N	carcinoma of colon. 24.3.4 Identify microscopic features of carcinoma of stomach. 24.3.5 Identify microscopic features of carcinoma of colon. 24.3.6. Identify the gross and microscopic features of peptic ulcer 24.5.1 Identify Gross features in specimen of TB intestine (Optional) 24.5.2 Identify microscopic features of Tuberculosis of intestine.(Optional)		assessment
PA24					Gastrointestinal system	Tutorial/ Formative assessment (2hrs)	Written, Viva voce
TOPIC: HEPATOBILIARY SYSTEM (PA-25)							
PA-25.1	Describe bilirubin metabolism, enumerate the aetiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	K	KH	Y	25.1.1 Describe bilirubin metabolism 25.1.2 Enumerate the etiology and pathogenesis of jaundice 25.1.3. Distinguish between direct and indirect hyperbilirubinemia	SGD (2hrs)	Written, Viva voce
PA-25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their	K	KH	Y	25.2.1. Describe the pathophysiology, complications and clinical consequences of liver failure	Lecture (1hr)	Written, Viva

PA-25.3	clinical manifestations, complications and consequences. Describe the aetiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis.	K	KH	Y	25.3.1 Define hepatitis and list the causes of hepatitis 25.3.2. Describe the pathogenesis of various viral hepatitis 25.3.3. Describe the morphology of viral hepatitis 25.3.4. Enumerate the complications and discuss the clinical consequences of hepatitis. 25.3.5. Describe the etiopathogenesis of toxic hepatitis 25.3.6. Discuss the clinical findings and laboratory findings in relation to the progression of hepatitis		voce
PA-25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis.	K	KH	Y	25.4.1. Describe the etiopathogenesis and pathophysiology of Alcoholic liver disease 25.4.2. Describe the stages of alcoholic liver disease with progression to cirrhosis 25.4.3. Define cirrhosis 25.4.4. Describe the etiopathogenesis, classification and pathology of cirrhosis 25.4.5. Enumerate the clinical manifestations and complications of cirrhosis	Lecture (1hr)	Written, Viva voce
PA-25.5	Describe the aetiology, pathogenesis and complications of portal	K	KH	Y	25.5.1 Define portal hypertension 25.5.2. Describe the etiopathogenesis of Portal hypertension		

	hypertension.				25.5.3.Enumerate the clinical consequences and complications of portal hypertension		
PA-25.6	Interpret liver function and viral hepatitis serology panel. Distinguish obstructive from non-obstructive jaundice based on clinical features and liver function tests	S	P	Y	Case scenario with liver function tests reports: 25.6.1.To distinguish between obstructive from non-obstructive jaundice (Charts) 25.6.2. Interpret liver function tests with viral hepatitis serology panel. 25.6.3. Identify gross and microscopic feature of cirrhosis. 25.6.4. Identify gross and microscopic feature of chronic cholecystitis. 25.6.5. Enumerate and recognise different types of gall stones.	DOAP (2hrs)	Skill assessment
PA25					Hepatobiliary system	Tutorial/ Formative assessment (2hrs)	Written, Viva voce
TOPIC: RESPIRATORY SYSTEM (PA-26)							
PA-26.1	Define and describe the aetiology, types, pathogenesis, stages, morphology and complications of pneumonia.	K	KH	Y	26.1.1.Describe the etiological classification and pathogenesis of pneumonia. 26.1.2.Describe the stages of lobar pneumonia 26.1.3.Describe the morphology of Lobar and Bronchopneumonia. 26.1.4.List the complications of pneumonia 26.1.5.To list the differences between lobar and bronchopneumonia. 26.1.6. Discuss the causes and pathology of Acute	Lecture (1hr)	Written, Viva voce

PA 26.2	Describe the aetiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	Respiratory Distress Syndrome. 26.2.1.Enlist the causes for lung abscess 26.2.2.Describe the gross and microscopy of lung abscess 26.2.3.List the complications of lung abscess		
PA- 26.3	Define and describe the aetiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD)	K	KH	Y	26.3.1.Define emphysema and list the types of emphysema 26.3.2.Describe the etiopathogenesis and morphology of emphysema 26.3.3.Define bronchiectasis, and describe the etiopathogenesis 26.3.4.Describe the gross morphology and microscopy of bronchiectasis 26.3.5.Describe the etiopathogenesis of Asthma 26.3.6.Enumerate the Pulmonary function test findings and list the complications of Obstructive airway disease.	Lecture (1hr)	Written, Viva voce
PA- 26.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	K	KH	Y	26.4.1.Define granulomatous inflammation and describe Ghon's complex 26.4.2.Describe the epidemiology, aetiology and pathogenesis of tuberculosis. 26.4.3.Differentiate between primary and secondary tuberculosis 26.4.4.Describe the natural history and spectrum of pulmonary tuberculosis 26.4.5.Discuss the spread and complications of	Lecture (1hr)	Written, Viva voce

					pulmonary Tuberculosis 26.4.6.Describe gross appearance and microscopy of Pulmonary Tuberculosis. 26.4.7.Describe the Laboratory diagnosis of Tuberculosis		
PA-26.5	Define and describe the aetiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	26.5.1.Define Pneumoconiosis and list the types according to the etiological agents 26.5.2.Describe the risk factors and pathogenesis of Pneumoconiosis. 26.5.3.Describe the gross and microscopy of common pneumoconiosis	Lecture (1hr)	Written, Viva voce
PA-26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance, metastases and complications oftumors of the lung and pleura.	K	KH	Y	26.6.1. Classify the histologic types of lung carcinoma. Describe the etiopathogenesis of lung carcinoma 26.6.2.Describe the risk factors of lung carcinoma 26.6.3.Describe the gross and microscopy of the main histological types 26.6.4.Enumerate the spread of lung cancer 26.6.5.Distinguish the morphology of primary carcinoma lung and metastasis to lung	Lecture (1hr)	Written, Viva voce
PA-26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications	K	KH	N	26.7.1Describe in brief the environmental influence and morphology of mesothelioma(non-core)		

	of mesothelioma.						
PA 26	Respiratory System	S	SH	Y	Identify the gross morphology of Pneumonia, Bronchiectasis, Emphysema, TB lung, Carcinoma lung. Identify the microscopy of lobar pneumonia and TB lung.	DOAP(2hrs)	Skill assessment
PA26					Respiratory System	Tutorial/ Formative assessment (2hrs)	Written, Viva voce
TOPIC: CARDIOVASCULAR SYSTEM (PA-27)							
PA-27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of arteriosclerosis	K	KH	Y	27.1.1.Define arteriosclerosis and distinguish between the types of arteriosclerosis 27.1.2.Discuss the epidemiology and the role of risk factors in the pathogenesis of atherosclerosis 27.1.3.Describe the pathogenesis of atherosclerosis 27.1.4.Describe the morphology and microscopy of atherosclerotic plaque and the complicated plaque 27.1.5.Enumerate the clinical consequences of atherosclerosis in different organs	Lecture (1hr)	Written, Viva voce
PA-27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic	K	KH	Y	27.5.1.Describe the epidemiology, risk factors and spectrum of IHD 27.5.2.Descibe pathogenesis and dynamic plaque changes in IHD 27.5.3.Describe the clinical presentations of IHD in relation to the plaque changes	Lecture (1hr)	Written, Viva voce

	heart disease				27.5.4.Describepathogenesis and response of myocardium to ischemia 27.5.5.Describe the gross and microscopy of myocardial infarction 27.5.6.Discuss the lab diagnosis and complications of acute coronary syndromes		
PA-27.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms.	K	KH	Y	27.2.1.Define aneurysm and enumerate the causes and types of aneurysms 27.2.2.Describe the dynamics and pathology of abdominal aortic aneurysm 27.2.3.Describe the clinical course and complications of aneurysms 27.2.4.Classify and discuss the pathology of aortic dissection	SGD(2hrs)	Written, Viva voce
PA-27.3	Describe the etiology, types, stages pathophysiology, pathology and complications of heart failure.	K	KH	Y	27.3.1.Describe the etiology, types and stages of heart failure 27.3.2.Describe the pathology and complications of heart failure		
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system.	K	KH	N	27.10.1. Describe the pathology of Syphilitic aneurysms.(Optional)		
PA-27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and	K	KH	Y	27.4.1. Describe the etiopathogenesisof rheumatic fever 27.4.2.Describe the gross and microscopic features of	SGD(2hrs)	Written, Viva voce

PA-27.6	complications of rheumatic fever. Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis.	K	KH	Y	acute rheumatic carditis 27.4.3.Describe the gross and microscopic features of rheumatic valvular disease 27.4.4.Describe the clinical criteria and complications of acute rheumatic fever. 27.6.1.Describe the etiology, pathogenesis and morphology of infective endocarditis 27.6.2.Differentiate between acute and sub-acute infective endocarditis 27.6.3.Describe and differentiate between the major forms of valvular vegetations		
PA 27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion (PA-27.7)	K	KH	Y	27.7.1.Describe the etiology, types and pathology of pericarditis 27.7.2.Describe the morphological patterns of pericarditis 27.7.3.Describe the etiology and types of pericardial effusions	SGD(2hrs)	Written, Viva voce
PA 27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	27.9.1. Enumerate the etiology and types of cardiomyopathies 27.9.2.Enumerate the complications of cardiomyopathies. (Optional)		
PA	Interpret abnormalities in				27.8.1.Interpret abnormalities in serological cardiac	DOAP(2hrs)	Skill

27.8	cardiac function testing in acute coronary syndromes	S	SH	Y	function tests in acute coronary syndromes. Identify gross and microscopy of Atherosclerosis and Myocardial infarction		assessment
PA27					Cardiovascular system	Tutorial/ Formative assessment (2hrs)	Written, Viva voce
TOPIC: URINARY TRACT (PA-28)							
PA-28.1	Describe the normal histology of the kidney.	K	K	Y	28.1.1 Recognize the normal structure of glomeruli, tubules, interstitium and blood supply of a Nephron.	Lecture (1hr)	Written, Viva voce
PA-28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis.	K	KH	Y	28.5.1. Define glomerular diseases. 28.5.2. Classify glomerular diseases. 28.5.3. Discuss the etiopathogenesis emphasising the immune mechanism of glomerular injury. 28.5.4. Describe the morphology of Acute post infectious glomerulonephritis. 28.5.5. Discuss the clinical features of acute post infectious glomerulonephritis. 28.5.6. Distinguish between Nephritic and Nephrotic syndrome. 28.5.7. Distinguish the morphological features in RPGN, Minimal change disease and Chronic glomerulonephritis.		
PA-28.6	Define and describe the	K	KH	Y	28.6.1. Define IgA nephropathy		

	etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy.				28.6.2. Discuss the etiopathogenesis of IgA nephropathy. 28.6.3. Describe the morphological features in IgA nephropathy 28.6.4. Enumerate the lab findings in IgA nephropathy. 28.6.5. Mention the complications of IgA nephropathy.		
PA 28.2,	Define, classify and distinguish the clinical syndromes and describe the etiology, pathogenesis, pathology, morphology, clinical and laboratory and urinary findings, complications of renal failure.	K	KH	Y	28.2.1 Define Renal Failure. 28.2.2 Classify renal failure on etiological basis.	SGD(2hrs)	Written, Viva voce
PA-28.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure.	K	KH	Y	28.3.1 Define Acute renal failure. 28.3.2 Discuss the etiopathogenesis of ARF. 28.3.3 Describe the pathology of Acute Renal failure. 28.3.4 Enumerate the laboratory findings in acute renal failure. 28.3.5 Enumerate the clinical features and complications of ARF 28.3.6 Renal Function Tests		
PA-28.4	Define and describe the etiology, precipitating	K	KH	Y	28.4.1. Define chronic renal failure. 28.4.2. Discuss the etiopathogenesis of CRF.		

	factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure.				28.4.3. Describe the pathology of CRF. 28.4.4. Enumerate the laboratory findings in CRF. 28.4.5. Mention the complications of CRF.		
PA 28.8	Enumerate and classify diseases affecting the tubular Interstitium.	K	KH	Y	28.8.1. Enumerate the (2 major) processes of injury to the renal tubules and interstitium. 28.8.2. Discuss the etiological classification of Tubulo-interstitial Nephritis.	Lecture (1hr)	Written, Viva voce
PA-28.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis.	K	KH	Y	28.9.1. Define Acute tubular necrosis. 28.9.2. Discuss the etiopathogenesis of ATN. 28.9.3. Discuss the morphological features in ATN. 28.9.4. Enumerate the laboratory findings in ATN. 28.9.5. Discuss the progression and complications of ATN		
PA-28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	28.10.1. Discuss the etiopathogenesis of Acute pyelonephritis. 28.10.2. Describe the morphology in Acute pyelonephritis. 28.10.3. Enumerate the lab findings in Acute pyelonephritis. 28.10.4. Discuss the progression and complications of Acute pyelonephritis 28.10.5. Discuss the etiopathogenesis of Chronic pyelonephritis. 28.10.6. Describe the morphology of chronic pyelonephritis.		

					28.10.7. Enumerate the laboratory findings in chronic pyelonephritis. 28.10.8. List the complications of chronic pyelonephritis. 28.10.9. Enumerate the distinguishing features of acute and chronic pyelonephritis		
PA-28.7	Enumerate and describe the findings in glomerular manifestations of systemic disease.	K	KH	Y	28.7.1. Enlist the important systemic diseases showing glomerular involvement. 28.7.2. Describe the morphological features in Lupus nephritis. 28.7.3. Describe the morphological findings in Diabetic nephropathy	Lecture (1hr)	Written, Viva voce
PA-28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features progression and complications of vascular disease of the kidney.	K	KH	Y	28.11.1. Classify various vascular diseases of kidney. 28.11.2. Define Nephrosclerosis. 28.11.3. Mention types of nephrosclerosis. 28.11.4. Discuss the etiopathogenesis of benign nephrosclerosis 28.11.5. Describe the morphology in benign nephrosclerosis. 28.11.6. Enumerate the laboratory findings in benign nephrosclerosis. 28.11.7. Discuss the etiopathogenesis of Malignant nephrosclerosis. 28.11.8. Describe the morphology in malignant nephrosclerosis 28.11.9. Enumerate the laboratory findings malignant nephrosclerosis. 28.11.10. List the complications in malignant nephrosclerosis.		

PA-28.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies.	K	KH	N	28.11.11. Discuss the distinguishing features of benign and malignant nephrosclerosis. 28.15.1. Describe the etiopathogenesis, and genetics of Thrombotic Microangiopathies. 28.15.2. Describe the morphology in thrombotic microangiopathies. 28.15.3. Discuss the clinical features and progression of thrombotic microangiopathies. (Optional)		
PA-28.12	Define classify and describe the genetics, inheritance, etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney.	K	KH	Y	28.12.1. Define cystic diseases of kidney 28.12.2. Classify various Cystic diseases of kidney. 28.12.3. Discuss the genetic inheritance, pathogenesis and, pathology of APKD. 28.12.4. Enumerate the laboratory and urinary findings in APKD. 28.12.5. Discuss the progression and complications of APKD 28.12.6. Describe the genetic inheritance, pathogenesis, and pathology of CPKD. 28.12.7. Mention the complications of CPKD.	SGD(2hrs)	Written, Viva voce
PA-28.13	Define classify and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression and complications of renal stone	K	KH	Y	28.13.1. Define obstructiveuropathy. 28.13.2. Classify obstructive uropathy based on causes. 28.13.3. Define Hydronephrosis. 28.13.4. Describe the etiopathogenesis, of hydronephrosis.		

	disease and obstructive uropathy				28.13.5. Describe the morphology in hydronephrosis 28.13.6. Enumerate the laboratory findings in hydronephrosis. 28.13.7. Discuss the progression and complications of hydronephrosis. 28.13.8. Distinguish between hydronephrosis and APKD 28.13.9. Describe the various types of renal calculi. 28.13.10. Discuss the clinical features and complications of renal stones.		
PA-28.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors.	K	KH	Y	28.14.1. Classify Renal tumors. 28.14.2. Discuss the etiopathogenesis and genetic abnormalities in RCC. 28.14.3. Describe the morphology of RCC. 28.14.4. Discuss the clinical features of RCC. 28.14.5. Discuss the progression and complications of RCC.	Lecture (1hr)	Written, Viva voce
PA-28.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of Urothelial tumors.	K	KH	N	28.16.1. Discuss the etiopathogenesis of Urothelial tumors of urinary bladder. 28.16.2. Describe the morphology of Urothelial carcinoma of urinary bladder. 28.16.3. Discuss the clinical features and progression of Urothelial carcinoma. (Optional)	SDL (1hr)	Written, Viva voce
PA 28	Urinary System	S	SH	Y	Identify the gross and microscopic features of Chronic pyelonephritis and Renal cell carcinoma. Enumerate and identify types of renal stones.	DOAP(2hrs)	Skill assessment

					Identify gross morphology of Hydronephrosis.		
PA28					Urinary System	Tutorial/ Formative assessment (2hrs)	Written, Viva voce
TOPIC: MALE GENITAL TRACT (PA-29)							
PA-29.1	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors.	K	KH	Y	29.1.1. Classify Testicular tumors 29.1.2. Describe the pathogenesis of germ cell tumors. 29.1.3. Describe the morphology of seminoma testis. 29.1.4. Discuss the presenting features, progression and spread of seminoma testis. 29.1.5. Distinguish seminoma and Non-seminomatous germ cell tumors. 29.1.6. Enumerate various bio-markers used in the diagnosis of germ cell tumors.	Lecture (1hr)	Written, Viva voce
PA-29.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis.	K	KH	Y	29.2.1. Discuss the pathogenesis of carcinoma penis. 29.2.2. Describe the morphology of carcinoma penis 29.2.3. Discuss the presenting features, progression and spread of carcinoma penis 29.2.4. Distinguish Condyloma acuminatum, Bowen's disease and carcinoma penis.		

PA-29.3	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign prostatic hyperplasia.	K	KH	Y	29.3.1. Discuss the hormonal role in the pathogenesis of BPH. 29.3.2. Describe the morphological features of BPH. 29.3.3. Discuss the presenting features and urologic findings in BPH. 29.3.4. Enumerate the diagnostic tests in BPH.	Lecture (1hr)	Written, Viva voce
PA-29.4	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate.	K	KH	Y	29.4.1. Discuss the pathogenesis of Adenocarcinoma prostate emphasising the role of hormones. 29.4.2. Discuss the morphological findings in adenocarcinoma prostate. 29.4.3. Discuss the clinical features, progression and spread of adenocarcinoma prostate. 29.4.4. Enumerate the various diagnostic tests in adenocarcinoma prostate. 29.4.5. Distinguish the salient features of BPH and adenocarcinoma prostate.		
PA-29.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis.	K	KH	N	29.5.1. Enumerate the causes of prostatitis. 29.5.2. Discuss the pathogenesis of chronic prostatitis (most common) 29.5.3. Describe the morphology of chronic prostatitis. 29.5.4. Discuss the progression of chronic prostatitis. (Optional)		
PA29		S	SH	Y	Identify the gross morphology of carcinoma penis. Identify the gross and microscopic features of seminoma testis. Identify the microscopic features of Benign prostatic hyperplasia.	DOAP(2hrs)	Skill assessment

TOPIC: FEMALE GENITAL TRACT (PA-30)							
PA-30.1	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the Cervix.	K	KH	Y	30.1.1 Describe the epidemiology of Carcinoma Cervix. 30.1.2 List the morphological types of carcinoma cervix 30.1.3 Describe the etiopathogenesis, clinical features and morphology of Squamous cell carcinoma- cervix. 30.1.4 Describe the Progression of CIN to carcinoma cervix 30.1.5 Describe the screening methods employed in carcinoma cervix with emphasis on pap smear collections methods and salient pap smear findings of carcinoma cervix. 30.6.1 Describe the etiology and morphologic features of cervicitis. (Optional)	Lecture (1hr)	Written, Viva voce
PA-30.6	Describe the etiology and morphologic features of cervicitis.	K	KH	N			
PA-30.2	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium. Describe the etiology,	K	KH	Y	30.2.1 Discuss the etiopathogenesis of carcinoma - endometrium 30.2.2 Describe the morphology of endometrial carcinoma. 30.2.3 Discuss the premalignant lesions and its progression to carcinoma endometrium 30.2.4 Describe the Clinical features and spread of carcinoma endometrium 30.7.1 Discuss the etiopathogenesis, clinical features, morphology of endometriosis. (Optional)	Lecture (1hr)	Written, Viva voce

PA-30.7	hormonal dependence, features and morphology of endometriosis.	K	KH	N	30.8.1 Describe the etiology and morphologic features of adenomyosis. (Optional) 30.9.1 Discuss the etiopathogenesis, clinical features, morphology of endometrial hyperplasia. (Optional)		
PA-30.8	Describe the etiology and morphologic features of adenomyosis.	K	KH	N			
PA-30.9	Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia.	K	KH	N			
PA-30.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	Y	30.4.1 Classify ovarian tumours 30.4.2 Describe the pathogenesis, gross and microscopy of surface epithelial tumours. 30.4.3 Define and describe the pseudomyxomateritonei. 30.4.4 Describe the classification, gross and microscopy of germ cell tumours. 30.4.5 Describe the gross and microscopy of mature cystic teratoma. 30.4.6 Describe the morphology of sex cord tumors. 30.4.7 Define and describe Krukenberg tumour and Struma ovarii. 30.4.8 Describe the clinical features, mode of spread and tumour markers used in ovarian tumour	Lecture (1hr)	Written, Viva voce

PA-30.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	Y	30.5.1 Define and classify the gestational trophoblastic diseases. 30.5.2 Describe the etiopathogenesis of Molar pregnancy, 30.5.3 Describe the gross and microscopy of complete/partial hydatidiform mole. 30.5.4 Describe the gross & microscopy of Invasive mole and gestational choriocarcinoma.	Lecture (1hr)	Written, Viva voce
PA-30.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	K/S	KH/SH	Y	30.3.1 Describe the etiology and pathogenesis of leiomyoma -uterus 30.3.2 List the morphological types of leiomyoma 30.3.3 Describe the gross and microscopy of leiomyoma 30.3.4 Describe the fate of leiomyoma 30.3.5 List the salient differences between leiomyoma with leiomyosarcoma uterus. 30.3.6 Identify gross and microscopy of leiomyoma 30.4.1. Identify and differentiate between the serous and mucinous tumours by their gross and microscopic features. 30.4.2. Identify the gross and microscopy of mature cystic teratoma. 30.5.2. Identify the gross and microscopy of	DOAP(2hrs)	Skill assessment

					hydatidiform mole.		
PA30					Male and Female Genital System	Tutorial/ Formative assessment (2hrs)	Written, Viva voce
TOPIC: BREAST (PA-31)							
PA-31.1	Classify and describe the types, etiology, pathogenesis, hormonal dependency of breast pathology and benign disease.	K	KH	Y	31.1.1 Classify the benign epithelial lesions of breast and discuss their clinical significance 31.1.2. Discuss etiopathogenesis and morphology of fibrocystic disease 31.1.3. Definition and classification of Proliferative breast diseases (proliferative breast disease with atypia and proliferative breast disease without atypia). 31.1.4. Enumerate and briefly discuss the morphology of proliferative breast disease without atypia (Epithelial hyperplasia, sclerosingadenosis, Radial scar, Complex fibroadenoma and Duct Papilloma) 31.1.5. Define and list proliferative breast disease with atypia (Atypical ductal hyperplasia and atypical lobular hyperplasia). Discuss their clinical significance. 31.1.6. List the fibroepithelial neoplasms, Discuss their clinical significance and morphology (fibroadenoma and phyllodes tumour)	Lecture (1hr)	Written, Viva voce
PA-	Enumerate and describe the	K	KH	N	31.4.1 Describe the etiopathogenesis and morphology		

31.4	etiology, hormonal dependency and pathogenesis of gynecomastia.				of Gynaecomastia. (Optional)		
PA-31.2	Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	K	KH	Y	31.2.1. Classify Breast carcinoma 31.2.2. Discuss epidemiology and etiopathogenesis of breast carcinoma, with a note on molecular mechanisms/subtypes 31.2.3. Discuss the gross and microscopy of invasive ductal carcinoma-NST, medullary carcinoma and lobular carcinoma 31.2.4. Discuss prognostic factors of breast carcinoma 31.2.5. Describe the clinical features, staging and spread of carcinoma- Breast 31.2.6. Discuss the clinical approach to breast lump with reference to carcinoma breast 31.2.7. Discuss the clinical significance and morphology of Paget's disease of nipple	Lecture (1hr)	Written, Viva voce
PA-31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast.	S	SH	N	31.3.1. Identify and describe the gross and microscopy of Infiltrating ductal carcinoma of breast (Optional) Identify gross and microscopic features of Fibroadenoma.	DOAP(2hrs)	Skill assessment
TOPIC: ENDOCRINE SYSTEM (PA-32)							
PA 32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and	K	KH	Y	32.1.1. Describe the pathogenesis of simple and multinodular Goitre 32.1.2. Describe role of Iodine and pathology in simple	Lecture (1hr)	Written, Viva voce

	iodine dependency of thyroid swellings				and multinodular goitre 32.1.3. Classify thyroid neoplasms 32.1.4 Describe the role of iodine in papillary thyroid carcinoma 32.1.5. Describe the pathogenesis and pathology of papillary thyroid carcinoma		
PA-32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis.	K	KH	Y	32.2.1. Define Thyrotoxicosis 32.2.2. Enumerate etiology of Thyrotoxicosis 32.2.3. Describe the etiopathogenesis and clinical features of Grave's disease 32.2.4. Describe role of Iodine in Thyrotoxicosis 32.2.5. Describe the Clinical Features of Thyrotoxicosis 32.2.6. Describe the laboratory and imaging features of Thyrotoxicosis 32.2.7. Describe the Clinical course of thyrotoxicosis 32.2.8. Discuss the morphological changes in Grave's disease 32.2.9. Describe the testing methods to diagnose Graves' disease	SGD(2hrs)	Written, Viva voce
PA-32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/hypothyroidism.	K	KH	Y	32.3.1. Define Hypothyroidism 32.3.2. Enumerate etiology of Hypothyroidism 32.3.3. Describe the pathogenesis of Hypothyroidism 32.3.4. Describe role of Iodine in Hypothyroidism 32.3.5. Describe the Clinical Features of Hypothyroidism 32.3.6. Describe the laboratory and imaging features of Hypothyroidism 32.3.7. Describe the Clinical course of Hypothyroidism 32.3.8. Describe the etiopathogenesis and pathology of Hashimoto's thyroiditis		

PA-32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	Y	32.4.1. Define Diabetes Mellitus 32.4.2. Describe epidemiology of Diabetes Mellitus 32.4.3. Enumerate etiology of Diabetes Mellitus 32.4.4. Describe the pathogenesis of Diabetes Mellitus 32.4.5. Describe the pathology of Diabetes Mellitus 32.4.6. Describe the Clinical Features of Diabetes Mellitus 32.4.7. Describe the laboratory features of Diabetes Mellitus 32.4.8. List the complications of Diabetes Mellitus 32.4.9. Describe the Pathogenesis of complication of Diabetes Mellitus 32.4.10. Describe the Laboratory features of complications of Diabetes Mellitus 32.4.11. Describe the Clinical course of Diabetes Mellitus	Lecture (1hr)	Written, Viva voce
PA-32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism.	K	KH	N	32.5.1. Define hyperparathyroidism 32.5.2. Describe the genetics of hyperparathyroidism 32.5.3. Enumerate etiology of hyperparathyroidism 32.5.4. Describe the pathogenesis of hyperparathyroidism 32.5.5. Identify the Morphological features of hyperparathyroidism 32.5.6. Describe the Clinical Features of hyperparathyroidism 32.5.7. Interpret the laboratory features of hyperparathyroidism. (Optional)	SDL (1hr)	Written, Viva voce
PA-32.6	Describe etiology, pathogenesis, manifestations,	K	KH	N	32.6.1. Define Pancreatic Cancer 32.6.2. Enumerate etiology of Pancreatic Cancer	SDL (1hr)	Written,

	laboratory, morphologic features, complications and metastases of pancreatic cancer.				32.6.3. Describe the pathogenesis of Pancreatic Cancer 32.6.4. Describe the Morphological features of Pancreatic Cancer 32.6.5. Describe the Clinical Features of Pancreatic Cancer 32.6.6. Describe the laboratory features of Pancreatic Cancer 32.6.7. Describe the complications of Pancreatic Cancer 32.6.8. Describe the pathology of metastatic pancreatic Cancer (Optional)		Viva voce
PA-32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	32.7.1. Define Adrenal insufficiency 32.7.2. Enumerate etiology of Adrenal insufficiency 32.7.3. Describe the pathogenesis of Adrenal insufficiency 32.7.4. Describe the Morphological features of Adrenal insufficiency 32.7.5. Describe the Clinical Features of Adrenal insufficiency 32.7.6. Describe the Laboratory Features of Adrenal insufficiency 32.7.7. Describe the complications of Adrenal insufficiency. (Optional)	SDL (1hr)	Written, Viva voce
PA-32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic	K	KH	N	32.8.1. Define Cushing's syndrome 32.8.2. Enumerate etiology of Cushing's syndrome 32.8.3. Describe the pathogenesis of Cushing's		

	features complications of Cushing's syndrome.				syndrome 32.8.4. Describe the morphological features of Cushing's syndrome 32.8.5. Describe the Clinical Features of Cushing's syndrome 32.8.6. Describe the Laboratory Features of Cushing's syndrome 32.8.7. Describe the complications of Cushing's syndrome. (Optional)		
PA-32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms.	K	KH	N	32.9.1. Classify adrenal neoplasms 32.9.2. Enumerate etiology of adrenal neoplasms 32.9.3. Describe the pathogenesis of adrenal neoplasms 32.9.4. Describe the morphological features of adrenal neoplasms 32.9.5. Describe the clinical features of adrenal neoplasms 32.9.6. Describe the laboratory features of adrenal neoplasms. (Optional)	SDL (1hr)	Written, Viva voce
PA-32		S	SH	Y	Identify the gross and microscopic features of Multinodular goitre and Papillary carcinoma. Identify the microscopic features of Hashimoto's thyroiditis.	DOAP (2hrs)	Skill assessment
PA-32					Endocrine System	Tutorial/ Formative assessment (2hrs)	Written, Viva voce

TOPIC: BONE AND SOFT TISSUE (PA-33)							
PA-33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	33.1.1. Define Osteomyelitis 33.1.2. Classify Osteomyelitis 33.1.3. Enumerate etiology of Osteomyelitis 33.1.4. Describe pathogenesis of Osteomyelitis 33.1.5. Describe the Morphological features of Osteomyelitis 33.1.6. Describe the Clinical Features of Osteomyelitis 33.1.7. Describe the Radiological Features of Osteomyelitis 33.1.8. Describe the complications of Osteomyelitis	Lecture (1hr)	Written, Viva voce
PA-33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	K	KH	Y	33.2.1. Define Bone tumours 33.2.2. Classify Bone tumours 33.2.3. Enumerate etiology of Bone tumours 33.2.4. Describe pathogenesis of Bone tumours 33.2.5. Describe the morphological features of Bone tumours 33.2.6. Describe the clinical features of Bone tumours (Giant cell tumour, Osteosarcoma, Ewing's tumour) 33.2.7. Describe the radiological features of Bone tumours 33.2.8. Describe the complications of Bone tumours 33.2.9. Describe the pathology of Bone tumour metastasis	Lecture (1hr)	Written, Viva voce
PA-33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and	K	KH	Y	33.3.1. Define soft tissue tumors. 33.3.2. Classify soft tissue tumors. 33.3.3. Enumerate etiology of soft tissue tumors. 33.3.4. Describe pathogenesis of soft tissue tumors.	SGD(2hrs)	Written, Viva voce

	complications and metastases of soft tissue tumors				33.3.5. Describe the morphological features of soft tissue tumors. 33.3.6. Describe the clinical features of soft tissue tumors. 33.3.7. Describe the radiological features of soft tissue tumors. 33.3.8. Describe the complications of soft tissue tumors. 33.3.9. Describe the pathology of soft tissue tumour metastasis		
PA-33.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone.	K	KH	N	33.4.1. Define Paget's disease of the bone 33.4.2. Enumerate etiology of Paget's disease of the bone 33.4.3. Describe pathogenesis of Paget's disease of the bone 33.4.4. Describe the Morphological features of Paget's disease of the bone 33.4.5. Describe the Clinical Features of Paget's disease of the bone 33.4.6. Describe the Radiological Features of Paget's disease of the bone 33.4.7. Describe the complications of Paget's disease of the bone. (Optional)	SDL (2hrs)	Written, Viva voce
PA-33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of	K	KH	N	33.5.1. Define Rheumatoid Arthritis 33.5.2. Classify Rheumatoid Arthritis 33.5.3. Enumerate etiology of Rheumatoid Arthritis 33.5.4. Describe immunology of Rheumatoid Arthritis 33.5.5. Describe pathogenesis of Rheumatoid Arthritis 33.5.6. Describe the morphological features of Rheumatoid Arthritis		

	rheumatoid arthritis.				33.5.7. Describe the clinical features of Rheumatoid Arthritis 33.5.8. Describe the laboratory features of Rheumatoid Arthritis 33.5.9. Describe the radiological features of Rheumatoid Arthritis 33.5.10. Enumerate the diagnostic criteria of Rheumatoid Arthritis 33.5.11. Describe the complications of Rheumatoid Arthritis. (Optional)		
PA-33		S	SH	Y	Identify the gross and microscopic features of Osteoclastoma and Osteosarcoma.	DOAP(2hrs)	Skill assessment
TOPIC: SKIN (PA-34)							
PA-34.1	Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of the skin.	K	KH	Y	34.1.1. Describe the risk factors of squamous cell carcinoma of the skin 34.1.2. Describe the pathogenesis of squamous cell carcinoma of the skin 34.1.3. Describe the pathology of squamous cell carcinoma of the skin 34.1.4. Describe the natural history of squamous cell carcinoma of the skin	Lecture (1hr)	Written, Viva voce
PA-34.2	Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of the skin.	K	KH	Y	34.2.1. Describe the risk factors of basal cell carcinoma of the skin 34.2.2. Describe the pathogenesis of basal cell carcinoma of the skin		

PA-34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors morphology clinical features and metastases of melanoma.	K	KH	N	34.2.3. Describe the pathology of basal cell carcinoma of the skin 34.2.4. Describe the natural history of basal cell carcinoma of the skin 34.3.1. Define nevus 34.3.2. Define Melanoma 34.3.3. Describe the distinguishing features between a nevus and melanoma. 34.3.4. Enumerate the etiology of melanoma 34.3.5. Describe the risk factors of melanoma 34.3.6. Describe the pathogenesis of melanoma 34.3.7. Describe the morphology of melanoma 34.3.8. Describe the clinical features of melanoma 34.3.9. Describe the pathology of metastatic melanoma.(Optional)		
PA-34.4	Identify, distinguish and describe common tumors of the skin	S	SH	N	Covered in DOAP 8 34.4.1. Identify Common tumours of skin 34.4.2. Distinguish the common tumours of the skin. 34.4.3. Describe the common tumours of the skin.	DOAP(2hrs)	Skill assessment
TOPIC: CENTRAL NERVOUS SYSTEM (PA-35)							
PA-35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis.	K	KH	Y	35.1.1. Enumerate the etiology of meningitis 35.1.2. Enumerate the types of meningitis 35.1.3. Describe the pathogenesis of meningitis. 35.1.4. Describe the differentiating factors in different types of meningitis 35.1.5. Describe the CSF findings in meningitis.	DOAP(2hrs)	Written, Viva voce, Skill assessment
PA	Identify the etiology of meningitis based on given	S	P	Y	35.3.1. Identify the etiology of meningitis based on given CSF parameters		

35.3	CSF parameters.						
PA-35.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS Tumours.	K	KH	Y	35.2.1. Classify CNS tumours 35.2.2. Describe the etiopathogenesis of CNS tumours 35.2.3. Describe the genetics of CNS tumours 35.2.4. Describe the pathology of CNS tumours. 35.2.5. Describe the clinical features 35.2.6. Describe the sequelae of CNS tumour 35.2.7. Describe complications of CNS tumours.	Lecture (1hr)	Written, Viva voce
PA 19, 33, 34, 35					Skin, Bone, CNS, Lymph node	Tutorial/ Formative assessment (2hrs)	Written, Viva voce
TOPIC: EYE (PA-36)							
PA 36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	N	To be covered with paediatric and genetic diseases		Written, Viva voce

TOPICS FOR SELF DIRECTED LEARNING (SDL)

Sl.no	Competency	Topic	Hours
1.	PA2.6	Describe and discuss cellular adaptations: atrophy, Hypertrophy, hyperplasia, metaplasia, dysplasia	1
2.	PA9.1 & PA9.2	Describe the principles and mechanisms involved in immunity Describe the mechanism of hypersensitivity reactions	1
3.	PA-18.1	Enumerate and describe the causes of leucocytosis leucopenia lymphocytosis and leukemoid reactions.	1
4.	PA-24.4	Describe and etiology and pathogenesis & pathologic features of carcinoma of the stomach.	1
5.	PA-25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between	1

		direct and indirect hyperbilirubinemia.	
6.	PA-27.4 &PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever. Describe the etiology, pathophysiology, pathology, gross & microscopic features, diagnosis & complications of infective endocarditis.	1
7.	PA-28.4	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure.	1
8.	PA-28.13	Define classify and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression and complications of renal stone disease and obstructive uropathy.	1
9.	PA-32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/hypothyroidism with TFT.	1
10.	PA-33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	1

CERTIFIABLE COMPETENCIES

It should be certified that the student is competent to perform the below skills independently without supervision.

SI. NO	NUMBER	COMPETENCY

1	PA-16.6	Prepare peripheral blood smear. Identify microcytic hypochromic anaemia, macrocytic anaemia and haemolytic anaemia
2	PA-25.6	Interpret liver function and viral hepatitis serology panel. Distinguish obstructive from non-obstructive jaundice based on clinical features and liver function tests
3	PA32.3	Identify Hypothyroidism &Hyperthyroidism based on the clinical features and Thyroid function tests.
4	PA-35.3	Identify the etiology of meningitis based on given CSF parameters

NOTE: The evaluation of charts on certifiable competencies should be completed in formative and internal assessment and duly documented in the log book.

TIME TABLE

TIME DAYS	8-9AM	9:00AM-12:00 NOON		12:00NOON-1:00PM	1:00-2:00PM	2:00-300PM	3:00-4:00PM
MONDAY	MICROBIOLOGY	CLINICAL POSTINGS		LUNCH	PATHOLOGY	PATHOLOGY/MICROBIOLOGY PRACTICALS	
TUESDAY	MEDICINE				COMMUNITY MEDICINE	PATHOLOGY/MICROBIOLOGY PRACTICALS	
WEDNESDAY	MICROBIOLOGY				PATHOLOGY	FORENSIC MEDICINE	
THURSDAY	COMMUNITY MEDICINE				PHARMACOLOG Y	PHARMACOLOGY	
FRIDAY	OBG				PATHOLOGY	PHARMACOLOGY	MICROBIOLOGY
SATURDAY	GENERAL SURGERY	9:00-11:00 AM	11:00-12:00NOON		PATHOLOGY	AETCOM	
		PHARMACO LOGY	MICROBIOLO GY				

COMPETENCY DISTRIBUTION

S.N O		TOPIC

LECTURES TO BE COVERED		
1.	PA 1	PA1.2 Enumerate common definitions and terms used in Pathology PA1.3 Describe the history and evolution of Pathology
2.	PA 2	PA2.1 Demonstrate knowledge of the causes, mechanisms, types and effects of cell injury and their clinical significance
3.	PA 2	PA2.2 Describe the etiology of cell injury. Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury
4.	PA 2	PA2.3 Intracellular accumulation of fats, proteins, carbohydrates, pigments
5.	PA 2	PA2.4 Describe and discuss Cell death- Apoptosis and autolysis
6.	PA 2	PA2.7 Describe and discuss the mechanisms of cellular aging and apoptosis
7.	PA 4	PA4.1 Define and describe the general features of acute and chronic inflammation including stimuli, vascular events
8.	PA 4	PA4.1 Define and describe the general features of acute and chronic Inflammation including stimuli, and cellular events
9.	PA 4	PA4.2 Enumerate and describe the mediators of acute inflammation
10.	PA 4	PA4.3 Define and describe chronic inflammation including causes, types enumerate types, non-specific and granulomatous; and examples of each
11.	PA 5	PA5.1 Define and describe the process of repair and regeneration including wound healing and its types
12.	PA 6	PA6.1 Define and describe edema, its types, pathogenesis and clinical correlations
13.	PA 6	PA6.3 Define and describe shock, its pathogenesis and its stages
14.	PA 6	PA6.4 Describe the etiopathogenesis and consequences of thrombosis
15.	PA 6	PA6.5 Define and describe embolism and its causes and common types
16.	PA 7	PA7.1 Define and classify neoplasia. biologic, behaviour and spread
17.	PA 7	PA7.1 Define and classify neoplasia. biologic, behaviour and spread
18.	PA 7	PA7.2 Describe the molecular basis of cancer
19.	PA 7	PA7.2 Describe the molecular basis of cancer
20.	PA 7	PA7.3 Enumerate carcinogens and describe the process of carcinogenesis
21.	PA 7	PA7.3 Enumerate carcinogens and describe the process of carcinogenesis
22.	PA 9	PA9.3 HLA system and the immune principles. Describe the involved in transplant and mechanism of transplant rejection
23.	PA 9	PA9.4 Define autoimmunity. Enumerate autoimmune disorders
24.	PA 9	PA9.5 Define and describe the pathogenesis of Systemic Lupus Erythematosus
25.	PA 9	PA9.6 Define and describe the pathogenesis and pathology of HIV and AIDS

26.	PA 9	9.7 Define and describe the pathogenesis of other common autoimmune diseases
27.	PA 10	PA10.3 Define and describe the pathogenesis and pathology of leprosy
28.	PA 13	PA13.3 Define and classify anemia
29.	PA 13	PA13.4 Enumerate and describe the investigation of anemia
30.	PA 14	PA14.1 Describe iron metabolism PA14.2 Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia
31.	PA 15	PA15.1 Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency PA15.2 Describe laboratory investigations of macrocytic anemia PA15.4 etiology and Written/ Viva voce General Medicine distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia
32.	PA 16	PA16.1 Define and classify hemolytic anemia PA16.2 Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia PA16.5 Describe the peripheral blood picture in different hemolytic anaemias
33.	PA 16	PA16.3 Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anaemia and thalassemia
34.	PA 16	PA16.4 Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired haemolytic anaemia
35.	PA 17	PA 17.1 Enumerate the etiology, pathogenesis and findings in aplastic anemia PA17.2 Enumerate the indications and describe the findings in bone marrow aspiration and biopsy
36	PA 18	PA 18.2 Describe the etiology, genetics, pathogenesis classification, features, hematologic features of acute leukemia
37	PA 18	PA 18.2 Describe the etiology, genetics, pathogenesis classification, features, hematologic features of chronic leukemia
	PA 19	PA19.4 Describe and discuss the pathogenesis, pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma
39	PA 21	PA21.1 Describe normal hemostasis and etiology, pathogenesis and pathology haemophilias
40	PA 21	PA21.2 Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP
41	PA 21	PA21.4 Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of DIC PA21.5 Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of Vitamin K def.
42	PA 22	PA22.4 Enumerate blood components and describe their clinical uses PA22.5 Enumerate and describe infections transmitted by blood transfusion

43	PA 22	PA22.6 Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction PA22.7 Enumerate the indications and describe the principles and procedure of autologous transfusion
44	PA 11	PA11.1 Describe the pathogenesis and features of common cytogenetic abnormalities and mutations in childhood with laboratory diagnosis of Genetic disorder
45	PA 11	PA11.2 Describe the pathogenesis and pathology of tumor and tumour like conditions in infancy and childhood (Nephroblastoma, Retinoblastoma, Neuroblastoma)
46	PA 11	PA11.3 Describe the pathogenesis of common storage disorders in infancy and childhood
47	PA 12	PA12.2 Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation
48	PA 12	PA12.3 Describe the pathogenesis of obesity and its consequences
49	PA 24	PA24.1 Describe the etiology, pathogenesis, pathology and clinical features of oral cancers include salivary gland tumors
50 -	PA 24	PA24.2 Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease PA24.3 Describe and identify the microscopic features of peptic ulcer
51	PA 24	PA24.6 Describe etiology and pathogenesis and pathologic and distinguishing features of Inflammatory bowel disease
52	PA 24	PA24.7 Describe the etiology, pathogenesis, pathology and distinguishing features of carcinoma of the colon
53	PA 25	PA25.2 Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences PA25.3 Describe the etiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis
54	PA 25	PA25.4 Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis PA 25.5 Describe the etiology, pathogenesis and complications of portal hypertension
55	PA 27	PA27.1 Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types
56	PA 27	PA27.5 Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic heart disease
57	PA 26	PA26.1 Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia PA26.2 Describe the etiology, gross and microscopic appearance and complications of lung abscess
58	PA 26	PA26.3 Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Chronic Bronchitis and Emphysema
59	PA 26	PA26.4 Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and

		complications of tuberculosis – include other organs with Tuberculosis
60	PA 26	PA26.5 Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease
61	PA 26	PA26.6 Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance, metastases and complications of tumors of the lung and pleura PA26.7 Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma
62	PA 28	PA28.1 Describe the normal histology of the kidney PA28.5 Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis PA28.6 Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy
63	PA 28	PA28.8 Enumerate and classify diseases affecting the tubular interstitium PA28.9 Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis PA28.10 Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy
64	PA 28	PA28.7 Enumerate and describe the findings in glomerular manifestations of systemic disease PA28.11 Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features progression and complications of vascular disease of the kidney PA28.15 Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies
65	PA 28	PA28.14 Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors
66	PA 29	PA29.1 Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors PA29.2 Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis
67	PA 29	PA29.3 Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign prostatic hyperplasia PA29.4 Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, diagnostic

		tests, progression and spread of carcinoma of the prostate PA29.5 Describe the etiology, pathogenesis, pathology and progression of prostatitis
68	PA 30	PA30.1 Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix PA30.6 Describe the etiology and morphologic features of cervicitis
69	PA 30	PA30.2 Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium PA30.7 Describe the etiology, hormonal dependence, features and morphology of endometriosis PA30.8 Describe the etiology and morphologic features of adenomyosis PA30.9 Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia
70	PA 30	PA30.4 Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors
71	PA 30	PA30.5 Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms
72	PA 31	PA31.1 Classify and describe the types, etiology, pathogenesis, hormonal dependency of breast pathology and benign disease PA31.4 Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia
73	PA 31	PA31.2 Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast
74	PA 33	PA33.1 Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis
75	PA 33	PA33.2 Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors
76	PA 32	PA32.1 Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings with Thyroid neoplasms
77	PA 32	PA32.4 Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus
78	PA 35	PA35.2 Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications Of CNS tumors
79	PA 34	PA34.1 Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of the skin PA34.2 Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of the skin

80	PA 34	PA34.3 Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors morphology clinical features and metastases of melanoma

SMALL GROUP DISCUSSION TOPICS TO BE COVERED		
1	PA 1.1	PA 1.1-Describe the role of a pathologist in diagnosis and management of disease
2	PA2.6	PA2.6 -Describe and discuss cellular adaptations: atrophy, Hypertrophy, hyperplasia, metaplasia, dysplasia
3	PA-3	PA 3.1-Describe the pathogenesis and pathology of amyloidosis PA 3.2-Identify and describe amyloidosis in a pathology specimen
4	PA-2	Tutorial/ Formative assessment- Cell Injury
5	PA 4	Tutorial/ Formative assessment - Inflammation
6	PA 5	Tutorial / formative assessment- Healing and repair
7	PA- 6	Tutorial/ Formative assessment – Hemodynamic Disorders
8	PA 7	PA7.4 Describe the effects of tumor on the host including paraneoplastic syndrome PA7.5 Describe immunology and the immune response to cancer
9	PA 7	Tutorial/ Formative assessment-Neoplasia.
10	PA 9.1,9.2	PA 9.1Describe the principles and mechanisms involved in immunity PA9.2 Describe the mechanism of hypersensitivity reactions
11	PA 16.4	Case based discussion of 1.Sickle cell anemia; 2. Thalassemia; 3. Hereditary spherocytosis; 4. Autoimmune hemolytic anemia
12	PA 18	PA18.1 Enumerate and describe the causes of leucocytosis leucopenia lymphocytosis and leukemoid reactions.
13	PA 13	Tutorials/ Formative assessment- Anaemia And Leukemia.
14	PA 8	PA8.1 Describe the diagnostic role of cytology and its application in clinical care.
15	PA 8	PA 8.2 PAP smear, body fluid cytology
16	PA 19	PA19.1 Enumerate the causes and describe the differentiating features of lymphadenopathy. PA19.6 Enumerate and differentiate the causes of splenomegaly PA19.7 Identify and describe the gross specimen of an enlarged spleen.
17	PA 19	PA19.2 Describe the pathogenesis and pathology of tuberculous lymphadenitis.
18	PA 20	PA 20.1 Myeloma - CHARTS

19	PA 21	PA21.3 Differentiate platelet from clotting disorders based on the clinical and hematologic features.
20	PA 23	PA23.2 Describe abnormal findings in body fluids in various disease States- semen analysis with transudate, exudate and cytology
21	PA 10	PA10.1 Define and describe the pathogenesis and pathology of malaria. PA10.2 Define and describe the pathogenesis and pathology of Cysticercosis
22	PA 10	PA10.4 Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases
23	PA 10	PA10.4 Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases
24	PA 24	PA24.4 Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach
25	PA 24	Tutorial- Gastrointestinal system
26	PA 25	PA25.1 Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia
27	PA 25	Tutorial / Formative assessment- Hepatobiliary System
28	PA 27	PA27.7 Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion PA27.9 Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies
29	PA 27	PA27.4 Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever PA27.6 Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis
30	PA 27	PA27.2 Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms PA27.3 Describe the etiology, types, stages pathophysiology, pathology and complications of heart failure PA27.10 Describe the etiology, pathophysiology, pathology features and complications of syphilis on the CVS.
31	PA 27	Tutorials/ Formative assessment- Cardiovascular system
32	PA 26	Tutorial/ Formative assessment- Respiratory System
33	PA 28	PA28.2 Define, classify and distinguish the clinical syndromes and describe the etiology, pathogenesis, pathology, morphology, clinical and laboratory and urinary findings, complications of renal failure PA28.3 Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure – with RFT PA28.4 Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure

34	PA 28	PA28.12 Define classify and describe the genetics, inheritance, etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney PA28.13 Define classify and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression and complications of renal stone disease and obstructive uropathy
35	PA 28	Tutorial/ Formative assessment- Urinary System
36	PA 29,30	Tutorial/ Formative assessment- Male Genital System And Female Genital System
37	PA 32	PA32.2 Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis PA32.3 Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/hypothyroidism with Thyroid function test.
38	PA 32	Tutorial/ Formative assessment- Endocrine System
39	PA 33	PA33.3 Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors
40	PA 34, 33,19,35	Tutorial/ Formative assessment- Skin, Bone, CNS, Lymph Node

DOAP TOPICS TO BE COVERED		
1	PA 2.5	Degeneration Specimens-Fatty liver Slides- Fatty liver, dystrophic calcification, hyaline degeneration
2	PA 2.8	Necrosis Specimen- Gangrene Slides- Coagulative necrosis, Caseous necrosis.
3	PA 4.4	Acute Inflammation Specimen- Acute appendicitis, Lobar Pneumonia Slides- Acute appendicitis, Lobar Pneumonia
4	PA 4.4	Chronic Inflammation Specimens- TB lymph node, Madura foot Slide- Granulation tissue, TB lymph node, Actinomycosis, Rhinosporidiosis

5	PA 6.2, PA 6.7	CVC and Infarction Specimen- CVC Liver (Optional). Infarction- Spleen Slide- CVC lung, CVC liver (Optional), CVC Spleen (Optional), Infarction- Spleen
6	PA 7	Benign tumors Specimen - Lipoma Slide- Hemangioma, Schwannoma, Lipoma
7	PA 7	Malignant tumors Specimen- Squamous cell carcinoma, Adenocarcinoma Slide- Squamous cell carcinoma, Basal cell carcinoma, Adenocarcinoma, Transitional cell carcinoma (Optional)
8	PA 13.2 PA 13.5	Anticoagulants-Different vacutainers OSPE-Prepare peripheral blood smear and reporting Slides- Normocytic normochromic blood picture, Eosinophilia.
9.		Revision of Slides/Specimen/Charts
10	PA 14, 15	Anaemia Slides-Microcytic hypochromic anaemia and Dimorphic anaemia
11	PA 16.6	Hemolytic anaemia Slides- Sickle cell anaemia/ Thalassemia/ Autoimmune haemolytic anaemia
12	PA 18	Leukemias Slides- Chronic myeloid leukemia, Chronic lymphoid leukemia. Acute leukemia (Optional)
13	PA 19	Lymph node / spleen Specimen- Enlarged spleen, TB lymph node Slide- TB lymph node, Hodgkin's lymphoma
14	PA 22	Blood grouping:OSPE-Forward grouping -Slide/ tube method
15	PA 23.1	Urine examination Physical examination Chemical examination- Introduce strip methodology. Tests for Reducing substances, Protein, Blood, Ketone bodies. Bilirubin and Bile salts (Optional).
16	PA 24.3	Gastrointestinal system Specimen- Peptic ulcer, Gastric carcinoma, Carcinoma colon. TB intestine (Optional). Slide- Pleomorphic adenoma, carcinoma colon. TB intestine (Optional). Gastric carcinoma (Optional).
17	PA 25	Hepatobiliary system

		Specimen-Cirrhosis, Chronic cholecystitis with Gall stones Slide- Cirrhosis, Chronic cholecystitis
18	PA 27	Cardiovascular system Specimen- Atherosclerosis, Myocardial infarction Slide- Atherosclerosis, Myocardial infarction
19	PA- 26	Respiratory System Specimen-Pneumonia , Bronchiectasis, Emphysema, TB lung, Carcinoma lung Slide- Pneumonia, TB lung (Optional).
20		Revision of Slides/Specimen/Charts
21	PA 28	Urinary system Specimen- Chronic pyelonephritis, Renal stones with hydronephrosis, Renal cell carcinoma Slide- Chronic pyelonephritis, Renal cell carcinoma
22	PA 29	Male genital system Specimen- Seminoma testis, Carcinoma penis Slide-Seminoma testis, Benign prostatic hyperplasia
23	PA 30	Female genital system Specimen-Leiomyoma, Carcinoma cervix, Benign Cystic Teratoma, Serous/Mucinous Cystadenoma. Hydatidiform mole (Optional). Slides- Leiomyoma, Serous/Mucinous Cystadenoma, Hydatidiform mole. Benign Cystic Teratoma (Optional)
24	PA 31	Breast Specimen- Fibroadenoma. Carcinoma breast (Optional) Slide- Fibroadenoma. Carcinoma breast (Optional)
25	PA 32	Endocrine System Specimen- Multinodular goitre, Papillary carcinoma Slide- Multinodular goitre, Hashimoto's thyroiditis, Papillary carcinoma thyroid.
26	PA 33	Bone tumors Specimen- Osteoclastoma, Osteosarcoma Slide- Osteoclastoma. Osteosarcoma (Optional)
27	PA 35	Central nervous system Charts- Interpretation of CSF findings in various meningitis.

LIST OF INSTRUMENTS, SPECIMENS, SLIDES AND CHARTS

LIST OF INSTRUMENTS

Sl .no	Instruments
1.	Lumbar Puncture Needle
2.	Bone marrow Aspiration Needle
3.	Wintrobe's Tube
4.	Westergren's ESR Tube
5.	Urinometer
6.	R.B.C Pipette
7.	W.B.C Pipette
8.	Sahli's Haemoglobinometer
9.	Neubauer's Counting Chamber
10.	Hb Pipette
11.	EDTA Tube
12.	Sodium Citrate Tube
13.	Plain vacutainer
14.	Heparin tube
15.	Blood collection bag

LIST OF SPECIMENS

Sl. No.	Gross specimens
1.	Fatty liver
2.	Gangrene
3.	TB lymph node

4.	Acute appendicitis
5.	CVC liver
6.	Lipoma
7.	Squamous cell carcinoma foot
8.	Adenocarcinoma colon
9.	Enlarged spleen
10.	Gastric carcinoma
11.	Cirrhosis
12.	Gall bladder with gall stones
13.	Bronchiectasis
14.	Carcinoma lung
15.	Atherosclerosis
16.	Renal cell carcinoma
17.	Hydronephrosis
18.	Carcinoma Penis
19.	Seminoma testis
20.	Leiomyoma
21.	Teratoma ovary
22.	Hydatidiform mole
23.	Serous/ Mucinous cystadenoma ovary
24.	Carcinoma Cervix
25.	Fibroadenoma
26.	Multinodular goitre
27.	Papillary carcinoma thyroid
28.	Osteoclastoma
29.	Osteosarcoma

30.	Ewings sarcoma

LIST OF SLIDES

SL. NO.	Slides
1.	Fatty liver
2.	Hyaline degeneration (leiomyoma)
3.	Coagulative necrosis
4.	Caseous necrosis
5.	Acute appendicitis
6.	TB lymph node
7.	Actinomycosis
8.	Rhinosporidiosis
9.	CVC lung
10.	Lipoma
11.	Hemangioma
12.	Schwannoma
13.	Squamous cell carcinoma
14.	Fibroadenoma
15.	Basal cell carcinoma
16.	Adenocarcinoma-colon
17.	Hodgkin's lymphoma
18.	Pleomorphic adenoma
19.	Cirrhosis of Liver
20.	Chronic cholecystitis
21.	Atherosclerosis

22	Renal cell carcinoma
23	Seminoma
24	Benign prostatic hyperplasia
25	Leiomyoma
26	Hydatidiform mole
27	Serous cystadenoma/ Mucinous cystadenoma
28	Osteoclastoma
29	Multinodular goitre
30	Hashimoto's thyroiditis
31	Papillary carcinoma thyroid
Hematology	
1.	Normocytic normochromic blood picture
2.	Eosinophilia
3.	Microcytic hypochromic anaemia
4.	Dimorphic anaemia
5.	Chronic lymphoid leukemia
6.	Chronic myeloid leukemia

LIST OF CHARTS

Sl. no	Charts
1.	Cytology: Malignant cells in Pap smear.
2.	CSF analysis for Meningitis - Viral
3.	CSF analysis for Meningitis - Bacterial
4.	CSF analysis for Meningitis - Tubercular
5.	Viral hepatitis- Acute phase
6.	Viral hepatitis- Chronic phase
7.	Viral hepatitis- Convalescent and recovery phases
8.	Thyroid function test
9.	Renal Function test- Acute renal failure
10.	Renal Function test- Chronic renal failure
11.	Autoimmune Hemolytic anaemia
12.	Sickle cell anaemia
13.	Thalassemia
14.	Hereditary Spherocytosis
15.	Hematolymphoid malignancies- AML
16.	Hematolymphoid malignancies- ALL
17.	Hematolymphoid malignancies- Multiple Myeloma
18.	Lab diagnosis of Myocardial infarction.

TOPICS FOR INTEGRATION

	Pathology
FIRST 4 MONTHS	Immunology Anaemia Wound healing Shock
SECOND 4 MONTHS	Infective endocarditis & Rheumatic heart disease Myocardial infarction Tuberculosis Leprosy AIDS Malaria
LAST 4 MONTHS	Diabetes mellitus Hepatitis Hypo & Hyperthyroidism, Thyroid malignancies

DISTRIBUTION OF ATTITUDE ETHICS AND COMMUNICATION SKILLS (AETCOM) MODULE

Subject	Competency number	Competency	No. of hrs
Pathology	2.6	Identify, discuss and defend medico-legal , socio cultural and ethical issues as they pertain to refusal of care including do not resuscitate and withdrawal of life support	2
	2.4A	Demonstrate ability to work in a team of peers and superiors.	2
	2.4B	Demonstrate respect in relationship with patients , fellow team members, superiors and other health workers	2
	2.7	Identify, discuss and defend, medico-legal, socio-cultural and ethical issues as they pertain to consent for surgical procedures.	2
Microbiology	Module 2.2A	Describe and discuss the role of non-maleficence as a guiding principle in patient care.	2
	Module 2.2B	Describe and discuss the role of autonomy and shared responsibility as a guiding principle in patient care.	2
	Module 2.2C	Describe and discuss the role of beneficence a guiding principle inpatient care	2
	Module 2.2D	Describe and discuss the role of a physician in health care system	2
	Module 2.2E	Describe and discuss the role of justice as a guiding principle in patient care	2
	Module 2.3	Describe and discuss the role of justice as a guiding principle in patient care	2
	Module 2.5	Identify, discuss and defend medico-legal , socio cultural and ethical issues as it pertains to patient autonomy , patient rights and shared responsibility in health care	2
pharmacology	Module 2.1	Demonstrate ability to communicate to patients in a patient, respectful, non-threatening, non-judgmental and empathetic manner.	2
	Module 2.8	Demonstrate empathy in patient encounters.	2

EVALUATION METHODOLOGY

Summative Assessment - Assessment will be conducted at the end of instruction to check how much the student has learnt.

Formative Assessment - Assessment will be conducted during the instruction with primary purpose of providing feedback for improved learning.

Internal Assessment - Range of assessments conducted by the teachers teaching a particular subject with the purpose of knowing what is learnt. Internal assessment can have both formative and summative functions.

Scheduling of Internal Assessment - Done once in three months.

Theory IA includes: Written test includes essay questions, short notes and MCQs.

Practical IA includes: Practical tests, Objective Structured Practical Examination (OSPE), Directly Observed Procedural Skills (DOPS), records maintenance and attitudinal assessment.

Self directed learning will be assessed by conducting seminars, museum study and library assignments.

Assessment of Log-book- Log book should record all activities like continuous assessment of **Certifiable skill based competencies, like OPSE, spotters, exercises, charts and histopathology slides, Research, SVL lab activity and AETCOM**. It will be assessed regularly and submitted to the department.

Assessment of Practical Record book- Practical book should record all skills and other practical exercises done during the academic programme. It will be assessed regularly and submitted to the department.

Assessment for AETCOM will include: - Written tests comprising of short notes and creative writing experiences only in internal assessment.

SUMMATIVE ASSESSMENT/ UNIVERSITY EXAM

THEORY

GENERAL INSTRUCTIONS

1. The topics for the two papers are distributed
2. Questions in each paper should be as per distribution
3. SLO will be taken into account while setting the question paper
4. Repetition of questions from the same SLO will be avoided
5. Adherence to the marks allotted to the different topics & sections
6. Questions will be covered from the different sections of Pathology

Sl no	Nature of question	Marks
1	Long Essay (LE)	2x15=30
2	Short Answer (SA)	10x5=50
3	Multiple Choice Questions (MCQ)	20x1=20

Marks distribution across different sections

Sl no	Section	Paper	Marks distribution	Total
1	General Pathology (40 - 60) Haematology + Clinical Pathology + Cytology (40 - 60)	I	100	200
2	Systemic Pathology	II	100	

TOPIC-WISE MARKS DISTRIBUTION FOR THEORY EXAMINATION

SI NO	TOPICS	MARKS DISTRIBUTION		
GENERAL PATHOLOGY		Minimum	Maximum	Nature of question
1.	Introduction to pathology	0	3	Only MCQ
2.	Cell Injury and Adaptation	3	15	LE,SA,MCQ
3.	Amyloidosis	0	5	SA,MCQ
4.	Inflammation	3	15	LE,SA,MCQ
5.	Healing and repair	0	5	SA, MCQ
6.	Hemodynamic disorders	3	15	LE,SA,MCQ
7.	Neoplastic disorders	3	15	LE,SA,MCQ
8.	Basic diagnostic cytology	3	5	SA,MCQ
9.	Immunopathology and AIDS	3	8	SA,MCQ
10.	Infections and Infestations	0	8	SA,MCQ
11.	Genetic and paediatric diseases	Non-Core		
12.	Environmental and nutritional disease	0	6	SA,MCQ
HEMATOLOGY AND CLINICAL PATHOLOGY				
13.	Introduction to haematology	3	8	LE,SA,MCQ
14.	Microcytic anemia	0	15	LE,SA,MCQ
15.	Macrocytic anemia	0	15	LE,SA,MCQ
16.	Hemolyticanemia	0	15	LE,SA,MCQ
17.	Aplastic anemia	Non-Core		
18.	Leukocyte disorders	0	15	LE,SA,MCQ
19.	Lymph node and spleen	0	6	SA,MCQ
20.	Plasma cell disorders	0	6	SA,MCQ
21.	Hemorrhagic disorders	0	15	LE,SA,MCQ
22.	Blood banking and transfusion	0	6	SA,MCQ

23.	Clinical Pathology	3	6	SA, MCQ
SYSTEMIC PATHOLOGY				
24.	Gastrointestinal tract	3	15	LE,SA,MCQ
25.	Hepatobiliary system	3	15	LE,SA,MCQ
26.	Respiratory system	3	15	LE,SA,MCQ
27.	Cardiovascular system	3	15	LE,SA,MCQ
28.	Urinary Tract	3	15	LE,SA,MCQ
29.	Male Genital Tract	0	6	SA,MCQ
30.	Female Genital Tract	0	15	LE,SA,MCQ
31.	Breast	0	15	LE,SA,MCQ
32.	Endocrine system	0	15	LE,SA,MCQ
33.	Bone and soft tissue	0	15	LE,SA,MCQ
34.	Skin	0	6	SA,MCQ
35.	Central Nervous system	0	6	SA,MCQ
36.	Eye	Non-Core		

Note: ‘0’ signifies there is an option of not asking any question from that particular topic

SUMMATIVE ASSESSMENT/ UNIVERSITY EXAM
PRACTICALS

Total Marks – 100 (Practical: 80 + Viva voce: 20)

Exercise 1- Spotters (10 x 2marks each) – 20 marks

Time allotted: 10mins

Specimens - 4

Histopathology Slides - 3

Haematology slides - 2

Instrument -1

Note: Students need to identify the spotter and write two relevant points

Exercise 2 – OSPE (Objective Structured Practical Examination) – 5 marks

Time allotted: 5mins, each will have to do either;

Blood group or Preparation of peripheral smear

Student needs to perform the following steps

Blood group		
Sl No	Steps	Marks awarded
1	Take 1 or 2 slides and mark the slides appropriately	0.5
2	Take anti-sera A, B and D and place according to the marking	1
3	Add a drop of blood to the anti-sera	0.5
4	Mix well	1
5	Look for the agglutination and interpret	2
Total		5

Preparation of peripheral smear		
Sl No	Steps	Marks awarded
1	Take a clean slide	0.5
2	Take a drop of blood and place it appropriately on the slide	0.5
3	The spreader slide is to be placed at an angle of 45 ⁰ and moved back to make contact with the drop, spreading it evenly along the line of contact. Pull the spreader steadily to make a smear and label the slide	2
4	Smear needs to be tongue shaped and without any windows,	2
Total		5

Exercise 3:

Time allotted: 20mins

Urine Analysis – 15 Marks

Physical examination + Chemical examination (Detection of 2 abnormal constituents) based on history provided

Exercise 4:

Time allotted: 20mins

Histopathology slide – 15 Marks

Identify + draw a neat labelled diagram + write points in favour of identification

Exercise 5:

Time allotted: 20mins

Peripheral Smear – 15 Marks

Identify + draw a neat labelled diagram + write points in favour of identification

Exercise 6:

Time allotted: 10mins

Chart - 10 Marks, each student is given only one chart.

Interpret the chart and answer the given questions.

NOTE: The evaluation of charts on certifiable competencies should be completed in formative and internal assessment and duly documented in the log book.

Exercise 7:**Viva Voce (20 marks)**

Time allotted: 20 to 30mins (5-6mins per candidate for each examiner)

Marks allotted for each examiner – 5

Subject allotted for each examiner:

1. Clinical Pathology and haematology
2. General Pathology
3. Systemic Pathology – I (CVS, RS, GIT, Hepatobiliary, Lympho reticular and Spleen)
4. Systemic Pathology - II (Urinary system, Male and Female genital tract, Endocrines, Bone and Soft tissue, Central Nervous System, Skin)

INTERNAL ASSESSMENT

1. There will be 3 internal assessment examinations in Pathology.
2. It is mandatory for the students to appear for all the internal assessment examinations.
3. First internal assessment examination will be held after 3 months, second internal assessment examination will be held after six months and third internal assessment examination will be held after 9 months of Phase II curriculum.
4. Pattern of first and second Internal (formative) Assessment will include theory for 100 marks and practical's for 100 marks. The third internal assessment will be conducted with 2 theory papers each carrying 100marks and practical's for 100 marks.
5. Additional internal assessment examination for absent students will be considered due to genuine reason after approval from the HOD and will be taken before the submission of internal assessment marks to the University.
6. Continuous internal theory assessment will be conducted in the form of home assignment (15marks), continuous class test(30 marks), self-directed learning (seminar-15 marks, Museum study -15 marks, Library assignment-15 marks, attendance theory -10marks.
7. Continuous internal practical assessment will be conducted in the form certified skill based competencies (OSPE, OSCE, practical's, spotters & other exercises- 60 marks, AETCOM competencies- 30 marks, SVL lab activity-40 marks, Research -20 marks, Record book/portfolio- 40 marks and practical attendance-10 marks
8. Feedback in Internal Assessment - Feedback will be provided to students throughout the course so that they are aware of their performance and remedial action can be initiated well in time. The feedbacks need to be structured and the faculty and students must be sensitized to giving and receiving feedback.
9. The results of IA will be displayed on notice board within two weeks of the test and an opportunity provided to the students to discuss the results and get feedback on making their performance better.

10. The students should sign with date whenever they are shown IA records in token of having seen and discussed the marks.
11. Internal assessment marks will not be added to University examination marks and will reflect as a separate head of passing at the summative examination.
12. Internal assessment will be based on competencies and skills.
13. Criteria for appearing in University examination: students must secure at least 50% marks of the total marks (combined in theory and practical; not less than 40 % marks in theory) assigned for internal assessment in order to be eligible for appearing at the final University examination.
14. The best of the first 2 internal assessment will added to the 3rd internal assessment and an average of the total will be taken as final and equated to 100 marks separately in theory and practical's.
15. A candidate who has not secured requisite aggregate in the internal assessment may be subjected to remedial assessment by the HOD. If she/he successfully completes the same, she/he will be eligible to appear for University Examinations. Remedial assessment shall be completed before submitting the internal assessment marks to the University.

SVIMS, Sri Padmavathi Medical College for Women												
Department of pathology												
Faculty ,MBBS		Year/phase II									Date:	
			Formative Assessment Theory			Continuous Internal Assessment (Theory)						
S.No.	Roll No.	Name of student	1 st PCT Theory examination	2 nd PCT Theory examination	Prelims Theory (paper 1&2)	Home Assignment	Continuous class test	Seminar	Museum study	Library assignments	Attendance (Theory)	Total
								Self Directed Learning				
			100	100	200	15	30	15	15	15	10	500
Professor & HOD, Department of pathology, SVIMS, Sri padmavathi medical college for women												

SVIMS, Sri Padmavathi Medical College for Women												
Department of pathology												
Faculty ,MBBS		Year/phase II									Date:	
			Formative Assessment			Continuous Internal Assessment (Practical)						
S.No.	Roll No.	Name of student	1 st PCT Practical examination	2 nd PCT Practical examination	Prelims practical	Log Book(150)				Journal (Record book)	Attendance (practical)	Total
							Certifiable skill based competencies(OSPE/ Spotters/ Exercise/Other	AETCOM competencies	SVL lab activity			
			100	100	200	60	30	40	20	40	10	500
Professor & HOD, Department of pathology, SVIMS, Sri padmavathi medical college for women												

Log book format (as per NMC guidelines)

MODEL QUESTION PAPER

Subject - Pathology

PAPER I

LONG ESSAY

- 1) Define shock. Types of shock and discuss the etiopathogenesis, morphology and clinical features of shock? (Marks-2+5+8=15)
- 2) Describe the role of hematology laboratory in the differential diagnosis of hemolytic anemia's. Discuss clinical clues for suspecting hemolysis.
(Marks-9+6=15)

SHORT ANSWERS

Marks: 10x5

- 3) Discuss the differences between apoptosis and necrosis with a special reference to clinical significance
- 4) Discuss the factors affecting wound healing
- 5) Describe the organ specific effects of tobacco smoke constituents
- 6) Discuss the sequelae of acute inflammation. Enumerate morphological types with examples
- 7) Define metastasis and discuss the routes of spread.
- 8) A 40yrs male presented with complaints of anemia, fatigue weight loss and splenomegaly what is the clinical diagnosis. Discuss about morphology and prognosis?
- 9) Describe the clinical picture, peripheral blood and bone marrow picture in megaloblastic anemia.

- 10) Define leukamoid reaction. List the differences between leukemoid reaction and chronic myeloid leukemia.
- 11) Describe gross and microscopic appearance of tubercular lymphadenitis.
- 12) List causes of thrombocytopenia. Discuss pathogenesis of idiopathic thrombocytopenic purpura.

MULTIPLE CHOICE QUESTIONS

Marks: 20x1

1. The following are the features of apoptosis except?
A. Reduced cell size B. Nuclear fragmentation C. Intact cellular contents D. Adjacent Inflammation []
2. Metaplasia examples include the following except?
A. Barret's esophagitis B. Squamous metaplasia of Squamo-columnar junction C. Myositis ossificans D. Increased accumulation of fat []
3. One of the following is not a morphological pattern of acute inflammation.
A. Hypersensitivity diseases B. Serous inflammation C. Fibrinous inflammation D. Abscess []
4. Type I Hypersensitivity reaction immune mechanism results in
A. Production of IgE antibody B. Deposition of antigen-antibody complexes C. Production of IgG & IgM antibodies D. Activated T-Lymphocytes. []
5. Clinical examples of CD4+ T-cell mediated inflammatory reactions include except?
A. Tuberculin reaction B. Schistosomiasis C. Contact Dermatitis D. Type-1 DM. []
6. One of the following is an example of Autoimmune disease?
A. Tuberculosis B. Candidiasis C. Multiple Sclerosis D. Bronchial Asthma []
7. One of the following is an example of Localized Amyloidosis?
A. Medullary carcinoma of thyroid B. Haemodialysis associated amyloidosis C. Immunglobulin light chain amyloidosis D. Familial amyloidotic neuropathies. []
8. One of the following is not a pathway of Metastases?
A. Haematogenous B. Lymphatic C. Direct seeding of body cavities D. Local invasion []
9. The following are the oncogenic viruses except

A. HTLV-1 virus B. HPV C. EBV D. Influenza []

10. Some cancer bearing individuals develop signs and symptoms that cannot readily be explained by the anatomic distribution of the tumor or by the elaboration of hormones indigenous to the tissue from which the tumor arose, these are called as

A. Good pasture syndrome B. Para-neoplastic syndrome C. Ehlers-Danlos syndrome D. Down syndrome []

11. The following are the heavy metals that are most commonly associated with harmful effects in humans except?

A. Lead B. Cadmium C. Thallium D. Mercury []

12. Conversion of 25-OH-D into 1,25- dihydroxyvitamin-D occurs in

A. Kidney B. Lung C. Liver D. Heart []

13. Heinz bodies are seen in

A. Sickle cell anaemia B. G6PD deficiency C. Hereditary Spherocytosis D. Thalassemia Major []

14. Splenomegaly is absent in

A. Sickle cell anaemia B. G6PD deficiency C. Hereditary Spherocytosis D. Aplastic anaemia [].

15. The following translocation t(15;17) is seen in which acute leukaemia?

A. Acute promyelocytic leukaemia B. Acute myelomonocytic leukaemia C. acute Erythro leukaemia D. Acute megakaryocytic leukaemia [].

16. One of the following is the etiological agent leading to megaloblastic anaemia?

A. Diphyllbothrium Latum B. Wuchereria Bancrofti C. Ascaris Lumbricoides D. Enterobius Vermicularis [].

17. Gamna-Gandy bodies are seen in?

A. Splenic infarct B. Congestive splenomegaly C. Splenic Amyloidosis D. Splenic rupture []

18. Myeloproliferative disorders include the following except?

A. Chronic myelogenous leukaemia B. Polycythemia Vera C. Essential thrombocythemia D. TTP [].

19. Starry sky appearance under microscopy is seen in which lymphoma

A. Hodgkin's lymphoma B. small lymphocytic lymphoma C. Burkitt's lymphoma D. Mantle cell lymphoma [].

20. In Hodgkin's Lymphoma which variant has poor prognosis

A. Nodular sclerosis B. Lymphocyte Rich C. Lymphocyte Depleted D. Mixed cellular variant [].

MODEL QUESTION PAPER

Subject Pathology

Paper II

LONG ESSAY

- 1) Define COPD. Classify COPD and discuss about the various entities of COPD? Marks(1+2+12=15)
- 2) Discuss the role of laboratory in the diagnosis of Ischaemic Heart Disease. Add a note on approximate Time of Onset of Key Events in Ischemic Cardiac Myocytes Marks(9+6=15)

SHORT ANSWERS

Marks: 10x5=50

- 3) Discuss the stages of alcoholic liver disease.
- 4) Discuss pathogenesis and morphology of Hashimoto thyroiditis
- 5) Interpret and assign to a group the following icteric patients with their urine and faecal findings. The groups to be assigned to are: pre-hepatic, hepatic and post hepatic causes of jaundice

	Patient 1	Patient 2	Patient 3
Urinary bilirubin	increased	absent	increased
Urinary urobilinogen	Low or absent	increased	decreased
Faecal colour	pale	dark	pale

- 6) Write the histological classification of malignant epithelial tumors of lung. Discuss in brief the etiopathogenesis of carcinoma lung.
- 7) Discuss the prognostic factors in carcinoma breast.
- 8) Describe in brief etiopathogenesis of carcinoma colon. Add a note on gross morphology of carcinoma colon.
- 9) Discuss pathogenesis of type II diabetes mellitus and List the complications
- 10) Define aneurysm. Enumerate the causes, types and complications of aneurysm.
- 11) Define and discuss etio-pathogenesis of bronchiectasis.
- 12) Discuss gross and microscopic morphology of any one benign and any one malignant bone tumors commonly arising in the metaphysis of long bones.

MULTIPLE CHOICE QUESTIONS

Marks: 20x1=20

1. Flask shaped ulcers are seen in
A) Amoebic colitis B) Ulcerative colitis C) Indeterminate colitis D) Diversion colitis []
2. The following deposits are seen in Descemet membrane in the limbus of cornea in Wilson disease?
A) Kayser-Fleischer rings B) Cabot rings C) Pseudo Fleischer ring D) Limbal ring. []
3. The following are the major causes of endothelial dysfunction except
A. Haemodynamic disturbances B. Hypercholesterolemia C. Inflammation D. Infection [].
4. Aschoff bodies are seen in

A. Rheumatic heart disease B. Infective endocarditis C. Nonbacterial thrombotic endocarditis D. Libman-Sacks Disease []

5. The most common variant of cardiomyopathy is

A. Dilated cardiomyopathy B. Restrictive cardiomyopathy C. Hypertrophic cardiomyopathy D. Arrhythmogenic cardiomyopathy [].

6. Common obstructive lung diseases include except

A. COPD B. Asthma C. Bronchiectasis D. Atelectasis [].

7. The most common lung malignancy is

A. Adenocarcinoma B. Sq.cell carcinoma C. Small cell ca. D. Large cell carcinoma [].

8. Mold hay is the causative agent of

A. Bagassosis B. Farmer's Lung C. Bird breeder's lung D. Baritosis [].

9. The most salivary gland tumor is

A. Warthintumor B. Pl. adenoma C. Oncocytoma D. Adenoid cystic carcinoma [].

10. The most common site of squamous cell carcinoma in oesophagus is

A. Middle 1/3 of oesophagus B. Upper 1/3 of oesophagus C. Lower 1/3 of oesophagus D. All of the above [].

11. Bilateral asymmetrical irregular scarred kidneys are seen in

A. Chronic Glomerulonephritis B. Chronic pyelonephritis C. Acute pyelonephritis D. Adult polycystic kidney disease. [].

12. The most common renal calculi are

A. Calcium oxalate stones B. Struvite stones C. Cystine stones D. Uric acid stones [].

13. The most common germ cell tumor of testes is

A. Seminoma B. Choriocarcinoma C. Embryonal carcinoma D. Yolk sac tumor [].

14. The most common cause of Hepato cellular carcinoma.

A. Hepatitis-B infection B. Alcoholic Liver Disease C. Alpha-1 Anti-trypsin deficiency D. Hereditary hemochromatosis []

15. One of the gene is involved in the development of familial and sporadic renal clear cell carcinomas.

A. VHL gene B. BHD gene C. MET Proto-oncogene D. FH gene [].

16. HPV DNA in the cervical scrape is done by which method

A. Molecular method B. Pap test C. LBC test D. Conventional Pap test.[].

17. The most common site of endometriosis

A. Laparotomy scars B. Ovaries C. Uterus D. Pelvic Peritoneum []

18. Complete Mole the karyotype is

A. 92, XXY B. 69, XXY C. 46, XX D. 46, XXY []

19. Cob web /spider web clot formation in long standing CSF is seen in which meningitis

A. Bacterial meningitis B. Viral meningitis C. Tuberculous meningitis

D. Aseptic meningitis []

20. The most common type of Glomerulonephritis worldwide is

A. Membranous nephropathy B. IgA nephropathy C. Post streptococcal glomerulonephritis D. Membrano-proliferative glomerulonephritis [].

Recommended books for Pathology

RECOMMENDED BOOKS:

1. Kumar.V, Abbas.A.K, Aster.J.C. Robbins and Cotran Pathologic basis of Disease.10th edition.
2. Walter.J.B&Talbot.I.C. General Pathology.7thed, Elsevier; 1996
3. Rubin.R,Strayer.D.S.Rubin'sPathology. 8thed, Wolters Kluwer, Lippincott Williams and Wilkins; 2021.
4. O'Dowd G, Bell S & Wright S. Wheater's Pathology. 6thed, Elsevier; 2020.
5. Saxena.R, Pati.H.P, Mahapatra.M, Firkin.F, Chesterman.C&Ponington.D et.al. DeGruchy`s Clinical Haematology in Medical Practice. 6thed, Wiley India; 2012.
6. Nayak.R&Rai.S. Essentials in Haematology and Clinical Pathology. Jaypee Brothers; 2017.
7. Carman. H. R. Handbook of Medical Laboratory Technology. Christian Medical Association of India. 2013.
8. Singh T. Atlas and Text of Hematology. 4thedAvichal Publishing Company 2018.
9. Reid R, Roberts F &Macduffe. Pathology Illustrated. 7thed Churchill Livingstone, Elsevier; 2011.
10. Curran R C, Jones E L. Gross Pathology- A Color Atlas. 4th ed. Harvey Miller Publishers.
11. Underwood's pathology: a clinical approach 7thed,

REFERENCE BOOKS:

LEVEL1:

1. McKenzie. S.B,Williams. J.L. Clinical laboratory Haematology.2ed, Pearson; 2009
2. Bain.J.B, Bates.I, Laffan. M.A.Dacie and Lewis Pratical Haematology, 12ed ,Elsevier; 2017
3. Damjanov.I, Linder.J. Anderson`s Pathology.10ed,Elsevier; 2019
4. McPherson.R.A.Henry`s Clinical Diagnosis and Management by Laboratory Methods. 23ed, Elsevier; 2016

LEVEL 2:

1. Greer.J.P,Arber. D.A,Glader. B,List.A.F, Means.R.J, Paraskevas.F et.al. Wintrobe`s Clinical Haematology.13ed
WoltersKluwer, Lippincott Williams and Wilkins, 2013
2. Rosai.J.Rosai and Ackerman`s Surgical Pathology. 11ed,Elsevier ; 2018
3. WHO Classification of Tumors Series
4. <https://whobluebooks.iarc.fr/>

DEPARTMENT OF PHARMACOLOGY

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Curriculum in Pharmacology

a.Competencies:

The undergraduate must demonstrate:

- Knowledge about essential and commonly used drugs and an understanding of the pharmacologic basis of therapeutics,
- Ability to select and prescribe medicines based on clinical condition and the pharmacologic properties, efficacy, safety, suitability and cost of medicines for common clinical conditions of national importance,
- Knowledge of pharmacovigilance, essential medicine concept and sources of drug information and industry-doctor relationship,
- Ability to counsel patients regarding appropriate use of prescribed drug and drug delivery systems.

b.Broad subject specific objectives:

(A) Knowledge:

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

- Describe the Pharmacokinetics and Pharmacodynamics of essential and commonly used drugs.
- Enlist the indications, contraindications, interactions and adverse reactions of commonly used drugs.
- Tailor the use of appropriate drugs in disease with consideration of its cost, efficacy and safety for-
 - a. Individual needs and
 - b. Mass therapy, under National Health Programs.
- Integrate the list of drugs of addiction and recommend the management of drug addiction.
- Explain pharmacological basis of prescribing drugs in special medical situations such as pregnancy, lactation, infancy, old age, renal damage, hepatic damage and immuno compromised patients.
- Explain the concept of rational drug therapy in clinical pharmacology.
- State the principles underlying the concept of 'Essential Drugs'.
- Evaluate the ethics and modalities involved in the development and introduction of new drugs.

c.Skills:

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

- Prescribe drugs for common ailments.
- Identify adverse reactions and drug interactions of commonly used drugs.
- Interpret the data obtained from the experiments designed for the study of effect of drugs in various experimental and clinical studies.
- Analyze the information regarding common pharmaceutical preparations and critically evaluate drug formulations.
- Appraise the Principles of Clinical Pharmacy and Dispense the Medications giving proper instructions.

d.Integration: Practical knowledge of use of drugs in Clinical Practice will be acquired through Integrated Teaching vertically with phase 1 subjects and horizontally with other phase 2 subjects.

CERTIFIABLE COMPETENCIES

Competencies in knowledge domain

Sl no	Topic	Competency
1	General Pharmacology Toxicology Clinical Pharmacology and rational drug use	PH1.1 to PH1.12
2	Autonomic Nervous System	PH1.13 to PH1.14
3	Autacoids	PH1.16
4	Drugs in anaesthetic practice:	PH1.15, PH1.17 to PH1.18
5	Central Nervous System	PH1.19 to PH1.23
6	Diuretics	PH1.24
7	Drugs affecting blood and blood formation	PH1.25, PH1.35
8	Cardiovascular System	PH1.26 to PH1.31
9	Respiratory System:	PH1.32 to PH1.33
10	Gastrointestinal System	PH1.34
11	Endocrine System	PH1.36 to PH1.41
12	Chemotherapy	PH1.42 to PH1.49
13	Miscellaneous	PH1.50 to PH1.64

Competencies in Skills:

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

1. Topic	Competency	Description
Clinical Pharmacy	PH2.1	Demonstrate understanding of the use of various dosage forms (oral/local/parenteral; solid/liquid)
	PH2.2	Prepare oral rehydration solution from ORS packet and explain its use
	PH2.3	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment.
	PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations
Clinical Pharmacology	PH3.1-C	Write a rational, correct and legible generic prescription for Common ailments/ conditions and communicate the same to the patient
	PH3.2-C	Perform and interpret a critical appraisal (audit) of a given prescription
	PH3.3-C	Perform a critical evaluation of the drug promotional literature
	PH3.4-L	To recognise and report an adverse drug reaction
	PH3.5-C	To prepare and explain a list of P-drugs for a given case/condition
	PH3.6-L	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs
	PH3.7-L	Prepare a list of essential medicines for a healthcare facility
	PH3.8	Communicate effectively with a patient on the proper use of prescribed medication
Experimental Pharmacology	PH4.1C	Administer drugs through various routes in a simulated environment using mannequins
	PH4.2C	Demonstrate the effects of drugs on blood pressure (vasopressor and vaso-depressors with appropriate blockers) using CAL
Communication	PH5.1L	Communicate with the patient with empathy and ethics on all aspects of drug use
	PH5.2 L	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines
	PH5.3C	Motivate patients with chronic diseases to adhere to the prescribed management by the healthcare provider
	PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance
	PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management
	PH5.6L	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs
	PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs

C- Needs certification: 7no.
L Needs Maintenance of a log book: 6no.

MINIMUM TEACHING HOURS

Lectures: 80hrs

Small group learning (practicals/tutorials/seminars/integrated learning): 165hours

Self-directed learning: 10hours

Total: 255 hours

THEORY:

Sl no	Topic	Competency	Theory	SGL	SDL	Procedures requiring certification
1	General Pharmacology Toxicology Clinical Pharmacology and rational drug use	PH1.1 to PH1.121	9	0		Nil
2	Autonomic Nervous System	PH1.13 to PH1.14	8	2	0	Nil
3	Autacoids	PH1.16	4	2	1	Nil
4	Drugs in anaesthetic practice	PH1.15, PH1.17 to PH1.18	4	0	0	Nil
5	Central Nervous System	PH1.19 to PH1.23	8	4	0	Nil
6	Diuretics	PH1.24	2	1	1	Nil
7	Drugs affecting blood and blood formation	PH1.25, PH1.35	3	2	2	Nil
8	Cardiovascular System	PH1.26 to PH1.31	8	2	3	Nil
9	Respiratory System:	PH1.32 to PH1.33	2	1	0	Nil
10	Gastrointestinal System	PH1.34	2	2	1	Nil
11	Endocrine System	PH1.36 to PH1.41	8	4	1	Nil
12	Chemotherapy	PH1.42 to PH1.49	17	5	0	Nil
13	Miscellaneous	PH1.50 to PH1.64	5	5	1	Nil
	CBME requirement		80 hours	30 hours	10 hours	Nil

THEORY

(Competency no-1.1 to 1.64)

General pharmacological Principles



Lecture - 1

Hour Assessment: Written, Viva
voice

PH1.1 Define and describe the principles of pharmacology and pharmacotherapeutics

- 1.1.1 Define a drug
- 1.1.2 Explain the terms Pharmacology, clinical pharmacology & therapeutics
- 1.1.3 Enlist and explain about various branches of Pharmacology
- 1.1.4 List out sources of drugs with examples
- 1.1.5 List out sources of drug information & Explain each source briefly
- 1.1.6 Recognize the importance of Clinical pharmacology towards rational approach to prescribing medicine
- 1.1.7 Explain the evolution of Pharmacology from medieval to contemporary times



SGD-1 Hour



Assessment: Written, Viva voice

PH1.2 Describe the basis of Evidence based medicine and Therapeutic drug

monitoring Evidence based Medicine

- 1.2.1 Identify reliable sources for research evidence
- 1.2.2 Understand research study designs and the hierarchy for research evidence
- 1.2.3 Ascertain strength of evidence for treatments and understand guidelines in different therapeutic areas
- 1.2.4 Explain the importance of keeping prescribing practice up to date with advances in medical knowledge

Therapeutic Drug Monitoring

- 1.2.5 Understand the purpose of TDM
- 1.2.6 Explain the methods in therapeutic drug monitoring
- 1.2.7 Enlist the drugs that require TDM
- 1.2.8 Understand the purpose for and methods in therapeutic drug monitoring
*TDM to be covered after PK/PD



SGD/Practical - 1 Hour
Assessment: Written, Viva voice

PH1.3 Enumerate and identify drug formulations and drug delivery systems

- 1.3.1 Define dosage form, formulation and excipient
- 1.3.2 List out different drug formulations with an example of each.
- 1.3.3 Choose appropriate formulation based on clinical need
- 1.3.4 Explain the advantages and disadvantages of different drug delivery systems
- 1.3.5 Enlist the new drug delivery system and discuss their utility

PH1.4 Describe absorption, distribution, metabolism & excretion of drugs**Pharmacokinetics (PK)**

- 1.4.1 Explain the term Pharmacokinetics
- 1.4.2 Explain the four phases of PK
- 1.4.3 Explain why the understanding of PK is relevant to prescribers

Drug Absorption

- 1.4.4 Explain the principles involved in drug absorption
- 1.4.5 Explain the concept of bioavailability and describe the factors affecting bioavailability
- 1.4.6 Describe the importance of bioequivalence

Drug Distribution

- 1.4.7 Explain the distribution of drugs across body compartments
- 1.4.8 Define apparent volume of distribution
- 1.4.9 Explain the clinical significance of drug distribution
- 1.4.10 Explain the clinical significance of plasma protein binding of drugs
- 1.4.11 Describe redistribution of drugs with clinical application

Biotransformation

- 1.4.12 Define biotransformation
- 1.4.13 Describe first pass metabolism and its importance
- 1.4.14 Describe phase 1 and phase 2 reactions
- 1.4.15 Explain factors affecting biotransformation
- 1.4.16 Explain the clinical significance of enzyme induction and inhibition

Drug Excretion

- 1.4.17 Describe the various routes of excretion of drugs
- 1.4.18 Explain factors affecting renal excretion
- 1.4.19 Explain plasma half-life and its clinical significance
- 1.4.20 Explain steady state concentration and its significance
- 1.4.21 Explain the different kinetics of elimination and their clinical significance
- 1.4.22 Apply the knowledge of clearance, loading dose and maintenance dose in calculating the dose for a patient
- 1.4.23 Explain various methods of prolonging drug action
- 1.4.24 Explain the PK factors that determine the choice of dose, route, and frequency of Drug administration.

PH1.5Describegeneralprinciplesofmechanismof drug

action Pharmacodynamics

- 1.5.1 Statedifferentmechanisms bywhichadrugactsgivinganexampleofeach
- 1.5.2 Enlistdifferent typesofreceptorsgiving examplesofdrugsactingthroughthem
- 1.5.3 Explaintheterms–‘upregulation’and‘downregulation’ofreceptors
- 1.5.4 Explaintheterms–affinity,efficacy,intrinsicactivity&potency
- 1.5.5 Definetheterms–agonist,antagonist,partialagonist&inverseagonist.Give examples of drugs for each
- 1.5.6 Describedose-responserelationshipandinterpretdose-responsecurves
- 1.5.7 Explaindrugsynergismwithexamples
- 1.5.8 Describethedifferent typesofdrug antagonismwithexamples
- 1.5.9 Describefactorsmodifyingdrugactionand itsclinicalimplications
- 1.5.10 Explaintherapeuticindexandtherapeuticrangewithclinicalsignificance

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SGD/ Practical - 1 Hour

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Assessment: Written, Vivavoce

PH1.6DescribeprinciplesofPharmacovigilance&ADRreportingsystems

- 1.6.1 Definethebasicterminologies(ADR,SeriousADR,AE,Toxicity, Pharmacovigilance and Causality assessment)
- 1.6.2 Explainthehistory, needandprinciplesofpharmacovigilance
- 1.6.3 Discussvariousmethods/systems ofADRreporting
- 1.6.4 DiscussPharmacovigilanceprogramofIndia
- 1.6.5 ReportADRsto aPharmacovigilanceCentrebyfillingtheADRreportingform
- 1.6.6 Discusstheimportanceofprescriber’sresponsibilityinPharmacovigilance

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SGD-1Hour

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Assessment: Written, Vivavoce

PH1.7Define, identifyanddescribethemanagementofadversedrugreactions(ADR)

- 1.7.1 DefineanADR
- 1.7.2 ExplainthefrequencyofADRsandtheirimpactonpublichealth
- 1.7.3 DescribethecommonclassificationofADRs withexamples
- 1.7.4 DescribethemanagementofADRs.
- 1.7.5 Describethemimportantrisk factorsthatpredictsusceptibilitytoADRs.
- 1.7.6 ExplaintheimportanceofmonitoringinpreventionofADRs.

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SGD-1Hour

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Assessment: Written, Vivavoce

PH1.8 Identify and describe the management of drug interactions

- 1.8.1 Define Drug interactions.
- 1.8.2 Describe the types of Drug interactions as *In vivo*, *In vitro* & PK and PD with suitable examples
- 1.8.3 Describe the useful and harmful drug interactions with suitable examples
- 1.8.4 Describe Drug-drug; drug-food; Drug-alcohol; drug-tobacco; Drug-complementary/alternative medicine interactions with examples
- 1.8.5 Explain how to predict and avoid harmful drug interactions in clinical practice
- 1.8.6 Management of DI.
- 1.8.7 Identify the sources of information about DI to inform prescribing

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SGD-1 Hour

Assessment: Written, Vivavoce

PH1.9 Describe nomenclature of drugs i.e. generic, branded drugs

- 1.9.1 Describe the chemical name, non-proprietary and Proprietary name of a drug
- 1.9.2 Discuss the importance of using non-proprietary name in prescribing.

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SGD-1 Hour

Assessment: Written, Vivavoce

PH1.10 Describe part of a correct, complete and legible generic prescription. Identify errors in prescription and correct appropriately

- 1.10.1 Define a prescription along with the importance of each part of a prescription
- 1.10.2 Describe the format of a prescription as per MCI model.
- 1.10.3 Write an unambiguous, legible, complete and legally valid prescription
- 1.10.4 Identify and correct prescription writing errors
- 1.10.5 Describe the importance of maintaining records of prescriptions.

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SGD-1 Hour

Assessment: Written, Vivavoce

PH1.11 Describe various routes of drug administration, eg: oral, SC, IV, IM, SL

- 1.11.1 List the various routes of drug administration-oral, parenteral and topical with examples
- 1.11.2 Describe the merits and demerits of each route
- 1.11.3 Choose the correct route of drug administration in a given clinical scenario

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SGD/Practical-1 Hour

Assessment: Written, Vivavoce

PH1.12 Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction

- 1.12.1 Calculate appropriate doses for individual patients based on age, body weight, and surface area.
- 1.12.2 Calculate the dose of drug using appropriate formulae in a given clinical case in children
- 1.12.3 Calculate the dose of drug using appropriate formulae in a given clinical case in elderly

Drugs acting on Autonomic Nervous system

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Lecture/SGD- 6/3

Hours Assessment: Written, Viva voce

PH1.13 Describe mechanism of action, types, doses, side effects, indications and contraindications of adrenergic and anti-adrenergic drugs

- 1.13.1 Describe the organization of autonomic nervous system
- 1.13.2 Describe the steps involved in neurotransmission
- 1.13.3 Describe the synthesis, storage, release and fate of adrenergic transmitters
- 1.13.4 Classify adrenergic receptors with respect to their structure, localization and second messenger system

Adrenergic drugs

- 1.13.5 Classify adrenergic agonists based on their therapeutic uses and actions.
- 1.13.6 Describe the pharmacological effects of adrenaline and correlate the effects of their therapeutic uses and adverse effects
- 1.13.7 State the salient Pharmacokinetic features of adrenaline
- 1.13.8 Differentiate between adrenaline, nor-adrenaline, isoprenaline and dopamine with respect to pharmacological effects, adverse effects and therapeutic uses.
(Enumerate the Adverse effects, therapeutic uses and contraindication of most commonly used Adrenergic Drugs in therapy.)
- 1.13.9 Compare and contrast directly and indirectly acting sympathomimetics with examples
- 1.13.10 State the therapeutic uses and ADRs of indirectly acting sympathomimetics
- 1.13.11 State the precautions and contraindications of sympathomimetics

Antiadrenergic drugs

- 1.13.12 Classify α -adrenergic receptor antagonists, and compare and contrast selective α_1 antagonists with non-selective α antagonists
- 1.13.13 Describe the pharmacological effects and applied pharmacokinetics, ADRs, precautions and therapeutic uses of prazosin
- 1.13.14 State the advantages of other selective α_1 antagonist over prazosin, correlating the same with their therapeutic use
- 1.13.15 Classify β -adrenergic receptor antagonists with examples
- 1.13.16 Describe the pharmacological effects, pharmacokinetics, ADRs, precautions and contraindications of β -adrenergic receptor antagonists
- 1.13.17 State the therapeutic uses of β -blockers giving pharmacological basis for their use
- 1.13.18 State the advantages of selective β_1 antagonists over non-selective β antagonists correlating the same with their therapeutic uses and ADRs
- 1.13.19 Mention the β -blockers with (ISA) intrinsic sympathomimetic activity giving their advantages and indications
- 1.13.20 Mention the β -blocker of choice with rationale for the following clinical conditions- Glaucoma, CHF, angina, hypertension, thyrotoxicosis, pheochromocytoma, arrhythmias
- 1.13.21 List the various preparations of β blockers with their routes of administration. (State the β -blockers that can be given by IV route)

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PH1.14 Describe mechanism of action, types, doses, side effects, indications and contraindications of cholinergic and anticholinergic drugs

Cholinergic transmission and Cholinergic drugs

- 1.14.1 Describe the synthesis, storage, release and fate of cholinergic transmitters
- 1.14.2 List the sites where acetylcholine is released
- 1.14.3 Classify cholinergic receptors with their structure, localization and second messenger system
- 1.14.4 Classify cholinomimetic drugs
- 1.14.5 Describe the pharmacological effects of directly acting cholinomimetic drugs
- 1.14.6 Compare the effects of muscarinic agonists on the basis of selectivity and therapeutic uses, adverse effects and contraindications
- 1.14.7 Describe the metabolism of acetylcholine
- 1.14.8 Classify anti-cholinesterase agents
- 1.14.9 Compare the various reversible anti-cholinesterases with respect to their pharmacological properties and therapeutic uses
- 1.14.10 Outline the management of myasthenia gravis
- 1.14.11 State the signs and symptoms of organophosphate compound poisoning
- 1.14.12 Outline the treatment of organophosphorus poisoning with rationale
- 1.14.13 Explain the term enzyme aging and its clinical significance
- 1.14.14 Explain how the treatment of organochlorine compound poisoning differs from that of organophosphate compound poisoning

Anticholinergic drugs

- 1.14.15 Classify cholinergic receptor antagonists giving examples of muscarinic and nicotinic (Nn: ganglion, Nm: Neuromuscular) blockers
- 1.14.16 List the anticholinergic side effects
- 1.14.17 Compare and contrast atropine and hyoscine
- 1.14.18 State the salient pharmacokinetic features of atropine and its substitutes
- 1.14.19 List the adverse drug reactions of anticholinergic drugs
- 1.14.20 List the contraindications to anticholinergic drugs
- 1.14.21 State the advantages of atropine substitutes over atropine and state their clinical uses giving suitable examples
- 1.14.22 List the major clinical indications of atropine

Skeletal Muscle Relaxants



PH1.15 Describe mechanism of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants

- 1.15.1 Define skeletal muscle relaxant.
- 1.15.2 Classify skeletal muscle relaxants.
- 1.15.3 Explain mechanisms of action of skeletal muscle relaxants
- 1.15.4 Compare and contrast (competitive) non-depolarizing blockers and persistent depolarizing blockers.
- 1.15.5 Describe the pharmacokinetics of skeletal muscle relaxants.
- 1.15.6 Uses of skeletal muscle relaxants.

- 1.15.7 Describe the important drug interactions and adverse effects that occur with skeletal muscle relaxants.
- 1.15.8 Discuss the advantages of newer neuromuscular blockers over the older ones.
- 1.15.9 Compare centrally and peripherally acting skeletal muscle relaxants.

Autocoids and related Drugs

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Lecture/SGD/SDL - 3/4/1 Hour

Assessment: Written / Viva voce

PH1.16 Describe mechanism of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti-histaminic, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine

Histamine and Antihistaminics

- 1.16.1 Understand the role of histamine and bradykinin in various physiological and pathophysiological processes.
- 1.16.2 Understand the mechanisms of action of drugs that act as antagonists of the H₁ receptor.
- 1.16.3 Know the therapeutic utility of H₁-receptor antagonists, alone and in combination with other agents.
- 1.16.4 Know the important adverse effects of H₁-receptor antagonists, and the difference between first- and second-generation H₁ antihistamines with regard to adverse effects.
- 1.16.5 Outline the treatment of Vertigo.

5-Hydroxytryptamine, its Antagonists and Drug Therapy of Migraine

- 1.16.6 Describe the synthesis, storage and destruction of 5-Hydroxytryptamine.
- 1.16.7 Name and describe the salient features of important 5-HT receptor subtypes.
- 1.16.8 Describe the pharmacological actions and pathophysiological roles of 5-Hydroxytryptamine
- 1.16.9 Describe drugs affecting 5HT system.
- 1.16.10 Describe mechanism of action, therapeutic uses and side effects of 5HT modulating drugs.
- 1.16.11 Understand the pathophysiology of migraine.
- 1.16.12 Describe the mechanism of action, adverse effects, contraindications and important drug interactions of anti-migraine drugs
- 1.16.13 Describe the management of migraine and the drugs used for prophylaxis of migraine

Nonsteroidal Antiinflammatory Drugs and Antipyretic-Analgesics

- 1.16.14 Classify Non-steroidal Anti-inflammatory drugs based on selectivity of COX enzyme.
- 1.16.15 Explain mechanism of action of NSAIDs.
- 1.16.16 Compare and contrast features of nonselective COX inhibitors and selective COX -2 inhibitors and enumerate the concerns with selective COX 2 inhibitors.
- 1.16.17 Describe pharmacokinetics and pharmacological actions of NSAIDs.
- 1.16.18 Describe the therapeutic uses of NSAIDs and enumerate doses of most commonly used NSAIDs.
- 1.16.19 List out the adverse effects, drug interactions and necessary precautions and contraindications to be followed with NSAIDs.
- 1.16.20 Outline the management of Salicylate poisoning and Paracetamol poisoning.
- 1.16.21 Describe guidelines for choice of non-steroidal anti-inflammatory drugs.
- 1.16.22 Enumerate the analgesic combinations in common use and discuss about topical NSAIDs.
- 1.16.23 Discuss the rationality of analgesic combinations and topical NSAIDs.

Antirheumatoid and Antigout Drugs

- 1.16.24 Explain pathophysiology of rheumatoid arthritis and understand the goals of drug therapy in rheumatoid arthritis.
- 1.16.25 Classify drugs used in rheumatoid arthritis.
- 1.16.26 Describe the mechanism of action and pharmacological actions of antirheumatic drugs.
- 1.16.27 Describe the adverse effects of antirheumatic drugs and enumerate the doses of commonly used antirheumatic drugs.
- 1.16.28 Explain the pathophysiology of Gout.
- 1.16.29 Classify drugs used for Gout.
- 1.16.30 Describe mechanism of action and pharmacological actions of drugs used for Gout.
- 1.16.31 Describe the therapeutic uses of drugs used for Gout and enumerate the doses of commonly used drugs for Gout.
- 1.16.32 Discuss the adverse effects, precautions and contraindications of drugs used for Gout.
- 1.16.33 Explain the management of Gout.

Local Anaesthetics



Lecture -1 Hour



Assessment: Written/Viva voce

PH1.17 Describe the mechanism of action, types, doses, side effects, indications and contraindications of local anesthetics

- 1.17.1 Define local anaesthetics.
- 1.17.2 Classify local anaesthetics.
- 1.17.3 Distinguish between the comparative features of general and local anaesthesia.
- 1.17.4 Compare features of amide linked local anaesthetics and ester linked local anaesthetics.
- 1.17.5 Describe mechanism of action, local and systemic actions of local anaesthetics.
- 1.17.6 Describe pharmacokinetics and enumerate the doses of commonly used local anaesthetics.
- 1.17.7 Describe the adverse effects, precautions and drug interactions with local anaesthetics.

- 1.17.8 Describe the indications for local anaesthetics and various dosage forms of lignocaine.
- 1.17.9 Describe the techniques of administration of local anaesthetics and their relevance in clinical practice.
- 1.17.10 Explain the complications of spinal anaesthesia.
- 1.17.11 Explain rationale of combining local anaesthetics with adrenal line and clinical significance

General Anaesthetics

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Lecture - 2 Hours

Assessment: Written/Viva voce

PH 1.18 Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre-anesthetic medications

- 1.18.1 Define general anaesthesia and explain stages of General Anaesthesia.
- 1.18.2 Describe the mechanisms of action of general anaesthetics.
- 1.18.3 Enumerate the properties of ideal general anaesthetics
- 1.18.4 Classify general anaesthetics
- 1.18.5 Explain the pharmacokinetics of general anaesthetics.
- 1.18.6 Describe the pharmacological actions and important adverse effects of general anaesthetics.
- 1.18.7 Enumerate the complications and the important drug interactions with general anaesthetics.
- 1.18.8 Define pre-anesthetic medication with the aims of pre-anesthetic medication and rationality of use of drugs as pre-anesthetic medication.
- 1.18.9 What is balanced anaesthesia and components
- 1.18.10 Compare and contrast nitrous oxide and halothane
- 1.18.11 Enumerate intravenous anaesthetic agents

Central Nervous System

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Lecture/SGD: 8/1

Hours Assessment: Written/Viva

voce

PH 1.19 Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti-psychotic, anti-depressant drugs, anti-manic, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti-epileptics drugs) Sedatives – hypnotics/ Anxiolytic drugs

- 1.19.1 Define Sedatives and Hypnotics.
- 1.19.2 Describe the different phases of Sleep.
- 1.19.3 Classify Sedative and Hypnotics.
- 1.19.4 Describe the mechanism of action, pharmacokinetics and pharmacological actions of Sedative hypnotics.
- 1.19.5 Describe adverse effects and precautions with long term use and important drug interactions with Sedative and Hypnotics.
- 1.19.6 Describe therapeutic uses of Sedative and Hypnotics.

- 1.19.7 Describe the management of different types of Insomnia.
- 1.19.8 Describe the management of Sedative and Hypnotic overdose.
- 1.19.9 Discuss the use of melatonin in disturbed biorhythms and sleep disorders.
- 1.19.10 Define Anxiety and Anxiolytics.
- 1.19.11 Classify Anxiolytics.
- 1.19.12 Describe pharmacological actions of Anxiolytics.
- 1.19.13 Describe the management of Anxiety
- 1.19.14 Enumerate doses of commonly used sedative hypnotics & anxiolytics.

Antipsychotic drugs

- 1.19.15 Define Psychosis. And enumerate the different types of Psychiatric illness.
- 1.19.16 Explain the pathophysiology of Psychoses.
- 1.19.17 Classify Psychotropic drugs and Antipsychotic drugs.
- 1.19.18 Describe the pharmacokinetics, mechanism of action and pharmacological actions of Antipsychotic drugs.
- 1.19.19 Describe the adverse effects and drug interactions of Antipsychotic drugs.
- 1.19.20 Describe the therapeutic uses of Antipsychotic drugs.
- 1.19.21 Explain the advantages of second-generation Antipsychotic over conventional drugs.

Anti-depressants and Antimanic Drugs

- 1.19.22 Define Depression.
- 1.19.23 Explain the pathophysiology of Depression.
- 1.19.24 Classify Antidepressant drugs.
- 1.19.25 Describe the mechanism of Antidepressant action.
- 1.19.26 Describe the pharmacokinetics and pharmacological actions of Antidepressants.
- 1.19.27 Describe the adverse effects and drug interactions with Antidepressants.
- 1.19.28 Outline the management of acute poisoning with tricyclic antidepressants.
- 1.19.29 Describe the therapeutic uses of Antidepressants including those other than depression.
- 1.19.30 Define Mania.
- 1.19.31 Explain the pathophysiology of Mania.
- 1.19.32 Classify Antimanic drugs.
- 1.19.33 Describe mechanisms of action of Lithium.
- 1.19.34 Describe the pharmacokinetics and pharmacological actions of Lithium.
- 1.19.35 Describe the adverse effects and drug interactions of Lithium.
- 1.19.36 Describe the therapeutic uses of Lithium and newer drugs used for mania with their status in management of mania
- 1.19.37 Describe Psychotomimetic drugs.

Opioid Analgesics and Antagonists

- 1.19.38 Define Algesia (Pain). classify pain, Explain the pain pathway and WHO pain ladder.
- 1.19.39 Define and Classify Analgesics.
- 1.19.40 Classify Opioid Agonists and Antagonists.
- 1.19.41 Describe mechanism of action of Opioid Analgesics.
- 1.19.42 Describe pharmacokinetics and pharmacological actions of Opioid Analgesics.
- 1.19.43 Describe adverse effects, precautions and contraindications with Opioid analgesics.
- 1.19.44 Describe types of Opioid receptors.
- 1.19.45 Explain about complex action Opioids- Nalorphine, Pentazocine, Butorphanol, Nalbuphine, Buprenorphine.

- 1.19.46 Describe pure Opioid antagonists and their therapeutic uses.
- 1.19.47 Enumerate endogenous Opioid peptides.
- 1.19.48 Discuss opioid dependence and addiction.
- 1.19.49 Explain treatment of morphine poisoning.

Anti-epileptic drugs

- 1.19.50 Describe Epilepsy and the types of Epilepsy.
- 1.19.51 Classify Antiepileptic drugs.
- 1.19.52 Explain the pathophysiology of Epilepsy.
Describe mechanism of action and pharmacological action of Antiepileptic drugs.
- 1.19.54 Describe the adverse effects and important drug interactions of Antiepileptic drugs.
- 1.19.53 1.19.55 Explain the management of different types of Epilepsy including Status Epilepticus.
- 1.19.56 Enumerate the doses of commonly used Antiepileptic drugs.
- 1.19.57 Mention the non-epileptic uses of anti-epileptic drugs.

Drugs for Neurodegenerative disorders – Antiparkinsonian drugs and Cognition enhancers

- 1.19.58 Describe Parkinsonism and its pathophysiology.
- 1.19.59 Classify Antiparkinsonian drugs.
- 1.19.60 Describe mechanism of action of Antiparkinsonian drugs.
- 1.19.61 Describe pharmacokinetics and pharmacological actions of Antiparkinsonian drugs.
- 1.19.62 Describe the adverse effects and their management, important drug interactions of Levodopa.
- 1.19.63 Describe Alzheimer's disease and its pathophysiology.
- 1.19.64 Classify Cognition enhancers.
- 1.19.65 Describe drugs used in Alzheimer's disease.

Alcohol

- ☐ _____
- ☐ _____

SGD-1 Hour
Assessment: Written/Viva voce

PH1.20 Describe the effects of acute and chronic ethanol intake

- 1.20.1 Classify alcoholic beverages based on their alcohol content.
- 1.20.2 Describe pharmacological effects of acute and chronic ethanol intake.
- 1.20.3 Describe the pharmacokinetics of ethanol.
- 1.20.4 Describe the important drug interactions with ethanol principles of alcohol dependence and addiction.
- 1.20.5 Describe drugs used in alcohol dependence and addiction.
- 1.20.6 Explain the therapeutic uses of alcohol.

Methanol and Ethanol poisoning

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- ☐ _____

SGD-1 Hour
Assessment: Written/Viva voce

PH1.21 Describe the symptoms and management of methanol and ethanol poisonings

- 1.21.1 Describe the symptoms of methanol poisoning.
- 1.21.2 Explain the mechanism of methanol poisoning.

- 1.21.3 Describe the management of methanol poisoning.
- 1.21.4 Describe the symptoms of ethanol poisoning.
- 1.21.5 Explain the mechanism of ethanol poisoning.
- 1.21.6 Describe the management of ethanol poisoning.

Drugs of Abuse

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- ☐ _____

SGD-1 Hour

Assessment: Written/Viva voce

PH1.22 Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)

- 1.22.1 Define drug addiction and drug dependence.
- 1.22.2 List the pharmacological classes of drugs of abuse.
- 1.22.3 Classify the drugs of abuse based on the CNS effects (stimulants, depressants, hallucinogens) with examples.
- 1.22.4 Give examples of hallucinogens.
- 1.22.5 Describe the source, pharmacological effects, withdrawal symptoms and the management of cocaine addiction.
- 1.22.6 Describe the source, pharmacological effects, withdrawal symptoms and the management of barbiturate addiction.
- 1.22.7 Describe the source, signs and symptoms and withdrawal symptoms of morphine addiction and its management.
- 1.22.8 Describe the source, signs and symptoms of addiction to and withdrawal symptoms and management of cannabis addiction.
- 1.22.9 Enumerate the drugs of abuse associated with criminal offences.
- 1.22.10 Enumerate club drugs, the signs and symptoms of their addiction, withdrawal symptoms and management of their addiction.

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SGD-1 Hour

Assessment: Written/Viva voce

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PH1.23 Describe the process and mechanism of drug addiction

- 1.23.1 Outline the general principles and steps in the management of drug addiction.
- 1.23.2 Explain the mechanism of action of the drugs used in drug addiction.

Drugs acting on Kidney

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Lecture/ SDL-3/1

Hours Assessment: Written, Viva voce

PH 1.24 Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of the drugs affecting renal systems including diuretics, antidiuretic s- vasopressin and analogues

- 1.24.1 Explain the transport of electrolytes at proximal convoluted tubule, loop of Henle, distal convoluted tubule and the collecting duct.
- 1.24.2 Classify diuretics based on their efficacy with examples.

- 1.24.3 Indicate the site of action of all classes of diuretics.
- 1.24.4 Explain the mechanism of action, pharmacological actions and adverse effects of Thiazide diuretics.
- 1.24.5 Explain the mechanism of action, pharmacological actions and adverse effects of Loop diuretics
- 1.24.6 Explain the mechanism of action and pharmacological actions and adverse effects of potassium sparing diuretics.
- 1.24.7 Explain the mechanism of action and pharmacological actions and adverse effects of osmotic diuretics.
- 1.24.8 Describe the therapeutic uses of diuretics with their rationale.
- 1.24.9 Briefly describe the carbonic anhydrase inhibitors and their current uses.
- 1.24.10 Enumerate doses, routes of administration and preparations of hydrochlorothiazide, furosemide, amiloride, eplerenone, triamterene
- 1.24.11 Classify vasopressin receptors
- 1.24.12 Describe the physiological actions of Vasopressin
- 1.24.13 Classify anti-diuretic drugs
- 1.24.14 Enumerate the vasopressin analogues
- 1.24.15 Describe the adverse effects of Vasopressin.
- 1.24.16 Describe the therapeutic uses of Vasopressin and its analogues explaining the rationale behind their use
- 1.24.17 Mention vasopressin antagonist and its clinical uses

Drugs affecting Blood

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Lecture/ SDL-3/ 1
Hours Assessment: Written, Viva voce

PH1.25 Describe the mechanism/ site of action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders

Coagulants and Anti-coagulants

- 1.25.1 Describe the coagulation cascade
- 1.25.2 Define the role of coagulants with examples
- 1.25.3 Enumerate the coagulants used clinically
- 1.25.4 Explain the mechanism of anti-coagulant action, adverse effects and therapeutic uses of Vitamin K.
- 1.25.5 Classify anti-coagulants based on their mechanism of action with examples.
- 1.25.6 Describe the pharmacological actions, pharmacokinetics and adverse effects of Heparin
- 1.25.7 Explain the therapeutic uses and contraindications to Heparin.
- 1.25.8 Describe the advantages and disadvantages of low molecular weight heparin.
- 1.25.9 Enumerate the preparations, routes and dose of Heparin.
- 1.25.10 Describe the treatment of Heparin overdose
- 1.25.11 Compare the anticoagulant actions of Heparin with fondaparinux.
- 1.25.12 Describe the mechanism of action, pharmacokinetics and actions of Warfarin
- 1.25.13 Describe the adverse effects and therapeutic uses of Warfarin.
- 1.25.14 Explain the dose regulation and monitoring of patients while on anti-coagulants with reference to parameters such as INR and APTT.
- 1.25.15 Explain the drug interactions of warfarin

- 1.25.16 Give examples of Direct factor Xa inhibitor and explain their advantages over Warfarin.
- 1.25.17 Explain the advantages and disadvantages of dabigatran over warfarin as anti-coagulant
- 1.25.18 Describe how anti-coagulant therapy is monitored

Fibrinolytic and Antifibrinolytic drugs

- 1.25.19 Define fibrinolysis and its mechanisms
- 1.25.20 Enumerate fibrinolytics
- 1.25.21 Describe the actions, adverse effects and advantages of alteplase over streptokinase
- 1.25.22 Describe the therapeutic uses of fibrinolytics
- 1.25.23 Describe the contra-indications to fibrinolytics
- 1.25.24 Describe anti-fibrinolytics and its application
- 1.25.25 Explain the mechanism of action, indications and therapeutic uses of Tranexamic acid

Antiplatelets

- 1.25.26 Define the functions of platelets in cardiovascular diseases
- 1.25.27 Classify anti-platelet drugs based on their mechanisms of action with examples
- 1.25.28 Compare aspirin, dipyridamol and clopidogrel as anti-platelet agents
- 1.25.29 Describe the therapeutic uses of anti-platelet agents with the rationale for their use in the conditions mentioned
- 1.25.30 Describe the indications for the use of newer antiplatelet agents
- 1.25.31 Compare the newer anti-platelet drugs with aspirin

Plasma Expanders

- 1.25.32 Define plasma expanders
- 1.25.33 Classify plasma expanders with examples
- 1.25.34 Describe the mechanism of action of crystalloids and colloids
- 1.25.35 Explain the detailed composition of crystalloids
- 1.25.36 Compare crystalloids and colloids
- 1.25.37 Describe the adverse effects and precautions while using plasma expanders
- 1.25.38 Describe the therapeutic uses of plasma expanders

Drugs affecting Renin Angiotension and Aldosterone system

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Lecture/ SDL–1/ 2

Hours Assessment: Written, Viva voce

PH1.26 Describe mechanism of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin- angiotensin and aldosterone system

- 1.26.1 Explain the physiology of renin angiotensin system
- 1.26.2 Describe the patho-physiological action of Angiotensin-II with reference to the location of its receptors
- 1.26.3 Enumerate the drugs that modulate Renin angiotensin system
- 1.26.4 Enumerate the Angiotensin converting enzyme inhibitors (ACEIs)
- 1.26.5 Describe the mechanism of action and pharmacological action of Angiotensin converting enzyme inhibitors

- 1.26.6 Describe the adverse effects and therapeutic uses of ACE inhibitors explaining the rationale for their uses
- 1.26.7 Indicate the route, dose and preparation of enalapril, Lisinopril
- 1.26.8 Enumerate Angiotensin receptor blockers (ARBs) used clinically
- 1.26.9 Describe the pharmacological actions, adverse effects, and therapeutic uses of ARBs
- 1.26.10 Describe the advantages of ARBs over ACEIs
- 1.26.11 Explain the mechanism of action, pharmacokinetics, therapeutic uses and adverse effects of Aliskiren

Antihypertensive Drugs and drugs used in Shock

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Lecture/ SGD–1/ 2

Hours Assessment: Written, Viva voce

PH 1.27 Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock

- 1.27.1 Define the categories of hypertension as per JNC7 and JNC8 criteria
- 1.27.2 Describe the pathophysiology of hypertension
- 1.27.3 Classify anti-hypertensives with examples
- 1.27.4 Describe the mechanism of antihypertensive action, anti-hypertensive effects, adverse effects and drug interactions, dose, routes of administration and uses of Diuretics in hypertension
- 1.27.5 Describe the mechanism of antihypertensive action, anti-hypertensive effects, adverse effects, drug interactions, dose, routes of administration and uses of ACE inhibitors in hypertension
- 1.27.6 Describe the mechanism of antihypertensive action, anti-hypertensive effects, adverse effects, drug interactions, dose routes of administration and uses of calcium channel blockers in hypertension
- 1.27.7 Describe the mechanism of antihypertensive action, anti-hypertensive effects, adverse effects, drug interactions, dose routes of administration and uses of beta blockers in hypertension
- 1.27.8 Enumerate the sympatholytic used in the management of hypertension
- 1.27.9 Explain the mechanism of action, adverse effects and indications for the use of sympatholytic.
- 1.27.10 Explain the management of hypertensive crisis
- 1.27.11 Describe the mechanism of antihypertensive action, anti-hypertensive effects, adverse effects, drug interactions, and use of alpha blockers in hypertension.
- 1.27.12 Describe the mechanism of antihypertensive action, anti-hypertensive effects, adverse effects, drug interactions, dose routes and uses of Vasodilators in hypertension
- 1.27.13 Discuss which drugs are used in combination in the management of Hypertension.
- 1.27.14 Describe which drugs are most effective in treating individual hypertensive patients with specific comorbidities, including diabetes mellitus, congestive heart failure, and renal disease.
- 1.27.15 Pharmacotherapy of Pulmonary Hypertension and Orthostatic hypotension.
- 1.27.16 Management of Hypertension during pregnancy.

Pharmacotherapy of Shock

- 1.27.17 Define shock
- 1.27.18 Enumerate the types of shock
- 1.27.19 Explain the pathophysiology of shock
- 1.27.20 Describe the pharmacological management of anaphylactic shock

- explaining the rationale for the use of drugs used in the management
- 1.27.21 Describe the pharmacological management of hypovolemic shock explaining the rationale for the use of drugs used in the management
- 1.27.22 Describe the pharmacological management of cardiogenic shock explaining the rationale for the use of drugs used in the management.

Pharmacotherapy of Angina pectoris, Acute MI and PVD

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Lecture/ SGD-2/ 1

Hours Assessment: Written, Viva voce

PH1.28 Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease

- 1.28.1 Define angina pectoris
- 1.28.2 Explain the various types of angina pectoris describing their underlying pathology
- 1.28.3 Classify anti-anginal drugs
- 1.28.4 Describe the mechanism of action, pharmacological actions, adverse effects and therapeutic uses of nitrates
- 1.28.5 Describe the routes of administration, doses and preparations of Nitrates
- 1.28.6 Classify Calcium channel blockers.
- 1.28.7 Describe the mechanism of action, pharmacological actions, adverse effects and therapeutic uses of calcium channel blockers
- 1.28.8 Mention the routes of administration, doses and preparations of Nifedipine and amlodipine
- 1.28.9 Mention the unique features of Felodipine, Nitrendipine, Cilnidipine, Nicardipine and Nimodipine
- 1.28.10 Compare Dihydropyridines with Phenylalkylamines
- 1.28.11 Describe the anti-anginal actions, adverse effects and contra-indications to beta blockers
- 1.28.12 Describe the mechanism of action, anti-anginal actions, adverse effects and the indication for the use of potassium channel openers (nicorandil) in angina pectoris
- 1.28.13 Describe the anti-anginal actions and indications for the use of Trimetazidine in angina pectoris
- 1.28.14 Describe the anti-anginal actions and indications for the use of Ranolazine in angina pectoris
- 1.28.15 Describe the anti-anginal actions and indications for the use of Ivabradine in angina pectoris
- 1.28.16 Explain the pathophysiology of myocardial infarction
- 1.28.17 Explain the steps in the use of drugs in myocardial infarction with the rationale for using them
- 1.28.18 Describe the pathophysiology of peripheral vascular disease (PVD)
- 1.28.19 Classify the drugs used in PVD
- 1.28.20 Describe the mechanism of action, pharmacological actions, adverse effects, dose and uses of Pentoxifylline.
- 1.28.21 Describe the mechanism of action, pharmacological actions, adverse effects, dose and uses of Cilostazol.

Pharmacotherapy of Heart Failure

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Lecture—1 Hour

Assessment: Written, Viva voce

PH1.29 Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure

- 1.29.1 Describe the stages of heart failure and the treatments that are recommended at each stage.
- 1.29.2 Describe the rationale for the use of drugs that prevent and slow the progression of heart failure
- 1.29.3 Describe the mechanism of action of inotropic drugs and how they are used to maintain left ventricular function.
- 1.29.4 Identify the major side effects and adverse drug reactions of the drugs used to treat heart failure.
- 1.29.5 Describe the Management of Digitalis Toxicity

Pharmacotherapy of Cardiac Arrhythmias (Non Core)

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SDL/ Lecture—1/ 1

Hour Assessment: Written, Viva voce

PH1.30 Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the antiarrhythmics

- 1.30.1 Describe the principles of cardiac electrophysiology especially the ion channels, exchangers, and pumps that are targets of antiarrhythmic drugs.
- 1.30.2 Describe the mechanisms that cause cardiac arrhythmias.
- 1.30.3 Describe the common and important tachyarrhythmias and their mechanisms.
- 1.30.4 Describe the mechanisms and classification of antiarrhythmic drugs.
- 1.30.5 Describe the principles of antiarrhythmic drug pharmacotherapy
- 1.30.6 Describe the pharmacological, pharmacokinetic, and adverse effects of specific antiarrhythmic agents.

Hypolipidaemic drugs

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Lecture / SDL—1/ 1

Hour Assessment: Written, Viva voce

PH1.31 Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemias

- 1.31.1 Describe lipid metabolism, different classes of lipoproteins and their formation
- 1.31.2 Describe the pathophysiology of primary and secondary hyperlipidaemias
- 1.31.3 Mention the classification of hypolipidaemic drugs based on mechanism of action
- 1.31.4 Describe the mechanism of action, pleiotropic effects, indications adverse effects, drug interactions of statins
- 1.31.5 Compare the features of all statins
- 1.31.6 Describe the mechanism of action, indications adverse effects, drug interactions of Resins, ezetimibe, niacin, fibric acid derivatives
- 1.31.7 Describe the combination therapy in dyslipidaemia
- 1.31.8 Discuss which patients with dyslipidaemia should be treated and when

treatments should be initiated.

- 1.31.9 Discuss which drugs are most effective in treating patients with different dyslipidaemias.
1.31.10 Describe the non-pharmacological treatment including natural agents

Drugs used in Bronchial Asthma and COPD

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Lecture -2Hours

Assessment: Written, Viva voce

PH- 1.32 Describe the mechanism/ s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD

- 1.32.1 Describe the patho-physiology of Bronchial Asthma and COPD
1.32.2 Classification of anti-asthmatic drugs
1.32.3 Discuss the mechanism of action, pharmacokinetics, Adverse effects, status, merits and demerits of beta2 agonists, methyl xanthines, corticosteroids, anti-cholinergics, mast cell stabilizers, leukotriene antagonists, anti IgE antibodies in asthma.
1.32.4 Discuss inhaled medication in bronchial asthma
1.32.5 Describe the stepwise management of Bronchial asthma (GINA guidelines)
1.32.6 Describe the management of acute severe asthma with the help of a case scenario
1.32.7 Enumerate the various inhalational devices available in India
1.32.8 Describe the advantages and disadvantages of MDI, rotahaler, use of spacer, nebulizer

Pharmacotherapy of cough

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SGD-1Hour

Assessment: Written/Viva voce

PH- 1.33 Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussive s, expectorant s/ mucolytics)

- 1.33.1 Explain the cough pathway.
1.33.2 Enumerate various causes of cough State
1.33.3 the various causes of cough Classify
1.33.4 the drugs used in cough
1.33.5 Explain the mechanism of action, indications and adverse effects of pharyngeal demulcents, expectorants, mucolytics and anti-tussive with examples
1.33.6 List the drugs that induce cough and bronchospasm
1.33.7 Comment on the preparations available in Indian market for cough

Drugs used in Disorders of Gastrointestinal Tract

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Lecture/ SGD/SDL -1/3/1Hours

Assessment: Written/Viva voce

PH- 1.34- Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below:

Acid-peptic disease and GERD **Antiemetics**
and prokinetics Antidiarrhoeals
Laxatives

Inflammatory Bowel Disease

Irritable Bowel disorders, Biliary and Pancreatic disorders.

- 1.34.1 Explain the physiology of vomiting and role of various neurotransmitters
- 1.34.2 Classification of anti-emetics based on mechanism of action
- 1.34.3 Describe the mechanism of action, pharmacological effects, adverse effects and indications of antidopaminergics, antihistaminic, anticholinergics, 5HT₃ antagonists, NK₁ antagonists, cannabinoid receptor antagonists, steroids which are used as antiemetics
- 1.34.4 Enumerate the drug of choice for various clinical scenarios, such as post-operative vomiting, cancer chemotherapy induced vomiting etc
- 1.34.5 Enumerate drugs used in vomiting during pregnancy
- 1.34.6 Enumerate the drugs that cause emesis.
- 1.34.7 Compare and contrast Metoclopramide and Domperidone
- 1.34.8 Pathophysiology of gastric acid secretion
- 1.34.9 Identify the sites in the gastric parietal cell where drugs act to suppress acid secretion.
- 1.34.10 Describe the mechanism of action of proton pump inhibitors, H₂ receptor antagonists, and prostaglandin analogs to suppress gastric acid secretion.
- 1.34.11 Describe the limitations to the use of H₂ receptor antagonists in chronic acid suppression.
- 1.34.12 Identify potential drug interactions with proton pump inhibitors and H₂ receptor antagonists
- 1.34.13 Describe the mechanism of action of drugs that enhance gastric cytoprotection.
- 1.34.14 Describe the recommendations for the therapy of gastroesophageal reflux disease (GERD)
- 1.34.15 Explain the pathophysiology of constipation
- 1.34.16 Classify laxatives/purgatives
- 1.34.17 Explain the mechanism of action, indications, contra-indications and adverse effects of bulk laxatives, stool softener, stimulant purgative, osmotic purgative and 5HT₄ agonists
- 1.34.18 Mention the laxative of choice in bedridden patients, pregnancy, post-operative, functional constipation
- 1.34.19 Classify anti-diarrheal agents.
- 1.34.20 Enumerate the principles of management of Diarrhea with rationale for its composition
- 1.34.21 Discuss the advantages of New formula WHO-ORS versus the older composition.
- 1.34.22 Explain the role of Zinc in pediatric diarrhea
- 1.34.23 Explain the mechanism of action, indications, contra-indications and adverse effects of opioids, anticholinergics, PG inhibitors, chloride channel inhibitor, racecadotril and probiotics
- 1.34.24 Explain the pathophysiology and pharmacotherapy of Irritable bowel syndrome
- 1.34.25 Explain the pathophysiology and pharmacotherapy of Inflammatory bowel disorder, Acute pancreatitis
- 1.34.26 Explain the pancreatic enzyme replacements and drugs that inhibit formation of gallstones

Drugs affecting Blood Formation

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SDL/ SGD - 1/2

Hours Assessment: Written/Viva voce

PH1.35- Describe the mechanism/sof action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like:

Drugs used in anemias
Colony Stimulating factors

- 1.35.1 Define anaemias and describe the types and causes of anaemia

- 1.35.2 State the role of iron, its sources, requirements, iron absorption, factors that reduce and enhance iron absorption
- 1.35.3 List the oral and parenteral iron preparations with merits and demerits and specific indications
- 1.35.4 Define megaloblastic anaemia
- 1.35.5 State the role of vitamin B12, Folic acid, along with sources and daily requirements
- 1.35.6 State the vitamin B12 preparations
- 1.35.7 State the indications for use of erythropoietin
- 1.35.8 Describe the various types of colon stimulating factors with their approved indications (Cancer chemotherapy)

Drugs used in Endocrine Disorders



Lecture/ SDL/ SGD-3/1/1Hours

Assessment: Written/Viva voce

PH1.36-Describe the mechanism of action, types, doses, side effects indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)

Diabetes Mellitus

- 1.36.1 Describe the mechanisms of action of insulin and the oral antidiabetic drugs.
- 1.36.2 Describe the components for management of the diabetic patient including the goals of therapy.
- 1.36.3 Describe the pharmacotherapeutic options for the treatment of patients with type 1 or type 2 diabetes.
- 1.36.4 Describe the adverse effects of insulin and the oral antidiabetic drugs.
- 1.36.5 Describe the treatment of hypoglycemia.
- 1.36.6 Discuss the management of diabetic ketoacidosis and hyperosmolar (nonketotic) coma

Thyroid disorders

- 1.36.7 Discuss the principles of thyroid hormone regulation.
- 1.36.8 Describe the diagnosis and treatment of hypothyroidism and hyperthyroidism, including during pregnancy.
- 1.36.9 Describe the treatment options for well-differentiated thyroid cancer.

Osteoporosis

- 1.36.10 Describe calcium and phosphorus homeostasis.
- 1.36.11 Describe the roles of PTH, calcitonin, and vitamin D in calcium homeostasis.
- 1.36.12 Understand the concept of bone resorption and bone formation.
- 1.36.13 Describe the mechanism of action and untoward effects of bisphosphonates.
- 1.36.14 Describe the role of bisphosphonates in the prevention and treatment of osteoporosis.
- 1.36.15 Describe the pharmacological management of hypocalcemia and hypercalcemia.



Lecture/SGD-2/2hours



Assessment: Written/ Viva voce

☐ **PH1.37 Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used as sex hormones, their analogues and anterior Pituitary hormones**

- 1.37.1 Describe the functioning of the hypothalamic-pituitary axis
- 1.37.2 Describe the pharmacotherapy of GH excess and GH deficiency.
- 1.37.3 Develop knowledge of the clinical uses of gonadotropin-releasing hormone (GnRH) and its analogs.

Androgens and antiandrogens

- 1.37.4 Describe physiological secretion and regulation of androgens (natural and synthetic)
- 1.37.5 Describe mechanism of action, uses and adverse effects of different preparations of testosterone
- 1.37.6 Explain mechanism of action, uses and adverse effects of anabolic steroids and anti-androgens
- 1.37.7 Describe drug therapy of erectile dysfunction

Estrogens and Progestins

- 1.37.8 Describe physiological secretion and regulation of estrogen and progesterone
- 1.37.9 Describe the therapeutic uses and ADRs of postmenopausal hormonal replacement therapy
- 1.37.10 Describe mechanism of action, uses and adverse effects of selective estrogen receptor modulators, anti-estrogens and aromatase inhibitors
- 1.37.11 Describe mechanism of action, uses, adverse effects and contraindications of anti-progestins
- 1.37.12 Explain various drugs used in treatment of infertility

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Lecture -1 Hour

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Assessment: Written/Viva voce

PH1.38 Describe the mechanism of action, types, doses, side effects, indications and contraindications of corticosteroids

- 1.38.1 Explain physiology of biosynthesis, actions, hypo and hypersecretion of corticosteroids
- 1.38.2 Classify corticosteroid preparations
- 1.38.3 Describe distinctive features, uses, adverse effects and contraindications of various corticosteroid preparations
- 1.38.4 Understand the effect of abrupt cessation of glucocorticoid therapy.

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SGD-2 Hours

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Assessment: Written/Viva voce

PH1.39 Describe mechanism of action, types, doses, side effects, indications and contraindications of the drugs used for contraception

- 1.39.1 Classify female contraceptive preparations
- 1.39.2 Explain all types with mechanism of action, uses, adverse effects, contraindications and practical considerations of female contraceptives.

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Lecture– 2 Hours

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Assessment: Written/Viva voce

PH1.40 Describe mechanism of action, types, doses, side effects, indications and contraindications of

**Drugs used in the treatment of infertility, and
Drugs used in erectile dysfunction**

- 1.40.1 Describe the causes of infertility
- 1.40.2 Enumerate drugs used in the treatment of infertility
- 1.40.3 Describe the mechanism of action of drugs used in the treatment of infertility
- 1.40.4 Describe the therapeutic uses of drugs used in the treatment of infertility
- 1.40.5 Describe the precautions and contraindications of drugs used in the treatment of infertility
- 1.40.6 Describe the adverse effects of drugs used in the treatment of infertility
- 1.40.7 Describe drug interactions of drugs used in the treatment of infertility
- 1.40.8 Describe the causes of erectile dysfunction
- 1.40.9 Enumerate drugs used in erectile dysfunction
- 1.40.10 Describe the mechanism of action of drugs used in erectile dysfunction
- 1.40.11 Describe the therapeutic uses of drugs used in erectile dysfunction

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SGD-1 Hour

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Assessment: Written/Viva voce

PH 1.41 Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants

- 1.41.1 Classify uterine stimulants
- 1.41.2 Explain mechanism of action, uses, adverse effects and contraindications of each group
- 1.41.3 Classify uterine relaxants.
- 1.41.4 Explain mechanism of action, uses, adverse effects and contraindications of each group

Chemotherapy

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Lecture/SGD- 2/2 hours

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Assessment: Written/Viva voce

PH1.42 Describe general principles of chemotherapy General Principals

- 1.42.1 Classify the chemotherapeutic agents based on chemical structure, mechanism of action, source
- 1.42.2 Describe common problems encountered with use of chemotherapeutic agents
- 1.42.3 Describe anti-microbial resistance and discuss monitoring of antimicrobial therapy
- 1.42.4 Enumerate the factors to be considered for choosing an antimicrobial agent
- 1.42.5 Mention the advantages and disadvantages of antimicrobial combination with examples

Sulfonamides & Quinolones

- 1.42.6 Explain the mechanism of action of sulfonamide drugs.
- 1.42.7 Explain the various sulfonamide drugs and categorize them according to their absorption from the gastrointestinal (GI) tract.
- 1.42.8 Explain the therapeutic uses and untoward effects of sulfonamide drugs including trimethoprim-sulfamethoxazole.
- 1.42.9 Describe the therapeutic uses, mechanisms of action, and toxicities of quinolone antibiotic drugs.

Betalactams

- 1.42.10 Explain the mechanisms of action of the penicillins, cephalosporins, and other β -lactam antibiotics.
- 1.42.11 Explain the mechanisms of resistance of the penicillins, cephalosporins, and other β -lactam antibiotics.
- 1.42.12 Describe the therapeutic effects of the penicillins, cephalosporins, and other β -lactam antibiotics.
- 1.42.13 Describe the untoward effects and contraindications of the penicillins, cephalosporins, and other β -lactam antibiotics.

Aminoglycosides

- 1.42.14 Explain aminoglycoside mechanisms of action and resistance.
- 1.42.15 Describe the advantages and disadvantages of multiple daily dosing versus once daily extended-interval dosing regimens for aminoglycosides.
- 1.42.16 Describe the rationale and the methods of plasma concentration monitoring of aminoglycoside therapy.
- 1.42.17 Describe the causes and clinical signs of aminoglycoside ototoxicity and nephrotoxicity and the best means of monitoring therapy to avoid these serious toxicities.
- 1.42.18 Explain the unique clinical differences among the aminoglycosides.
- 1.42.19 Describe the mechanisms of action and resistance of tetracyclines, macrolides, vancomycin, linezolid, daptomycin, and quinupristin/dalfopristin
- 1.42.20 Describe the unique toxicities of antibiotics that are inhibitors of bacterial protein synthesis
- 1.42.21 Describe the uses and untoward reactions of vancomycin
- 1.42.22 Explain the drug-drug interactions that occur with some of these antibiotics
- 1.42.23 Explain how linezolid, daptomycin, and quinupristin/dalfopristin are used to treat methicillin-resistant and vancomycin-resistant organisms

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SGD–4Hour

Assessment: Written, Vivavoce

PH1.43-Describe and discuss the rational use of antimicrobials including antibiotic stewardship program

- 1.43.1 Enumerate the factors influencing the antimicrobial selection, duration and dose
- 1.43.2 Define appropriate empiric antimicrobial prescribing
- 1.43.3 Highlight mechanisms by which microorganisms develop antimicrobial resistance
- 1.43.4 Understand the impact of pharmacodynamics, pharmacokinetics, bioavailability on development of antimicrobial resistance with examples
- 1.43.5 Understand the principles of antimicrobial selection for a specific infectious condition
- 1.43.6 Enumerate basic steps of prevention of antimicrobial resistance

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Lecture–1Hour

Assessment: Written, Vivavoce

PH1.44-Describe the first line anti-tubercular drugs, their mechanisms of action, side effects and doses

- 1.44.1 Discuss pathophysiology of tuberculosis.
- 1.44.2 Enumerate various anti-tubercular drugs.
- 1.44.3 Describe the mechanism of action and resistance to anti-tubercular drugs.
- 1.44.4 Describe the adverse effects and drug interactions commonly associated with anti-TB drugs.
- 1.44.5 Understand the rationale for combination drug therapy in the treatment of tuberculosis
- 1.44.6 Describe and discuss the salient features, diagnostic criteria and guidelines for treatment of tuberculosis under NTEP

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Lecture–1Hour

Assessment: Written, Vivavoce

PH1.45-Describe the drugs used in MDR and XDR Tuberculosis

- 1.45.1 Define MDR and XDR TB
- 1.45.2 List drugs, mechanism of action, indications, contraindications and adverse effects of drugs used in MDR and XDR Tuberculosis.
- 1.45.3 Explain the regimen for MDR and XDR tuberculosis

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Lecture–1Hour

Assessment: Written, Vivavoce

PH1.46-Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs

- 1.46.1 Describe the principles of anti-leprosy therapy.
- 1.46.2 Describe the mechanism of action, ADE, DI of antileprotic drugs
- 1.46.3 Discuss the management of leprosy and treatment of Leprosy reactions

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Lecture/ SGD–4/2

Hours Assessment: Written, Vivavoce

PH 1.47 -Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis

- 1.47.1 Describe the stages of the malaria parasite in the human body.
- 1.47.2 Classify antimalarial drugs into those that are effective against only the blood stages of the parasite, those that are effective against both the blood and liver stages, and those that are effective against only the liver stages of the parasite.
- 1.47.3 Explain the use of antimalarial drugs in clinical context, particularly with regard to their mechanism of action, therapeutic uses, and toxicities.
- 1.47.4 Describe the principles and guidelines for the chemoprophylaxis and treatment of malaria.
- 1.47.5 Define KALA-AZAR
- 1.47.6 Discuss pathophysiology of KALA-AZAR
- 1.47.7 Enumerate drugs used in KALA-AZAR
- 1.47.8 Describe the mechanism of action of drugs used in KALA-AZAR
- 1.47.9 Describe the therapeutic uses of drugs used in KALA-AZAR
- 1.47.10 Describe the precautions and contraindications of drugs used in KALA-AZAR
- 1.47.11 Describe the adverse effects of drugs used in KALA-AZAR
- 1.47.12 Describe the drug interactions of drugs used in KALA-AZAR
- 1.47.13 Describe the management of KALA-AZAR
- 1.47.14 Define amoebiasis
- 1.47.15 Discuss pathophysiology of amoebiasis
- 1.47.16 Enumerate drugs used for amoebiasis
- 1.47.17 Describe the mechanism of action of drugs used for amoebiasis
- 1.47.18 Describe the therapeutic uses of drugs used for amoebiasis
- 1.47.19 Describe the precautions and contraindications of drugs used for amoebiasis
- 1.47.20 Describe the adverse effects of drugs used for amoebiasis
- 1.47.21 Describe the drug interactions of drugs used for amoebiasis
- 1.47.22 Describe the management of amoebiasis
- 1.47.23 Describe the common helminth infections, the clinical symptoms, and the mainstays of therapy.
- 1.47.24 Describe the therapeutic uses of anthelmintic drugs.
- 1.47.25 Explain the mechanisms of action of anthelmintic drugs.
- 1.47.26 Describe the toxicities and contraindications of anthelmintic drugs

Lecture/ SGD–3/2

Hours Assessment: Written, Viva voce

PH1.48-Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV & Antifungal drugs

- 1.48.1 Define UTI
- 1.48.2 Discuss pathophysiology of UTI
- 1.48.3 Enumerate drugs used for UTI
- 1.48.4 Describe the mechanism of action of drugs used for UTI
- 1.48.5 Describe the therapeutic uses of drugs used for UTI
- 1.48.6 Describe the precautions and contraindications of drugs used for UTI
- 1.48.7 Describe the adverse effects of drugs used for UTI
- 1.48.8 Describe the drug interactions of drugs used for UTI
- 1.48.9 Describe the management of UTI

- 1.48.10 Define STD
- 1.48.11 Enumerate common STDs
- 1.48.12 Enumerate drugs used in STDs
- 1.48.13 Describe the mechanism of action of drugs used in STD
- 1.48.14 Describe the precautions and contraindications of drugs used in STD
- 1.48.15 Describe the adverse effects of drugs used in STD
- 1.48.16 Describe the drug interactions of drugs used in STD
- 1.48.17 Describe the management of STD
- 1.48.18 Describe the mechanisms of action and resistance of antifungal agents.
- 1.48.19 Describe the therapeutic uses of antifungal agents in the context of treatment for fungal diseases
- 1.48.20 Develop knowledge of the common and unique toxicities of antifungal agents.
- 1.48.21 Explain the drug-drug interactions that can occur with the use of azole antifungal agents
- 1.48.22 Explain the treatment of herpes virus infections and the use of anti-herpes drugs
- 1.48.23 Discuss the treatment strategies for chronic hepatitis B and C infections
- 1.48.24 Explain the mechanisms of action and resistance, and the therapeutic use of the anti-influenza agents
- 1.48.25 Discuss the principles of HIV chemotherapy as per National guidelines including HAART regimen
- 1.48.26 Describe the mechanisms of action and resistance, the untoward effects and the therapeutic uses of the drugs used to treat HIV infections

Anticancer drugs

- ☐ Lecture—2 Hours
- ☐ Assessment: Written, Viva voce

PH1.49 Describe mechanism of action, classes, side effects, indications and contraindications of anticancer drug

- 1.49.1 Discuss the general principles in chemotherapy of Cancer
- 1.49.2 Classify anticancer drugs
- 1.49.3 Describe the mechanism of action of Anticancer drugs
- 1.49.4 Describe the mechanisms of toxicity of cytotoxic antineoplastic agents on normal cells and strategies for reducing toxic effects
- 1.49.5 Enumerate the classes of agents typically used in treating specific cancers

Immunomodulators

- ☐ Lecture—1 Hour
- ☐ Assessment: Written, Viva voce

PH1.50 Describe mechanisms of action, types, doses, side effects, indications and contraindications of immunomodulators and management of organ transplant rejection

- 1.50.1 Differentiate between Immuno-suppressants and immuno-stimulants
- 1.50.2 Define immunosuppressants & Classify immuno-suppressants
- 1.50.3 Describe the mechanisms of action of Calcineurin inhibitors
- 1.50.4 Enlist m-Tor inhibitors and anti-proliferative agents used as immunosuppressants
- 1.50.5 Enlist Biological agents used as immunosuppressants
- 1.50.6 Enumerate the adverse effects of immunosuppressants
- 1.50.7 Enlist clinical uses of immunosuppressants

Occupational and Environmental Pesticides, Food Adulterants, Pollutants and Insect Repellents

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SDL–1 Hour

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Assessment: Written, Viva voce

PH-1.51 Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents

- 1.51.1 Define the various toxicology terms
- 1.51.2 Define occupational pesticides and enlist them
- 1.51.3 Explain environmental pesticide and its management
- 1.51.4 Enlist food adulterants
- 1.51.5 Enlist insect repellents

Pharmacotherapy of Poisoning

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Lecture–1 Hour

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Assessment: Written, Viva voce

PH1.52- Describe management of common poisoning, insecticides, common stings and bites

- 1.52.1 Explain the general management of common poisoning
- 1.52.2 Enlist the specific antidotes used in treatment of common poisons
- 1.52.3 Explain the method of enhancing elimination of toxin using examples
- 1.52.4 Explain the management of Bee sting bite, Scorpion bite and Snake bite

Chelating agents

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SGD–1 Hour

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Assessment: Written, Viva voce

PH1.53 -Describe heavy metal poisoning and chelating agents

- 1.53.1 Define Chelating agents and enlist Chelating agents used in Heavy metal poisoning
- 1.53.2 Describe the mechanism of action of Chelating agents
- 1.53.3 Name the Chelating agents used in the management of Iron, Lead, Copper, and Arsenic intoxication
- 1.53.4 Enlist the clinical uses of penicillamine

Vaccines and Antisera

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SGD–1 Hour

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Assessment: Written, Viva voce

PH1.54-Describe vaccines and their uses

- 1.54.1 Define Vaccines and classify vaccines
- 1.54.2 Enlist the bacterial vaccines
- 1.54.3 Enlist the viral vaccines
- 1.54.4 Enlist Toxoids and Mixed Toxoids
- 1.54.5 Enlist anti-sera and immunoglobulins
- 1.54.6 Discuss the routine immunization schedule for infants and children as per IAP guidelines

National Health Programme

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SGD–2 Hours

Assessment: Written, Viva voce

PH 1.55 - Describe and discuss the following National Health Programme including Immunization, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency

- 1.55.1 Explain the universal immunization programme in India
- 1.55.2 Explain Revised National Tuberculosis Elimination Programme
- 1.55.3 Explain National Leprosy Eradication Programme
- 1.55.4 Enlist National Vector Borne Disease Control Programmes
- 1.55.5 Explain National AIDS Control Programme
- 1.55.6 Describe National programme for prevention and control of cancer, diabetes, cardiovascular diseases and stroke
- 1.55.7 Describe National Programme for Control of Blindness & Visual Impairment
- 1.55.8 Describe National Programme For Prevention and Control of cancer
- 1.55.9 Discuss about the Diarrhoeal Disease Control Programme
- 1.55.10 Describe iodine deficiency disorders control programme

Geriatric and Pediatric pharmacology

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Lecture–1 Hour

Assessment: Written, Viva voce

PH1.56 -Describe basic aspects of Geriatric and Pediatric pharmacology

- 1.56.1 Describe physiological changes in Children and Elderly patients that influence the pharmacokinetic and Pharmacodynamic parameters of medications.
- 1.56.2 Discuss the common drugs to which children/elderly are likely to respond differently
- 1.56.3 Explain the principles that underlie the prescribing in children/elderly

Pharmacotherapy of Skin disorder

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SDL–1hr

Assessment: Written, Vivavoce



PH1.57-Describedrugsusedinskindisorders

- 1.57.1 Discusshowdrugsareabsorbedthroughtheskin.
- 1.57.2 Definedemulcents,emollients,adsorbents&protectants,astringents, irritantsand counter irritants and keratolytic, Melanising agents with examples, their uses and adverse reactions.
- 1.57.3 Describethe mechanismofaction,therapeuticuses,andtoxicitiesof topical and systemic drugs used to treat common dermatological disorders like seborrheic dermatitis, Vitiligo, Psoriasis and Acne vulgaris.
- 1.57.4 Discusshesciencebehinduseofsunscreenagents.
- 1.57.5 Listthetopicalglucocorticoids,explaintherationaleforuseof glucocorticoids in skin disorders and their adverse effects.

OcularPharmacology

SGD–1Hour

Assessment: Written, Vivavoce



PH1.58 -Describedrugsused in Oculardisorders

- 1.58.1 Understandtheprinciplesofusingdrugstotreatophthalmic disorders.
- 1.58.2 Describetheoculartoxicitiesofsystemicdrugs.
- 1.58.3 Explainthemechanismsofaction, clinicaluses,andtoxicitiesofophthalmicdrugs.
- 1.58.4 Describhowophthalmicdrugsadministeredtopicallycancausesystemicsideeffects.
- 1.58.5 Understandthepathophysiologyofglaucomaandtheroleof pharmacotherapy in its management.

Essentialmedicines,Fixeddosecombinations,Overthecounterdrugs,Herbal medicines

SGD–2Hours

Assessment: Written, Viva voce



PH1.59-Describeanddiscussthefollowing:Essentialmedicines,Fixed dose combinations, Over the counter drugs, Herbal medicines

- 1.59.1 DefineEssentialmedicinesconcept.
- 1.59.2 DiscusshecriteriatopreparelistofessentialmedicinesforyourcommunityPHC.
- 1.59.3 Definefixeddosecombination,advantagesanddisadvantagesofFDC.
- 1.59.4 Describethepharmacokineticandpharmacodynamicsparametersto be considered to combine two drugs in a FDC.
- 1.59.5 DiscussRationalandirrationalprescribingdrugswithexamples.
- 1.59.6 Defineoverthecountermedicinesandprescription medicines.
- 1.59.7 EnumeratethesimilaritiesanddifferencesbetweenOTC medicines and prescription medicines.
- 1.59.8 SummarizehowtoresponsiblyuseOTC medicinesandpreventmisuse.
- 1.59.9 List 10Herbalmedicinesused inallopathicpractice.
- 1.59.10 EnumerateadvantagesanddisadvantagesofHerbal medicines

Pharmacogenomics and Pharmacoeconomics

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SGD-1 Hour

Assessment: Written, Viva voce

PH1.60-Describe and discuss Pharmacogenomics and Pharmacoeconomics

- 1.60.1 Define Pharmacogenomics and Pharmacogenetics and Pharmacoeconomics with examples
- 1.60.2 Describe different types of pharmacoeconomic models with examples
- 1.60.3 Discuss the role of Pharmacogenomics and Pharmacoeconomics in modern therapeutics.

Dietary Supplements and Nutraceuticals

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SDL-1 Hours

Assessment: Written, Viva voce

PH1.61 -Describe and discuss dietary supplements and nutraceuticals

- 1.61.1 Describe the role of common vitamins and minerals in normal physiology and diseases.
- 1.61.2 Identify the potential toxic effects of vitamins and minerals.
- 1.61.3 List the fat soluble and water-soluble vitamins, and identify examples of how solubility affects the absorption, transport, storage and excretion of each type.
- 1.61.4 Describe how B vitamins assist with energy metabolism
- 1.61.5 Justify the statement "It is better to get vitamins from food than from supplements"
- 1.61.6 Enumerate anti-oxidant vitamins, list the food source and their functions
- 1.61.7 Analyze from the below list, valid reasons that some individuals require vitamin supplements
 - a. women in childbearing age
 - b. Pregnant and lactating women
 - c. Vitamin of AIDS or other wasting illness
 - d. Addicted to drugs or alcohol
 - e. Strict vegetarians
 - f. Recovering from surgery, burns and injury.

Antiseptics and Disinfectants

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SGD-2 Hours

Assessment: Written, Viva voce

PH1.62 Describe and discuss antiseptics and disinfectants

- 1.62.1 Describe antiseptics and their use in wound care with examples
- 1.62.2 Describe disinfectants and their use in infection control with examples
- 1.62.3 Summarize the adverse effects of antiseptics and disinfectants
- 1.62.4 Describe Ecto-parasiticides with examples, use and adverse effects
- 1.62.5 Discuss hand hygiene using soap as per WHO guidelines
- 1.62.6 Information on hand sanitizers

Drug Regulation

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SGD–1hr

Assessment: Written, Vivavoce

PH1.63 Describe Drug Regulations, acts and other legal aspects

- 1.63.1 Explain why drugs need to be regulated
- 1.63.2 Identify the major regulatory authorities in India
- 1.63.3 Describe the approval process for New Drugs in simple terms.
- 1.63.4 Discuss the major legislation pertaining to drugs

Drug development and GCP

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SGD–1hrs

Assessment: Written, Vivavoce

PH1.64- Describe overview of drug development, Phases of clinical trials and Good Clinical Practice

- 1.64.1 Enlist the stages in new drug development
- 1.64.2 Explain the approaches to drug discovery/invention
- 1.64.3 Discuss about the preclinical studies
- 1.64.4 Describe the phases of clinical trials
- 1.64.5 Describe the Principles Good Clinical Practice

PANDEMIC MODULE 2.5

Therapeutic strategies including new drug development

Theory– 1hour

Assessment: Written, Vivavoce

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PH2.5 -Describe stages of new drug development and clinical trial during a pandemic.

- ☐ Enlist the stages in new drug development during a pandemic.
- ☐ Describe drug repurposing with its importance and benefits.
- ☐ What is off-label drug use? Risks, benefits and implicationsexamples
- ☐ Describe the clinical trial conduct during a pandemic.

☐ **SGD** – 2hours

Assessment: Written, Vivavoce

- ☐ New drug development –Challenges and solutions
- ☐ Urgency in procedures
- ☐ Need for monitoring –Pharmacovigilance activities of drugs approved for emergency use/clinical trials during Pandemic

PRACTICAL

SKILL CERTIFICATION					
Topic	Competency	Description	Practical hours	Competencies	Certification B- Below Expectations M- Meet Expectations E- Exceeds Expectations
Clinical Pharmacy	PH2.1	Demonstrate understanding of these of various dosage forms (oral/local/parenteral; solid/liquid)	14hours		
	PH2.2	Prepare oral rehydration solution from ORS packet and explain its use	4hours		
	PH2.3	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment.	4hours		
	PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	4hours		
Clinical Pharmacology	PH3.1-C	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	6hours	5	Logbook & Certification
	PH3.2-C	Perform and interpret a critical appraisal (audit) of a given prescription	6hours	3	Logbook & Certification
	PH3.3-C	Perform a critical evaluation of the drug promotion literature	6hours	3	Logbook & Certification
	PH3.4-L	To recognise and report an adverse drug reaction	4hours		Logbook
	PH3.5-C	To prepare and explain a list of P-drugs for a given case/condition	6hours	3	Logbook & Certification
	PH3.6-L	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs	2 hours		Logbook
	PH3.7-L	Prepare a list of essential medicines for a healthcare facility	4hours		Logbook
	PH3.8	Communicate effectively with a patient on the proper use of prescribed medication	4hours		

Experimental Pharmacology	PH4.1	Administer drug through various routes in a simulated environment using mannequins	10 hours		Logbook & Certification
	PH4.2	Demonstrate the effect of drugs on blood pressure (vasopressor and vaso-depressors with appropriate blockers) using CAL	6 hours		Logbook & Certification
Communication	PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	SGD 2 hours		Log book
	PH5.2	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines	SGD 4 hours		Log book
	PH5.3	Motivate patients with chronic diseases to adhere to the prescribed management by the healthcare provider	SGD 4 hours		Logbook & Certification
	PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	SGD 2 hours		
	PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	SGD 4 hours		
	PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	SGD 4 hours		Log book
	PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	SGD 2 hours		
CBME requirement			Practicals -80 hours SGD-22 hours		

C-Needs certification-4 no

L- Needs Maintenance of a log book-3 no.

Note: Spotters can be done concomitantly during the teaching hours.

PRACTICAL

Specific Learning Objectives in Pharmacology

(Skills and communication: Competency no-2.1 to 5.7)

Practical DOAP–14 Hours

Assessment: Skill Assessment

PH2.1 Demonstrate understanding of the use of various dosage forms (oral/ local/ parenteral; solid/liquid)

- 2.1.1 Identify various dosage forms–solid, liquid, topical dosage forms
- 2.1.2 Describe the various types of solid dosage form in the given samples with merits and demerits of each
- 2.1.3 Describe the various types of liquid dosage form in the given samples with merits and demerits of each
- 2.1.4 Describe the various types of topical dosage form in the given samples with merits and demerits of each
- 2.1.5 Describe all the components of commercial label of the given dosage form and its importance

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Practical DOAP–4 Hours

Assessment: Skill Assessment

PH2.2 Prepare oral rehydration solution from ORS packet and explain its use

- 2.2.1 Define and enumerate causes of dehydration
- 2.2.2 Describe the clinical assessment of dehydration
- 2.2.3 Enumerate the different types of ORS along with their composition with actions of each ingredient
- 2.2.4 Choose the appropriate type of ORS for a given condition/patient
- 2.2.5 Calculate the quantity of ORS required to correct/prevent dehydration
- 2.2.6 Demonstrate preparation of ORS from sachet
- 2.2.7 Enumerate non-diarrheal uses of ORS

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Practical DOAP–4 Hours

Assessment: Skill Assessment

PH2.3 Demonstrate the appropriate setting up of an intravenous drip in a simulated environment

- 2.3.1 Open the infusion set following aseptic technique
- 2.3.2 Appropriately position the patient and select a vein.
- 2.3.3 Prepare the overlying skin with aseptic care.
- 2.3.4 Demonstrate correct IV injection technique and strap the cannula in place.
- 2.3.5 Identify any visible impurities if present in the IV fluids.
- 2.3.6 Adjust the flow rate according to the requirement
- 2.3.7 Routinely check patient's ID, drug name, date of expiry etc before injecting.
- 2.3.8 Monitor a patient on an IV drip and identify any reactions to it.

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Practical DOAP–4 Hours

Assessment: Skill Assessment

PH 2.4 Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations (integration with General medicine, Paediatrics)

- 2.4.1 Calculate appropriate doses for individual patients based on age, body weight, and surface area
- 2.4.2 Demonstrate the correct method of calculation of drug dosage in paediatric patients
- 2.4.3 Demonstrate the iv drip rate calculation & infusion time
- 2.4.4 Demonstrate the correct method of calculation of drug dosage in patient suffering from renal disease
- 2.4.5 Demonstrate the correct method of calculation of drug dosage in patient suffering from hepatic disease

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Skill station – 6 Hours

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Assessment: Skill Assessment and Certification

PH 3.1 Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient (integration with General medicine)

- 3.1.1 Establish therapeutic goal/s, based on a diagnosis following standard treatment guidelines (STG)
- 3.1.2 Choose the appropriate drug/s for the given clinical condition
- 3.1.3 Choose the appropriate dose, route, frequency and duration of therapy for the chosen drug/s
- 3.1.4 Write a legible prescription as per MCI format
- 3.1.5 Provide appropriate information to the patient regarding the prescription
- 3.1.6 Review/alter prescription in the light of further investigation
- 3.1.7 Explain the legality (legal implications) of prescriptions.

Examples of 5 Exercises

Iron deficiency anemia due to hookworm infestation
Acute attack of Migraine

Newly diagnosed obese type 2 DM with Hypertension
UTI in pregnancy

Typhoid fever in a child

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Skill Lab – 6 Hours

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Assessment: Skill Assessment and

Certification

PH 3.2 Perform and interpret a critical appraisal (audit) of a given prescription – 3

no.s

- 3.2.1 Demonstrate the understanding of importance of completeness of prescription
- 3.2.2 Demonstrate the understanding of clinical diagnosis for which drugs are prescribed
- 3.2.3 Demonstrate the understanding of MCI format of prescription
- 3.2.4 Identify and comment on any discrepancies in the completeness and legibility of the prescription
- 3.2.5 Identify and comment on any discrepancies in the selection of drug, drug form, dose, frequency, duration of the treatment, instructions according to STG
- 3.2.6 Re-Write the prescription correcting all the discrepancies identified

- ☐ _____ Skill Lab– 6Hours
- ☐ _____ Assessment: Skill Assessment and Certification

PH 3.3 Perform a critical evaluation of the drug promotional Literature - Brainstorming followed by demonstration – 3 no.s (integration with General medicine)

- 3.3.1 Discuss the various types of sources of drug information
- 3.3.2 Demonstrate understanding of importance of critical evaluation of drug promotional literature
- 3.3.3 Critically evaluate the given drug promotional literature based on WHO criteria
 - a. Appropriateness of illustration
 - b. Relevance of references cited
 - c. Content of scientific information

- ☐ _____ Skill Station– 4Hours
- Assessment: Skill Assessment– Logbook

PH3.4 To recognize and report an adverse drug reaction

- 3.4.1 Recognise an adverse drug reaction (ADR) in the given case
- 3.4.2 Perform causality assessment of the identified ADR using WHO & Naranjo's Scale
- 3.4.3 Fill the ADR reporting form (CDSCO form)
- 3.4.4 Explain the management of the ADR
- 3.4.5 Explain the methods to prevent the occurrence of the ADR
- 3.4.6 Report the ADR to the pharmacovigilance centre
- 3.4.7 Describe the importance of reporting ADRs
- 3.4.8 Describe the various levels of reporting ADRs national and international centres
 - Example of 3 cases: Warfarin induced Bleeding
 - Aspirin (NSAID) induced Peptic Ulcer
 - Carbamazepine induced Steven Johnson Syndrome

- ☐ _____ Skill Station– 6Hours
- ☐ _____ Assessment: Skill Assessment and Certification

PH3.5 To prepare and explain a list of P- drugs for a given case/condition– 3 no.s (integration with General medicine)

- 3.5.1 Define the diagnosis
- 3.5.2 Specify the therapeutic objective
- 3.5.3 Make an inventory of effective groups of drugs
- 3.5.4 Choose an effective group of drug according to efficacy, safety and suitability criteria
- 3.5.5 Choose the P-Drug for the given clinical condition

Example of 3 Exercises

- Angina Pectoris
- Amoebic Dysentery
- Anxiety



Skill Station—2 Hours



Assessment: Skill Assessment—Logbook

PH3.6 Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs

- 3.6.1 Enumerate the key elements in the WHO guidelines on Ethical criteria for medicinal drug promotion.
- 3.6.2 Direct the discussion with pharmaceutical representatives so as to get the information he needs about the drug effectively.
- 3.6.3 Collect a copy of data sheet of the product under discussion.
- 3.6.4 Compare the verbal statements with those in the official text during presentation effectively.
- 3.6.5 Perform a prior literature research and check quality of research methodology of the drug under discussion including cost comparison.
- 3.6.6 Decide effectively whether to include the drug in personal formulary with regard to efficacy, safety and cost-effectiveness of medicines



Skill Station—4 Hours

Assessment: Skill Assessment—Logbook

PH3.7 Prepare a list of essential medicines for a healthcare facility

- 3.7.1 Understand the concept of Essential Medicines List for the nation/state/healthcare facility
- 3.7.2 Identify the factors that determine the choice of drugs in an Essential Medicines List.
- 3.7.3 Prepare a list of essential medicines for a healthcare facility, with justification in a given scenario



Skill Lab—4 Hours Assessment: Skill Assessment

PH3.8 Communicate effectively with a patient on proper use of prescribe medication

Insulins

Proton pump inhibitors

Statins

Ferrous sulphate tablets

Co-Amoxiclav or Cotrimoxazole

- 3.8.1 Communicate about the effects of the prescribed drug with regard to the following
 - Why the drug is needed
 - Which symptoms will disappear, and which will not
 - When the effect is expected to start
 - When the effect is expected to start
- 3.8.2 Communicate about the adverse effects of the prescribed drug with regard to the following
 - a. Which side effects may occur
 - b. How to recognize them
 - c. How long they will continue
 - d. How serious they are
 - e. What action to take

- 3.8.3 Communicate about the instructions of drug use as following:
 - a. How the drug should be taken
 - b. When it should be taken
 - c. How long the treatment should continue
 - d. How the drug should be stored
 - e. What to do with left-over drugs
- 3.8.4 Communicate about the warnings of the prescribed drug with regard to the following
 - a. When the drug should not be taken
 - b. What is the maximum dose
 - c. Why the full treatment course should be taken
- 3.8.5 Communicate about the future consultations with regard to the following:
 - a. When to come back (or not)
 - b. In what circumstance to come earlier
 - c. What information the doctor will need at the next appointment
- 3.8.6 Conclude the consultation by asking the following questions:
 - a. Ask the patient whether everything is understood
 - b. Ask the patient to repeat the most important information
 - c. Ask whether the patient has any more questions

DOAP sessions – 10 Hours

Assessment: Skill Assessment

PH4.1 Administer drug through various routes in a simulated environment using mannequins

USE CHECKLIST FOR ASSESSMENT

Enteral Oral route

- 4.1.1 Identify the different dosage forms administered through the Oral route and instructions given to the patient for administering it.
- 4.1.2 Present the merits and demerits of Oral route of drug administration.
- 4.1.3 Demonstrate the administration of the drug through oral route.
- 4.1.4 Identify the different equipment required for Nasogastric tube (NGT) insertion
- 4.1.5 Demonstrate the Nasogastric tube insertion and present the purpose.
- 4.1.6 Demonstrate the positioning of the patient during NGT insertion.
- 4.1.7 Demonstrate the preparation of the feeds for NG feeding.
Sublingual/ Buccal
- 4.1.8 Demonstrate the administration of the drug through Sublingual and Buccal route.
- 4.1.9 Present the instructions for administering the same and how to terminate the action of the drug.
- 4.1.10 Present the different examples with dosage forms for the same.
Transrectal
- 4.1.11 Identify the devices used to administer dosage forms through transrectal route.
- 4.1.12 Present the instructions to the patient before administering dosage forms through transcutaneous route.
- 4.1.13 Demonstrate the administration of suppositories by rectal route.
- 4.1.14 Demonstrate the administration of enema (Evacuant/ Retention) by rectal route.

Transvaginal

- 4.1.15 Identify the devices used to administer dosage forms through transvaginal route.
- 4.1.16 Present the instructions to the patient before administering dosage forms through transvaginal route.
- 4.1.17 Demonstrate the administration of pessary, creams and foams by vaginal route.
- 4.1.18 Demonstrate the administration of douche by vaginal route.
- 4.1.19 Identify different types of Intrauterine contraception
- 4.1.20 Present the instructions/counseling to the patient on intrauterine contraception.
- 4.1.21 Demonstrate the placement of intrauterine contraception using the stimulation setting

Parenteral

IntraMuscular injection

- 4.1.22 Identify the devices required for IM injection
- 4.1.23 Demonstrate the prerequisite preparations for injection along with aseptic precautions.
- 4.1.24 Present instructions to the patient about the injection procedure.
- 4.1.25 Identify the sites of IM injection on mannequin and present merits and demerits of each site.
- 4.1.26 Demonstrate the proper technique for IM injection.

Intravenous injection

- 4.1.27 Identify the devices required for IV injection
- 4.1.28 Demonstrate the prerequisite preparations for injection along with aseptic precautions
- 4.1.29 Present instructions to the patient about the injection procedure.
- 4.1.30 Identify the sites of IV injection on mannequin
- 4.1.31 Demonstrate the proper technique for IV injection.

Subcutaneous injection

- 4.1.32 Identify the devices required for SC injection.
- 4.1.33 Demonstrate the prerequisite preparations for injection along with aseptic precautions.
- 4.1.34 Present instructions to the patient about the injection procedure.
- 4.1.35 Identify the sites of SC injection on mannequin.
- 4.1.36 Demonstrate the proper technique for SC injection.

Intradermal injection

- 4.1.37 Identify the devices required for Intradermal injection.
- 4.1.38 Demonstrate the prerequisite preparations for injection along with aseptic precautions.
- 4.1.39 Present instructions to the patient about the injection procedure.
- 4.1.40 Demonstrate the proper technique for Intradermal injection.

Intracardiac injection

- 4.1.41 Demonstrate a proper technique for Intracardiac injection.
- 4.1.42 Demonstrate the prerequisite preparations for injection along with aseptic precautions.

Local/Topical application

Transcutaneous–Iontophoresis, Inunction, Jet Injection, Transdermal delivery system

- 4.1.43 Identify the devices used to administer dosage forms through transcutaneous route.
- 4.1.44 Present the instructions to the patient before administering dosage forms through transcutaneous route.
- 4.1.45 Demonstrate the administration of dosage forms by Iontophoresis method.
- 4.1.46 Demonstrate the administration of dosage forms by Inunction method.
- 4.1.47 Demonstrate the administration of dosage forms by Jet Injection method.
- 4.1.48 Demonstrate the administration of Transdermal patches.
- Transmucosal/ Inhalational**
- 4.1.49 Document the inhalational devices used to administer inhalational dosage forms.
- 4.1.50 Present the merits and demerits of inhalational devices over one another
- 4.1.51 Present the instructions to the patient before using inhalational devices.
- 4.1.52 Demonstrate the administration of inhalational dosage forms.
- 4.1.53 Identify the different types of airway masks and intubation tubes.
 - Present a method for selection of intubation tubes.
 - Demonstrate the administration of anesthetic/therapeutic gases through airway masks and intubation tubes
- 4.1.54 **Transnasal**
- 4.1.55 Identify dosage forms administered transnasally.
- 4.1.56 Identify the devices used for administering dosage forms transnasally.
- 4.1.57 Present the merits and demerits of Transnasal route of drug administration.
- 4.1.58 Present the instructions to the patient before administering dosage forms by transnasal route.
- Ophthalmic/ Ear route**
- 4.1.59 Identify dosage forms administered by ophthalmic/ear route.
- 4.1.60 Present the instructions to the patient before administering dosage forms by ophthalmic/ ear route.

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Skill Lab – 6 Hours
Assessment: Skill Assessment

PH4.2 Demonstrate the effects of drugs on blood pressure (vasopressor and vasodepressors with appropriate blockers) using computer aided learning

- 4.2.1 Choose the appropriate animal experiment to study the effects of drugs on blood pressure
- 4.2.2 Explain the differences in actions of different vasopressors (adrenaline, noradrenaline)
- 4.2.3 Explain the differences in actions of different vasodepressors (ACh, alpha blockers, histamine)
- 4.2.4 Analyse and interpret the graph obtained accurately on application of various drugs
- 4.2.5 Enumerate the therapeutic uses of vasopressors and vasodepressors

☐ **SGD – 2 Hours**

Assessment: Skill Assessment

PH 5.1 Communicate with the patient with empathy and ethics on all aspects of drug use (integration with General medicine)

- 5.1.1 Describe what information should be given to patients to allow them to make informed decisions
- 5.1.2 Communicate treatment plan and instructions to patient, at a suitable level of information
- 5.1.3 *Engage in shared decision making where appropriate*

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SGD – 4 Hours

☐

Assessment: Skill Assessment

PH5.2 Communicate with the patient regarding optimal use of Drug

**therapy
Devices
Storage**

Drug Therapy

5.2.1 Communicate about the effects of the prescribed drug with regard to the following:

- i. Why the drug is needed
Which symptoms will disappear, and which will not? When the effect is expected to start
What will happen if the drug is taken incorrectly or not at all
- 5.2.2 Communicate about the adverse effects of the prescribed drug with regards to the following:
 - i. Which side effects may occur?
How to recognize them
How long they will continue
How serious they are
What action to take
- 5.2.3 Communicate about the instructions of drug use as following:
 - i. How the drug should be taken
When it should be taken
How long the treatment should continue
How the drug should be stored
What to do with left-over drugs

5.2.4 Communicate about the warnings of the prescribed drug with regards to the following:

- i. When the drug should not be taken
What is the maximum dose?
Why the full treatment course should be taken?
- 5.2.5 Communicate about the future consultations with regard to the following:
 - i. When to come back (or not)
In what circumstances to come earlier
What information the doctor will need at the next appointment
- 5.2.6 Conclude the consultation by asking the following questions:
 - Ask the patient whether everything is understood
 - Ask the patient to repeat the most important information

Devices

5.2.7 The student should be able to communicate to patient on

- i. Step wise points or instructions on use of device
Communicate list of do's and don'ts on the device
Demonstrate the proper use of device and ask the patient to show the same.
Methods on handling, cleaning and storage of device
Dangers of use of device on other persons, without the prescription of doctor
Importance of keeping the device away from reach of the children
Contact number of manufacturer to be communicated on troubleshooting

Storage of Medicines

5.2.8 The student should be able to communicate to patient on

- i. Ideal storage condition of a pharmaceutical product as per product label
Ideal storage condition of a pharmaceutical product as per product label
Effect of storage condition on potency and efficacy of the drug ill effects of improper storage condition on human consumption. Factors to be taken in to consideration for drug storage like sanitation, temperature, light, moisture, ventilation and segregation.
- iv. Importance of storage of medicines away from reach of the children
- v. Disposal of expired drugs

SGD–4Hours

Assessment: Skill Assessment/Shortnote

PH5.3 Motivate patients with chronic diseases to adhere to the prescribed management by health care provider

- 5.3.1 Explain the term medication adherence
- 5.3.2 Explain the consequences of non-adherence in chronic diseases
- 5.3.3 Explain the methods to measure medication adherence
- 5.3.4 Elicit the barriers affecting medication adherence
- 5.3.5 Explain the measures to be taken to motivate the patient to adhere to medications in chronic diseases

SGD–2Hours

Assessment: Shortnotes/Viva Voce

PH5.4 Explain to the patient the relationship between cost of treatment and patient compliance

- 5.4.1 Assess the cost of the treatment

- 5.4.2 Enumerate various factors influencing patient compliance (patient related, disease condition related, therapy related and health system related factors).
- 5.4.3 Explain the consequences of medication non-compliance in terms of cost to the patient
- 5.4.4 Communicate clearly to the patient about relationship between cost of treatment and compliance

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SGD–4Hours

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Assessment: Short notes, Viva voce

PH5.5 Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management (integrate with Psychiatry)

- 5.5.1 Describe the term drug dependence
- 5.5.2 Enumerate the drugs that produce dependence
- 5.5.3 Describe the Legality involved in prescribing drugs likely to produce dependence (Drugs and Cosmetics Act, 1940; Pharmacy Act, 1948; Narcotic Drugs and Psychotropic substances Act, 1985)
- 5.5.4 Describe the clinical including psychosocial assessment of the patient before prescribing
- 5.5.5 Describe the importance of documentation of prescribing process
- 5.5.6 Describe the importance of periodic review of prescriptions
- 5.5.7 7. Describe the basic treatment regimens for various addictions and withdrawal states along with psycho-social rehabilitation

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SGD–4hrs (Practical)

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Assessment: Short notes, Viva voce

PH5.6- Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs (integrate with Psychiatry)

- 5.6.1 The importance of complying with the doctor's instructions
- 5.6.2 The demerits of self-prescription
- 5.6.3 The importance of identifying and reporting ADRs to concerned authorities
- 5.6.4 Caution taken while using drugs causing dependence
- 5.6.5 Safe use of OTC

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SGD–2Hours

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Assessment: Short notes, Viva voce

PH5.7 Demonstrate an understanding of the legal and ethical aspects of prescribing drugs (integrate with Forensic Medicine)
Legal aspects

- 5.7.1 Explain who is entitled to prescribe medicines and the legal requirements involved
- 5.7.2 Describe the legal requirements associated with prescribing controlled drugs
- 5.7.3 Describe the legal implications of irrational prescription that could endanger the life of patients

Ethical aspects

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

PANDEMIC MODULE 2.5

Therapeutic strategies including new drug development

- ☐ SGD – 2 Hours Assessment: Short notes, Viva voce
- PH5.8 Demonstrate the use of drugs during a pandemic. (Integrate with General Medicine)
- ☐ Prepare a plan for evaluation of off-label use of a drug – repurposing –
- ☐ Emergency use authorization Compliance with regulatory
- ☐ CDSCO/DCGI and US FDA
- ☐ authorities Pharmacovigilance during a pandemic
- ☐ Ethical aspects of clinical trials in pandemic
- ☐ Visit to a pharmaceutical firm/ pharmacy lab to show various stages of drug development or an ADR monitoring exercise in clinical wards

TOPICS FOR HORIZONTAL INTEGRATION

Minimum two of the suggested topics should be covered in each block.

BLOCK I

1. IMMUNOLOGY
2. ANAEMIA & ANTICOAGULANTS
3. ESSENTIAL MEDICINES
4. SHOCK TOXICOLOGY
5. DRUGS OF ABUSE
6. ANTIBIOTIC STEWARDSHIP PROGRAM

BLOCK II

1. ISCHEMIC HEART DISEASE
2. CHF
3. BR. ASTHMA
4. COPD
5. PEPTIC ULCER DISEASE
6. IBD & IBS
7. TUBERCULOSIS & LEPROSY
8. AIDS
9. MALARIA

FULL DAY INTEGRATION SESSIONS (IF FEASIBLE)

National days of importance for

1. AIDS,
2. Leprosy,
3. Tuberculosis,
4. Malaria,
5. Mental health,
6. Breastfeeding promotion

TOPICS FOR VERTICAL INTEGRATION

	COMPETENCY	
Number	The student should be able to	Vertical Integration
PH1.15	Describe mechanism/sof action, types, doses, side effects, indications and contraindications of skeletal muscle Relaxants	Anesthesiology, Physiology
PH1.16	Describe mechanism/sof action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti-histaminic, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine	General Medicine
PH1.17	Describe the mechanism/sof action, types, doses, side effects, indications and contraindications of local anesthetics	Anesthesiology
PH1.18	Describe the mechanism/sof action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre-anesthetic medications	Anesthesiology
PH1.19	Describe the mechanism/sof action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti-psychotic, anti-depressant drugs, anti-manics, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti-epileptic drugs)	Psychiatry, Physiology
PH1.20	Describe the effects of acute and chronic ethanol intake	Psychiatry
PH1.21	Describe the symptoms and management of methanol and ethanol poisonings	General Medicine
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	Psychiatry
PH1.23	Describe the process and mechanism of drug dependence	Psychiatry
PH1.25	Describe the mechanism/sof action, types, doses, side effects, indications and contraindications of the drugs acting on blood, like anticoagulants, antiplatelets, fibrinolytics, plasma expanders	Physiology, General Medicine

PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin-angiotensin and aldosterone system	Physiology, General Medicine
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	General Medicine
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease	General Medicine
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	General Medicine
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the antiarrhythmics	General Medicine
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemias	General Medicine
PH1.32	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	Respiratory Medicine

PH1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	Respiratory Medicine
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid-peptic disease and GERD 2. Antiemetics and prokinetics 3. Antidiarrhoeals 4. Laxatives 5. Inflammatory Bowel Disease 6. Irritable Bowel Disorders, biliary and pancreatic diseases	General Medicine
PH1.35	Drugs used in anemias	General Medicine, Physiology
	2. Colony Stimulating factors	
PH1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	General Medicine
PH1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception	Obstetrics & Gynaecology
PH1.40	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	Obstetrics & Gynaecology
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	Obstetrics & Gynaecology
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	General Medicine, Pediatrics
PH1.44	Describe the first line anti-tubercular drugs, their mechanisms of action, side effects and doses.	Respiratory Medicine
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	Respiratory Medicine
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	Dermatology, Venereology
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	General Medicine
PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	General Medicine
PH1.52	Describe management of common poisoning, insecticides, common stings and bites	General Medicine
PH1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	Paediatrics
PH1.57	Describe drugs used in skin disorders	Dermatology, Venereology & Leprosy
PH1.58	Describe drugs used in Ocular disorders	Ophthalmology

PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	Pediatrics, General Medicine
PH3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the Patient	General Medicine
PH3.3	Perform a critical evaluation of the drug promotional Literature	General Medicine
PH3.5	Toprepareand explain a list of P-drugs for a given case/condition	General Medicine
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	General Medicine
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	General Medicine
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	Psychiatry
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	Psychiatry

Column C: K- Knowledge, S- Skill, A- Attitude/professionalism, C- Communication.

Column D: K –Knows, KH-Knows How, SH-Shows how,

P- performs independently,

Column F: DOAP session – Demonstrate, Observe, Assess, Perform.

Column H: If entry is P: indicate how many procedures must be done independently for certification/ graduation

AETCOM Competencies:

Module 2.1	Demonstrate ability to communicate to patients inpatient, respectful, non-threatening, non-judgemental and empathetic manner.
Module 2.8	Demonstrate empathy in patient encounters.

PAPER 1

DISTRIBUTION OF MARKS FOR THE DIFFERENT TOPICS

Topics	Main Question	Short Notes	MCQ	Marks
General Pharmacology Toxicology Clinical Pharmacology and rational drug use	1	Or 3	3	18
Autonomic Nervous System	1	Or 3	3	18
Autacoids		1	1	06
Central Nervous System	1	Or 3	3	18
Drugs in anaesthetic practice	0	1	1	06
Diuretics	0	1	1	06
Drugs affecting blood and blood formation	0	1	5	10
Cardiovascular System	1	Or 3	3	18
		Total marks		100

PAPER II

DISTRIBUTION OF MARKS FOR THE DIFFERENT TOPICS II

Topics	Main Question	Short Notes	MCQ	Marks
Respiratory System	0	1	3	8
Gastrointestinal System	1	Or 2 (without essay)	5	15
Endocrine System	1	2 or 5 (without essay)	5	30
Chemotherapy	1 (Mandatory)	4	5	40
Miscellaneous	0	1	2	07
		Total		100

Phase II

Table: Examination components and Distribution of Marks

THEORY	PHARMACOLOGY
Written Paper	
No. of Papers & Maximum Marks for each paper.	2 × 100 = 200
Total theory	200
PRACTICAL	
1. Practical exam	80
2. Viva-voce	20
Total practical	100
Internal assessment*	
Internal Assessment (Theory)	500
Internal assessment (Practical)	500

Internal assessment marks will reflect under separate head in the mark card of the university examination.

Type, number of questions and distribution of marks for written paper

TYPES OF QUESTION	NUMBER OF QUESTIONS	MARKS FOR EACH QUESTION
Long essay	2	10
Short essay	12	5
MCQ	20	1

Assessment in Pharmacology

Summative Assessment - An assessment conducted at the end of instruction to check how much the student has learnt.

Formative Assessment - An assessment conducted during the instruction with primary purpose of providing feedback for improving learning.

Continuous Internal Assessment - Range of assessments conducted by the teachers teaching a particular subject with the purpose of knowing what is learnt. Internal assessment can have both formative and summative functions.

Note - Assessment requires specification of measurable and observable entities. This could be in the form of whole tasks that contribute to one or more competencies or assessment of a competency per se. Another approach is to break down the individual competency into learning objectives related to the domains of knowledge, skills, attitudes, communication etc. and then assess them individually.

Scheduling of Formative Assessment (part completion test) theory-

Done once in three months preferably at the end of each block. Each part completion test is conducted for 100M. Prefinal test is conducted for 200M and has paper-1 and paper-2.

Theory Formative Assessment (part completion test) can include: Written tests should have essay questions, short notes and creative writing experiences.

Continuous internal assessment in theory is done as home assignments, continuous class tests, self directed learning- which includes seminars, museum studies and library assignments and theory attendance

Scheduling of Formative Assessment in practicals:

Done once in three months preferably at the end of each block. Each part completion test is conducted for 100M. Prefinal test is conducted for 100M

Continuous Practical internal assessment has Certifiable skill based competencies (OSPE), AETCOM competencies, SVL(simulation & virtual learning) lab activity, Research, records maintenance and practical attendance

Assessment of Log-book- Log book should record all activities like seminar, symposia, quizzes and other academic activities. It should be assessed regularly and submitted to the department. 150 Marks will be given for log book which includes Certifiable skill based competencies (OSPE), AETCOM competencies, SVL(simulation & virtual learning) lab activity, Research

Assessment of Practical Record book- Practical book should record all skills and other practical exercises done during the academic programme. It should be assessed regularly and submitted to the department. 40 Marks will be given for record

Assessment for AETCOM will include: - AETCOM competencies will be assessed for 30 Marks in continuous practical assessments.

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

A candidate not securing 50% marks in aggregate in Theory or Practical examination + viva in a subject shall be declared to have failed in that subject and is required to appear for both Theory and Practical again in the subsequent examination in that subject.

Note: Please note fraction of marks will not be rounded off for clauses (a), (b) and (c)

EXPLANATION OF TERMS USED IN THE MANUAL

LECTURE

Any instructional large group method including traditional lecture and interactive lecture.

SMALL GROUP DISCUSSION

Any instructional method involving small groups of students in an appropriate learning context.

DOAP (Demonstration-Observation-Assistance-Performance)

A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently.

SELF-DIRECTED LEARNING

A process in which individuals take the initiative, with or without the help of others in diagnosing their learning needs, formulating learning goals, identifying human and material sources for

learning, choosing and implementing appropriate learning methods.

SKILL ASSESSMENT

A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/paper case/simulated patients/real patients as the context demands.

CORE

A competency that is necessary in order to complete the requirements of the subject (traditional must know)

NON-CORE

A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)

SUGGESTED GUIDELINES FOR THE TEACHING AND LEARNING METHODS

LECTURE: Suggested topics for didactic and interactive lectures have been included along with specific learning objectives linked to each competency. Lectures should cover the core competencies with appropriate pictures, charts or diagrams.

SMALL GROUP DISCUSSION: Topics for small group discussion have suggested. These topics included are those where more intensive and interactive learning sessions are required.

SELF DIRECTED LEARNING: Non-core competencies are suggested to be taken as topics for self-directed learning. At the end of the session, the teacher moderates the discussion and the learning is recorded in the log book.

DOAP (Demonstration-Observation-Assistance-Performance)

Practicals are in the form of Demonstration-Observation– Assistance -Performance)

All sessions will have specific learning objectives which are linked to the relevant competencies and are assessed as described in the

Assessment module.

All sessions will be done with the faculty as facilitator.

The students will be encouraged to observe the demonstrations and perform the requisite skills either independently or with assistance as required.

Emphasis will be on acquiring clinically relevant skills. Thus, case-based learning and discussions will be encouraged.

BOOKS

Recommended Books: (Latest editions are recommended)

1. KD Tripathi, Essentials of Medical Pharmacology, 8th Edition.
2. Padmaja Udaykumar, Medical Pharmacology, 7th (CBME) Edition
3. HL Sharma and KK Sharma, Principles of Pharmacology, 4th Edition.
4. RS Satoskar, Nirmala N Rege, Raakhi K Tripathi, SD Bhandarkar. Pharmacology and Pharmacotherapeutics, 26th Edition.

Reference Books: (Latest editions - recommended)

1. Advanced references (may also include journals/web/other electronic sources).
2. Goodman & Gilman's - The Pharmacological Basis of Therapeutics, ed. Laurence L Brunton, Bruce A. Chabner, Bjorn Knollman. 14th Edition.
3. Lippincott Illustrated Reviews: Pharmacology ed. Karen Whalen
4. Bertram G. Katzung and Anthony J. Trevor, Basic and Clinical Pharmacology, 16th
5. David E Golan, Ehrin J Armstrong, April W Armstrong, Principles of Pharmacology

Journals for reference and research publications

1. Indian Journal of Pharmacology
2. Indian journal of physiology and pharmacology.

PAPER1

DISTRIBUTION OF MARKS FOR THE DIFFERENT TOPICS

Topics	Main Question	Short Notes	MCQ	Marks
General Pharmacology Toxicology Clinical Pharmacology and rational drug use	1	Or 3	3	18
Autonomic Nervous System	1	Or 3	3	18
Autacoids		1	1	06
Central Nervous System	1	Or 3	3	18
Drugs in anaesthetic practice	0	1	1	06
Diuretics	0	1	1	06
Drugs affecting blood and blood formation	0	1	5	10
Cardiovascular System	1	Or 3	3	18
		Total marks		100

PAPER II

DISTRIBUTION OF MARKS FOR THE DIFFERENT TOPICS II

Topics	Main Question	Short Notes	MCQ	Marks
Respiratory System	0	1	3	8
Gastrointestinal System	1	Or 2 (without essay)	5	15
Endocrine System	1	2 or 5 (without essay)	5	30
Chemotherapy	1 (Mandatory)	4	5	40
Miscellaneous	0	1	2	07
		Total		100

Phase II

Table: Examination components and Distribution of Marks

THEORY	PHARMACOLOGY
Written Paper	
No. of Papers & Maximum Marks for each paper.	2 × 100 = 200
Total theory	200
PRACTICAL	
1. Practical exam	80
2. Viva-voce	20
Total practical	100
Internal assessment*	
Internal Assessment (Theory)	500
Internal assessment (Practical)	500

SUMMATIVE ASSESSMENT/UNIVERSITY EXAM

THEORY

GENERAL INSTRUCTIONS

The topics for the two papers are distributed

Questions in each paper will be as per distribution

The SLO need to be referred while setting the question paper Repetition of questions from the same SLO to be avoided

The marks allotted to the different topics & sections to be adhered

Questions to be covered from the different sections of Pharmacology

THEORY EXAMINATION-2 PAPERS OF 100 MARKS EACH

Distribution of marks:

Sno. T	Type of questions	Marks per question	Number of questions	Total marks
1	Long Essay (LE)	15	2	30
2	Short Essay (SE)	5	10	50
3	Multiple Choice Questions (MCQ)	1	20	20

Long essay

The question should pose a clinical/practical problem to the students and require them to apply knowledge and integrate it with disciplines. Avoid giving one liners as questions. The question stem should be structured and marking distribution should be provided. Use action verbs from higher domains as given in this document. Please avoid simple recall based questions. What is asked in the examination generally sets the agenda of what and how the students learn.

Multiple choice questions: These provide opportunity to sample wider content, albeit in a short time. The questions should be task oriented and based on applied aspect

SUMMATIVE ASSESSMENT/ UNIVERSITY EXAM PRACTICALS

TotalMarks–100 (Practical:80+Vivavoce: 20)

Sl. No.	Competency	Topics	Teaching hours	For university exams	Max. marks in exams
1	PH2.1	Dosageforms	14 hours	TABLE VIVA	10marks
2	PH2.2	ORS	4hours	Correction only	10marks
3	PH2.3	I.VDrip	4hours	DEMOonly	
4	PH2.4	Drug Dose Calculation	4hours	Correction only	10marks
5	PH3.1	PrescriptionWriting	6hours	Correction only	10marks
6	PH3.2	PrescriptionAudit/CCR	6hours	LOG BOOK	
7	PH3.3	DrugPromotional Literature(DPL)	6hours	TABLE VIVAwith 2.2	Alternat ewith ORSfor 10marks
8	PH3.4	ADR	4hours	TABLE VIVA	10marks
9	PH3.5	PDrugs	6hours	LOG BOOK	
10	PH3.6	Interactionwith Pharma Representative	2hours	Roleplay,LOG BOOK	
11	PH3.7	EssentialMedicines	4hours	LOG BOOK	
12	PH3.8	DrugCounseling	4hours	TABLE VIVA	10marks
13	PH4.1	RoutesinManequins	10 hours	DEMOonly	
14	PH4.2	ComputerAided LearningCAL	6hours	Correction/ TABLE VIVA	10marks
15	PH5.1	Empathy,ethics	SGD 2 hours	TABLE VIVAwith 3.8	10marks
16	PH5.2	Drugtherapystorage	SGD 4 hours	TABLE VIVAwith 3.8	10marks
17	PH5.3	Adherence	SGD 4 hours	Short note-theory	
18	PH5.4	Cost&compliance	SGD 2 hours	Short note-theory	
19	PH5.5	Dependence	SGD 4 hours	Short note-theory	

20	PH5.6	OTC	SGD 4 hours	TABLE VIVA Alongwith 3.4	10marks
21	PH5.7	Legal,ethicalaspects	SGD 2 hours	Short note- theory	
22		Totalhours	Practical 80 hours + SGD 22 hours		

SVIMS, Sri Padmavathi Medical College for Women												
Department of Pharmacology												
Faculty ,MBBS		Year/phase II									Date:	
			Formative Assessment Theory			Continuous Internal Assessment (Theory)						
S.N o.	R oll N o.	Nam e of stud ent	1 st PCT Theory examina tion	2 nd PCT Theory examina tion	Preli ms Theo ry (pape r 1&2)	Home Assign ment	Contin uous class test	Semi nar	Muse um study	Library assignm ents	Attend ance (Theor y)	Tot al
								Self Directed Learning				
			100	100	200	15	30	15	15	15	10	500
Professor & HOD, Department of Pharmacology, SVIMS, Sri padmavathi medical college for women												

SVIMS, Sri Padmavathi Medical College for Women												
Department of Pharmacology												
Faculty ,MBBS		Year/phase II									Date:	
			Formative Assessment			Continuous Internal Assessment (Practical)						
S.N o.	R oll N o.	Nam e of stud ent	1 st PCT Practica l examin ation	2 nd PCT Practica l examin ation	Preli ms pract ical	Log Book(150)				Jour nal (Rec ord book)	Attend ance (practi cal)	Tot al
						Certifiabl e skill based competen cies(OSPE/ Spotters/ Exercise/ Other	AETCO M compete ncies	SVL lab activ ity	Resea rch			
						100	100	200	60	30	40	20
Professor & HOD, Department of Pharmacology, SVIMS, Sri padmavathi medical college for women												

Log book format (as per NMC guidelines)

Annexure
MODEL QUESTION PAPERS
QP Code- Paper I

Answer All Questions. Draw diagrams wherever necessary

Time 3 hours

Maximum 100 Marks

I.MCQ 1x20=20 Marks

1. Inpatient with nephritic syndrome and hypoalbuminemia, protein binding of which drug will not be affected:

- a) Tolbutamide
- b) Morphine
- c) Diazepam
- d) Valproate

2. A 70 Kg man was given a drug in a dose of 100 mg/kg body weight. Its $t_{1/2}$ is 10 hours, initial plasma concentration is 1.9 mg/ml. True statement is:

- a) CL is 0.02 litre/hr
- b) CL is 20 litre/hr
- c) k_{el} is 6.93
- d) CL is 0.2 litre/hr

3. Newborn baby was born with phocomelia. It results due to which drug taken by mother during pregnancy?

- a) Tetracycline
- b) Thalidomide
- c) Warfarin
- d) Alcohol

4. What is the probable diagnosis in a patient with a dilated pupil not responsive to 1% pilocarpine?

- a) Diabetic 3rd nerve palsy
- b) Adie's tonic pupil
- c) Uncal herniation
- d) Pharmacological block

5. Which of the following drugs should not be given in a patient with acute angle closure glaucoma:

- a) Pilocarpine
- b) Clozapine
- c) Fluphenazine
- d) Paroxetine

6. A patient presented in emergency with tachycardia, hyperthermia, bronchial dilatation and constipation. The person is likely to be suffering from over dose of:

- A) Atropine
- b) Organophosphorus compound
- c) Mushroom
- d) Paracetamol

7. A highway truck driver has profuse rhinorrhoea and sneezing. Which amongst the following drugs would you prescribe him?

- a) Pheniramine

- b) Promethazine
- c) Dimenhydrinate
- d) Cetirizine

8. A 20 yr old female weighing 55 kg is admitted to the emergency department having consumed 10 g of paracetamol together with alcohol 6 hr earlier. A serum paracetamol level is reported as 400 micrograms/ml. Which of the following is correct with respect to this?

- a) Gastric lavage is mandatory
- b) Administration of active charcoal
- c) Abnormalities of the kidney function are likely to be present
- d) Hepatotoxicity is likely to occur

9. Use of Aspirin in children with viral diseases is associated with

- a) Metabolic acidosis
- b) Reye's syndrome
- c) Renal tubular acidosis
- d) Fixed drug eruption

10. A 60 Yr old hypertensive patient on angiotensin II receptor antagonist (losartan) is posted for hernia repair surgery. The antihypertensive drug should be:

- a) Continued till the day of operation
- b) Discontinued 24 hrs preoperatively
- c) Discontinued one week preoperatively
- d) Administered in an increased dosage on the day of operation

11. An elderly hypertensive has diabetes mellitus and bilateral renal artery stenosis. The best management is:

- a) Enalapril
- b) Verapamil
- c) Beta blockers
- d) Thiazides

12. A 30 year old male presents with severe chest pain, breathlessness, hypotension and ECG shows ST elevation in V3, V4, V5 and V6 LEADS. He will be best treated with:

- a) Streptokinase
- b) t-PA
- c) Heparin
- d) PTCA

13. Sudden withdrawal of which of the following drugs could result in serious adverse cardiovascular changes in a patient taking the drug over long time:

- a) Phenelzine (MAO inhibitor)
- b) Enalapril (ACE inhibitor)
- c) Clonidine (α_2 agonist)
- d) Fluoxetine (serotonin reuptake inhibitor)

14. In a patient on cisplatin therapy, which of the following diuretics would be preferred?

- a) Mannitol
- b) Acetazolamide
- c) Thiazide
- d) Furosemide

15. All of the following benzodiazepines can be used in elderly and those with liver diseases

EXCEPT:

- A) Lorazepam
- b) Oxazepam
- c) Trizolam
- d) Diazepam

16. A patient of parkinsonism is managed with levodopa. If Vitamin B complex is administered concurrently to the patient:

- a) The action of levodopa in brain will be potentiated
- b) Decarboxylation of l-dopa in brain will be decreased
- c) Side effects will be ameliorated
- d) Decreased efficacy will result

17. A 65 years old male presented to a hospital with focal seizures. His renal function was normal. Which of the following is the drug of choice for this patient?

- a) Valproate
- b) Pregabalin
- c) Levetiracetam
- d) Oxcarbazepine

18. A person taking tricyclic antidepressants presents with blurred vision and dry mouth. These adverse effects result due to blocked of:

- a) M₃ muscarinic receptors
- b) GABA_A receptors
- c) H₁ histamine receptors
- d) 5HT₂ receptors

19. A 70 kg young athlete was planned for surgery. During anaesthesia, Vecuronium was not available, so repeated doses of succinyl choline were given intermittently up to 640mg. During recovery, patient was not able to spontaneously respire and move limbs. What is the cause?

- a) Pseudocholinesterase deficiency
- b) Phase II blockade
- c) Muscle weakness due to repeated fasciculations.
- d) Undiagnosed muscular dystrophy

20. Which of the following drugs are believed to be effective in the treatment of postoperative shivering?

- a) Ondansetron
- b) Diclofenac sodium
- c) Pethidine
- d) Paracetamol

III Long Essay (2X15 Marks=30 Marks)

1. A 30 year old lady was brought to the Neurology OPD with history of three episodes of fits in the last 10 days. She gave a history of head injury six months back following a car accident. Neurological examination revealed no abnormality. Awake EEG of the patient and the MRI scan of the brain were normal. Based on the typical description of the fit, the neurologist made a diagnosis of Generalized Tonic Clonic Seizures (GTCS) and antiepileptic medications were started.

1.1 Which are the antiepileptic drugs appropriate for this patient? [1 Marks]

- 1.2 Explain the mechanism of action of any one of them [4 Marks]
 - 1.3 Discuss its adverse effects? [2 Marks]
 - 1.4 What are the advantages of newer anti-epileptic drugs compared to the conventional drugs in this patient? [3 Marks]
 - 2.1 Enlist different types of receptors with examples of drugs acting through them [2+2 marks]
 - 2.2 Describe the factors modifying drug action and their clinical significance [3+3 Marks]
- Short Essays** [10X5 Marks=50 Marks]

- 1.1 What is bioavailability? Explain the clinical significance. [3+2 marks]
- 1.2 Compare and contrast Nitrous oxide and halothane [2.5+2.5 marks]
- 1.3 Discuss the treatment of organophosphorus (OP) poisoning with rationale [2+3]
- 1.4 Describe the therapeutic uses and adverse effects of beta-blockers [2.5+2.5 marks]
- 1.5 A 30-year-old man presented with progressive worsening of shortness of breath. He was exposed to dust while cleaning his office room and gave past history of severe asthma and multiple hospitalizations. His peak flow rates are decreased by nearly 50% from baseline and was diagnosed with acute severe asthma.
- 1.6 Discuss the pharmacological management of this patient [3 Marks]
- 1.7 Which are the drugs used in combination therapy and give the rationale [2 marks]
- 1.8 Discuss the pharmacological management of a patient with *Helicobacter pylori* infection [5 Marks]
- 1.9 Rationale for the use of succinylcholine during intubation and discuss its adverse effects [2+3 Marks]
- 1.10 Describe the uses and adverse effects of Aspirin [3+2 Marks]
- 1.11 Why is allopurinol used in chronic gout? What are its adverse effects [3+ 2 Marks]
- 1.12 Discuss the uses and adverse effects of metoclopramide [3+2 Marks]

Annexure

MODEL QUESTION PAPERS

QP Code- **Paper II**

Answer All Questions. Draw diagrams wherever necessary

Time 3 hours

Maximum 100 Marks

I. MCQ 1x20=20 Marks

01. A 22 years old female, Neetha presented to you with complaints of headache and vomiting since 2 months. She is having amenorrhea but urine pregnancy test is negative. She is also complained of secretion of milk from the breasts. A provisional diagnosis of hyperprolactinemia was made and MRI was suggested. MRI confirmed the presence of a large pituitary adenoma. Neetha was advised surgery, however, she is not willing to undergo surgery. Which of the following medication is most likely to be prescribed
 - a) Sumatriptan
 - b) Bromocriptine
 - c) Ergotamine
 - d) Allopurinol
02. A pregnant female is taking carbimazole. Which of the following is not seen in the neonate?
 - a) Choanal atresia
 - b) Scalp defects
 - c) Cleft lip/palate
 - d) Fetal goiter

03. A patient is receiving insulin and acarbose for diabetes mellitus and developed hypoglycaemia. Which of the following should be used for treatment of hypoglycaemia in this patient?

- a) Sucrose
- b) Galactose
- c) Glucose
- d) Starch

04. Prevention and treatment of Osteoporosis in postmenopausal women may be achieved by all EXCEPT:

- a) Estrogen and Progesterone hormone replacement therapy
- b) Calcium and Vitamin D supplementation
- c) Bisphosphonates
- d) Multivitamins

05. A patient has subclinical folate deficiency. All of the following drugs can be prescribed for megaloblastic anemia in this patient EXCEPT:

- a) Alcohol
- b) Phenytoin
- c) Chloroquine
- d) Sulfasalazine

06. A diabetic female on INH and rifampicin for TB developed DVT. She was started on warfarin, PT is not raised and next step should be:

- a) Increase the dose of warfarin
- b) Replace warfarin with enoxaparin
- c) Switch to heparin for rifampicin
- d) Use LMW heparin

07. A substance has molecular weight 30,000. It exerts oncotic pressure similar to albumin and is non-antigenic. It does not interfere with blood grouping and cross-matching. It is:

- a) Dextran 40
- b) Dextran 70
- c) Polygeline
- d) Hetastarch

08. In theophylline metabolism, drug interaction occurs with all EXCEPT:

- a) Cimetidine
- b) Phenobarbitone
- c) Rifampin
- d) Tetracyclines

09. A patient with peptic ulcer was prescribed ranitidine and sucralfate in the morning hours. Why is this combination incorrect?

- a) Ranitidine combined with sucralfate and prevents its action
- b) Combination of these two drugs produces serious side effects like agranulocytosis

- c) Ranitidine increases the gastric pH so sucralfate is not able to act.
d) Sucralfate inhibits the absorption of ranitidine
10. Anti-peptic ulcer drug that can be given in patients with chronic renal failure (CRF)
a) Aluminium Hydroxide
b) Magnesium Hydroxide
c) Sucralfate
d) None
11. Which of the following drug combinations show antimicrobial synergism?
a) Penicillin + Streptomycin in SABE
b) Ampicillin + Tetracycline in endocarditis
c) Sulfamethoxazole + Trimethoprim in UTI
d) Amphotericin B + Flucytosine in cryptococcal meningitis
12. A drug of choice for chlamydial infection in pregnancy is:
a) Doxycycline
b) Tetracycline
c) Erythromycin
d) Ciprofloxacin
13. A diabetic patient develops cellulitis due to staphylococcus aureus that was found to be methicillin resistant on the antibiotic sensitivity testing. All of the following antibiotics will be appropriate EXCEPT:
a) Vancomycin
b) Imipenem
c) Teicoplanin
d) Linezolid
14. A middle-aged man with chronic renal failure is diagnosed to have sputum-positive pulmonary tuberculosis. His creatinine clearance is 25 ml/min. All of the following drugs need modification in doses EXCEPT:
a) Isoniazid
b) Streptomycin
c) Rifampicin
d) Ethambutol
15. Bone marrow depressive drugs in the treatment of AIDS patient are:
a) Didanosine
b) Zalcitabine
c) Zidovudine
d) Cotrimoxazole
e) Ganciclovir
16. Which of the following parameters is not monitored in a patient on methotrexate therapy?
a) Liver function test
b) Lung function test
c) Eye examination
d) Hemogram

17. A pregnant woman of >35 weeks gestation has SLE. All of the following drugs in treatment EXCEPT:

- a) Methotrexate
- b) Sulfasalazine
- c) Prednisolone
- d) Chloroquine

18. Fully humanized antibodies used in treatment of rheumatoid arthritis?

- a) Anakinra
- b) Adalimumab
- c) Infliximab
- d) Leflunomide

19. A 56 years old female presented with breast carcinoma and she was prescribed herceptin (trastuzumab). Which of the following statements regarding this drug is true?

- a) It is an antibody produced entirely from mouse containing no human component
- b) It is a monoclonal antibody produced by injecting HER-2 antigen
- c) It is a polyclonal antibody
- d) It is a monoclonal antibody containing only human component

20. A patient of multidrug resistant tuberculosis is on antitubercular drugs. After a few months she develops an inability to distinguish between red and green color. Most likely drug causing these symptoms is:

- a) Rifampicin
- b) Ethambutol
- c) Cycloserine
- d) Ethionamide

Long Essay (15 Marks X 2 = 30 marks)

1. A 14-year-old boy presented with polyuria, polydipsia and weight loss of about 6 kg in last 3 months. His biochemical evaluation showed FBS 280 mg/dl; PPBS 370 mg/dl; HbA1c 10.4%. After assessment, his diagnosis was Type 1 Diabetes mellitus

1.1 Discuss the pharmacological management of this patient [5 marks]

1.2 What are the expected adverse effects of the medications? [3 marks]

1.3 Explain the precautions to be taken to prevent the adverse effects? [2 marks]

1.4 Enumerate the first-line drugs used in the treatment of tuberculosis [2 Marks]

1.5 Discuss the mechanism of action and adverse effects of any one of them [2.5 + 2.5 Marks]

1.6 Explain the regimen for the treatment of Multi-Drug Resistant (MDR) tuberculosis [3 marks]

Short Essays [10 X 5 = 50 Marks]

1.1. Describe the uses and adverse effects of corticosteroids [2.5 + 2.5 marks]

1.3 Explain the mechanism of action and adverse effects of aminoglycosides [2.5 + 2.5 marks]

- 1.4 Discuss the Mechanism of action, adverse effects and uses of Clomiphene Citrate [2+ 1+ 2 marks]
- 1.5 Explain the therapeutic uses and adverse effects of Zidovudine [3+2 marks]
- 1.6 Describe the mechanism of action and therapeutic use of Bisphosphonates [3+2 marks]
- 1.7 Describe the uses and adverse effects of Heparin [2+3]
- 1.8 Explain the mechanism of action and therapeutic uses of Angiotensin Converting Enzyme Inhibitors [2.5+2.5 marks]
- 1.9 What is the role of calcium channel blockers in the treatment of hypertension? Discuss their adverse effects [3+2 marks]
- 1.10 A patient is being discharged from hospital after treatment of an otherwise uneventful acute myocardial infarction (MI). He is a known hypertensive and was found to have elevated LDL during this admission. His blood sugars are normal.
- 1.11 Describe in brief about 5HT₃ antagonists and their uses? (3+2)
- 1.12 What is status asthmaticus and its treatment (2+3)
- Mechanism of action of Vancomycin, its uses and adverse effects (2+2+1)

Department of MICROBIOLOGY

TABLE OF CONTENTS

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I. GOALS AND OBJECTIVES

GOAL

- The broad goal of the teaching of undergraduate students in Microbiology is to provide an understanding of the natural history of infectious disease in order to deal with the etiology, pathogenesis, laboratory diagnosis, treatment and control of infections in the community.

OBJECTIVES

1. Competencies: The undergraduate learner demonstrate:
 - a. Understanding of role of microbial agents in health and disease
 - b. Understanding of the immunological mechanisms in health and disease
 - c. Ability to correlate the natural history, mechanisms and clinical manifestations of infectious diseases as they relate to the properties of microbial agents
 - d. Knowledge of the principles and application of infection control measures
 - e. An understanding of the basis of choice of laboratory diagnostic tests and their interpretation, antimicrobial therapy, control and prevention of infectious diseases.

c) INTEGRATION

- The teaching should be aligned and integrated horizontally and vertically in organ systems with emphasis on host-microbe-environment interactions and their alterations in disease and clinical correlations so as to provide an overall understanding of the etiological agents, their laboratory diagnosis and prevention.

II. TERMS AND TEACHING GUIDELINES

1. LECTURE

Is a teaching learning method which includes traditional and interactive sessions involving a large group.

2. SMALL GROUP DISCUSSION

It is an instructional method involving small groups of students in an appropriate learning context.

3. DOAP (Demonstration- Observation - Assistance -Performance)

A practical session that allows the student to observe demonstration assists the performer, perform in a simulated environment, perform under supervision or perform independently.

4. SELF DIRECTED LEARNING

A process in which individuals take the initiative, with or without the help of others in diagnosing their learning needs, formulating learning goals, identifying human and material sources for learning , choosing and implementing appropriate learning methods.

5. SKILL ASSESSMENT

Is a session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands.

6. CORE

A competency that is necessary in order to complete the requirements of the subject (traditional must know)

7. NON –CORE

A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know).

III. MINIMUM TEACHING HOURS

MCI No	Specific Learning Objective	Number of competencies	LECTURE	SGL / Practicals		SDL
MI1	General Microbiology and Immunity	11	16	10	15	3
MI2	CVS and Blood	7	9	10	6	1
MI3	Gastro intestinal and hepatobiliary system	8	10	5	6	0
MI4	Musculoskeletal system skin and soft tissue infections	3	10	5	6	2
MI5	Central Nervous System infections	3	5	9	4	1
MI6	Respiratory tract infections	3	5	11	9	1
MI7	Genitourinary & Sexually transmitted infections	3	5	5	6	1
MI8	Zoonotic diseases and miscellaneous	16	10	15	13	1
	TOTAL	54	70	70	65	10
	CBME Requirement		70	135		10

IV . LEARNING OBJECTIVES

- Learning objectives are derived as per the competency given in MCI CBME manual The following instructions may be followed
- Topics are numbered as per MCI like MI1,MI2, MI3... MI8
- Under each topic competency are numbered as per MCIMI1.1,MI1.2 MI8.16
- Under each competency sub competencies are numbered as MI1.1.1.MI1.1.2.....
- The objectives mentioned are basic minimum to be covered under the curriculum. For students benefit covering the topic beyond the mentioned competencies is desirable

TOPIC: GENERAL BACTERIOLOGY & IMMUNOLOGY (MI1.1-1.11)

No of competencies–11

No of procedures requiring certification –1

MI1.1 Describe the different causative agents of Infectious diseases, the methods used in their detection, and discuss the role of microbes in health and disease

MI1.1.1 Introduction to Infectious diseases

Define: Health, Disease, infectious agents, commensalism, parasite, pathogen and opportunistic pathogen. Classify types of infections, Describe chain of infection Enumerate various types of medically important micro-organisms - bacteria, viruses, parasites, fungi

Differentiate between pathogen, commensals, and saprophyte.

MI1.1.2 Isolation & identification of bacteria

MI1.1.2.1 Describe the classification & morphology of bacteria

MI1.1.2.2 Describe general pathogenesis and general lab diagnosis of bacterial infections

MI1.1.2.3 Define, classify culture media, applications of culture media

List out and describe different culture methods

MI1.1.2.4 Interpretation of various biochemical reactions

MI1.1.3 Introduction to virology

- Describe the classification & morphology of virus
- Describe general pathogenesis and general lab diagnosis of viral infections

MI1.1.4 Introduction to mycology

- Describe the classification & morphology of fungi .Describe general pathogenesis and general lab diagnosis of fungal infections.

MI1.1.5 Introduction to parasitology

- Describe the classification, morphology of parasites.
- Describe general pathogenesis and general lab diagnosis of parasitic infections

MI1.2 Perform and identify the different causative agents of Infectious diseases by Gram Stain, ZN stain and stool routine microscopy

MI1.3 Describe the epidemiological basis of common infectious diseases

- Define: Epidemiology, Describe the various epidemiological patterns of infectious disease.
- Discuss the various microbial factors contributing to disease.
- Discuss the various sources and reservoirs of infections.
- Describe the various modes of transmission of infections.

MI1.4 Classify and describe the different methods of **sterilization and disinfection**. Discuss the application of the different methods in the laboratory, in clinical and surgical practice

MI1.4.1 Define: Sterilization, disinfection, asepsis, antiseptics, and decontamination.

- Classify & describe various methods of sterilization methods
- Discuss various methods of disinfection
- List out Testing of disinfectants. Discuss the application of the different methods in clinical and surgical practice.

MI1.5 Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice

MI1.5.1 Classify the medical devices using Spaulding's classification

- Classify disinfectants
- Define & applications of Fumigation, fogging
- Describe: Plasma sterilization
- Identify the most appropriate method of sterilization / disinfection in the given cases scenario.

MI1.6 Describe the mechanisms of **drug resistance**, and the methods of antimicrobial susceptibility testing and monitoring of antimicrobial therapy

MI1.6.1 Describe the bacterial genetic structures

- Describe bacterial variation – mutation & gene transfer
- Describe the methods of gene transfer in bacteria
- Describe gene transfer by artificial methods.
- List out mechanism of action of antimicrobial agents

MI1.6.2 Define drug resistance, List out various mechanisms of antibacterial resistance.
MRSA,VRE,ESBL,MBL etc

- Define: Bacteriostatic, bactericidal, pharmacodynamics, pharmacokinetics, adverse reactions.
- List out and describe different methods of antimicrobial susceptibility testing
- Discuss MIC, broth dilution, agar dilution
- Describe principles of antibiotics selection and monitoring therapy

MI1.7 Describe the **immunological mechanisms in health**

MI1.7.1 Immunity

- Define & classify Immunity. Describe in detail all types of Immunity.
- Describe the role of vaccines in Immunity

MI1.7.2 Immune system - Describe structure and functions of immune system

MI1.7.3 Antigen & Immunoglobulins

- Define & classify Antigen. Describe characteristics of Antigens
- Define & classify Immunoglobulins
- (Antibody).
- Describe in detail all types of Antibody.

MI1.7.4 Complement system

- Describe components, general properties cascade and role of Complement system in health and disease

MI1.7.5 Antigen antibody reactions

- Define & classify antigen antibody reactions
- Discuss the principles of Ag -Ab reactions
- Describe the applications of Ag-Ab reactions in the diagnosis of diseases.
- Describe the approach to interpretation of Ag-Ab reaction in the diagnosis of diseases.

MI1.8 Describe the mechanisms of **immunity and response** of the host immune system to infections

MI1.8.1 Define & classify Immune response

- Describe humoral immune response – Primary response, Secondary response, Td response,

T independent response, immunomodulators, monoclonal antibodies

MI1.8.2 Describe cell mediated immune response

- cytokines, importance of CMI
- Differentiate humoral and cell mediated immuneresponse
- Discuss the theories of immune response of humoralimmunity

MI1.9 Discuss the immunological basis of **vaccines** and describe the Universal Immunisation schedule

- Classify & describe types of immunization
- Define & classify types of Vaccines
- Discuss advantages and disadvantages among different types of vaccines
- Describe National Immunization Schedule(India)
- Importance of passive immunization

MI1.10 Describe the immunological mechanisms in **immunological disorder** (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in detection.

MI1.10.1 Hypersensitivity

- Define& classify Hypersensitivity reactions including Gel and Coombs classification
- Describe the mechanism, clinical features, laboratory evaluation and prevention of type I hypersensitivity
- Describe the mechanism, clinical features, laboratory evaluation and prevention of type II hypersensitivity
- Describe the mechanism, clinical features, laboratory evaluation and prevention of type III hypersensitivity
- Describe the mechanism, clinical features, laboratory evaluation and prevention of type IV hypersensitivity
- Discuss tuberculin test, patch test.

MI1.10.2 Autoimmunity

- Define & Describe mechanisms of Immunological tolerance
- Define & Describe various mechanisms of autoimmunity
- Describe various clinical manifestations of common autoimmune diseases
- Describe approach for laboratory diagnosis of autoimmune diseases

MI1.10.3 Immunodeficiency

- Define & Classify immunodeficiency syndromes
- Describe various immunodeficiency syndromes.
- Discuss the laboratory methods used in detection of immunodeficiency diseases.

MI1.11 Describe the immunological mechanisms of **transplantation and tumor** immunity

Transplantation immunity

- Define & Classify transplantation,
- Define & Discuss the mechanism allograft rejection, prevention of rejection
- Histocompatibility antigens, MHC
- Describe types of HLA typing
- Describe Graft – versus-host reaction

Tumor immunity

- Define Tumor antigen, immunological surveillance
- Describe immune suppression.
- Describe immunotherapy in cancer

TOPIC – CVS & BLOOD(MI2.1-2.7)

No of competencies-7

No of procedures requiring certification-NIL

MI2.1 Describe the etiologic agents in rheumatic fever and their diagnosis

Rheumatic fever

- Describe the immunological basis of rheumatic fever/ non suppurative diseases caused by streptococci
- Classify streptococcus
- Describe the morphology, pathogenesis, antigenic structures, toxin & virulence factors, clinical features, epidemiology of streptococcus pyogenes
- Discuss the serological test for diagnosis of rheumatic fever.
- Discuss the role of antibiotics in treatment and prevention of rheumatic fever.

MI2.2 Describe the classification etio-pathogenesis, clinical features and discuss the diagnostic modalities of **Infective endocarditis**

- Enumerate the organisms causing infective endocarditis
- Viridans Streptococcus, Coagulase negative Staph, HACEK group etc
- Describe the pathogenesis, clinical features of infective endocarditis.
- Discuss the approach to identify the causative organism.
- Discuss the importance of multiple sample collection.
- Discuss automated blood culture systems.

MI2.3 Identify the microbial agents causing Rheumatic Heart Disease & infective Endocarditis

- Identify bacteria by observing colony morphology, biochemical reactions
- Interpret antimicrobial susceptibility test.
- Define: Minimum Inhibitory concentration, minimum bactericidal concentration.
- Discuss other test that can be used for diagnosis.

MI2.3.1 Define sepsis, **septicemia**, bacteremia, fungemia, viremia, parasitemia

- Describe etiology, pathogenesis, clinical features, lab diagnosis including prognostic markers and treatment of septicemia

MI2.4 List the common microbial agents causing **anemia**. Describe the morphology, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia

- List the common microbial agents causing anemia.
- Describe the morphology, of the common microbial agents causing anemia.
- Discuss the mode of infection, pathogenesis & clinical course of the common microbial agents causing anemia.
- Discuss the laboratory diagnosis of the common microbial agents Causing anemia
- Discuss the treatment & prevention of the common microbial agents causing anemia.
- infectious agents causing Iron deficiency, megaloblastic, haemolytic anaemia and anaemia of chronic infections,

MI2.5 Describe the etio- pathogenesis and discuss the clinical evolution and the laboratory diagnosis of kalaazar, malaria, filariasis and other common parasites prevalent in India

Introduction

- Classify parasites and enumerate parasites prevalent to India

MI2.5.1 Malaria

- Describe the morphology, life cycle, pathogenesis, clinical features of malarial parasite.
- Describe the treatment and prevention of malaria.

MI2.5.2 Leishmania

- Describe the morphology, life cycle, pathogenesis, clinical features of leishmania.
- Describe the laboratory diagnosis for kalaazar
- Describe the treatment and prevention for kalaazar

MI2.5.3 Trypanosoma

- Describe the morphology, life cycle, pathogenesis, clinical features of Trypanosoma.
- Describe the laboratory diagnosis for sleeping sickness.
- Describe the treatment and prevention for sleeping sickness

MI2.5.4 Filarial worm

- Describe the morphology, life cycle, pathogenesis, clinical features of filarial worm.
- Describe the laboratory diagnosis for filarial worm.
- Describe the treatment and prevention for filarial worm.

MI2.5.5 Schistosomes

- Describe the morphology, life cycle, pathogenesis, clinical features of Schistosomes.
- Describe the laboratory diagnosis for schistosomiasis.
- Describe the treatment and prevention of schistosomiasis.

MI2.6 Identify the causative agent of malaria and filariasis

MI2.7 Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV

MI2.7.1 Describe morphology, epidemiology, pathogenesis of HIV

- Describe clinical features of AIDS

MI2.7.2 Opportunistic infections in AIDS

MI2.7.3 Describe the immunological abnormalities in HIV infection

- Describe various methods of laboratory diagnosis of HIV
- Discuss applications of serological tests.
- Discuss laboratory monitoring of HIV infection
- Discuss the different approaches to the treatment of AIDS

MI2.7.4 Discuss NACO guidelines, strategies, pre-test counseling, post- test counseling

- Discuss NACO guidelines for post-exposure prophylaxis

MI2.7.5 Describe various modes of transmission of HIV

MI2.7.6 Describe prophylactic measures in preventing HIV

Transmission Standard precautions, spill management etc

TOPIC: GASTROINTESTINAL & HEPATOBILIARY SYSTEM (MI3.1-3.8)

No of competencies 8

No of procedures requiring certification –NIL

MI3.1. Enumerate the microbial agents causing diarrhea and dysentery. Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of these agents.

MI3.1.1-Introduction of gastrointestinal infections

- Brief structure and immunity of GIT
- Define diarrhoea, dysentery
- Enumerate the various etiological agents of diarrhoea bacterial, viral, parasitic etc.
- Classify the etiological agents in different age groups, immune compromised, immune competent individuals.
- Discuss the mode of transmission, the pathogenesis, clinical manifestation and laboratory diagnosis of diarrhoea

MI3.1.2 Epidemiology, pathogenesis, laboratory diagnosis of diarrheagenic E.coli,

MI3.1.3 Epidemiology, pathogenesis, clinical features, complications, laboratory diagnosis, treatment & prophylaxis of Cholera

MI3.1.4 Antibiotic Associated Diarrhoea – Clostridium difficile

MI3.1.5 Viral gastroenteritis etiological agents, epidemiology, pathogenesis, clinical features and laboratory diagnosis - Rota, Astro, Noro

MI3.1.6 Bacillary dysentery Define dysentery etiological agents, pathogenesis, clinical features and laboratory diagnosis of bacillary dysentery - Shigella. Y. enterocolitica

MI3.1.7 Amoebic dysentery Discuss the morphology, life cycle, mode of transmission, pathogenesis, clinical features, complications and laboratory diagnosis of Amoebic dysentery difference between

amoebic and bacillary dysentery - *E.histolytica*

- Mention briefly about non pathogenic intestinal amoebae

MI3.1.8 Etiological agents, pathogenesis, clinical manifestations and laboratory diagnosis of diarrhoea in immune compromised host- Giardiasis *Cryptosporidium*, *Cyclospora*, *Isospora*, *Giardia*

MI3.1.9 Soil transmitted helminthic infections- *Ascaris*, *Enterobius*, *Trichuris trichiura*

MI3.2 Identify the common microbial agents causing diarrhoea and dysentery

MI3.3 Enteric fever Describe the enteric fever pathogens and discuss the evaluation of clinical course and the laboratory diagnosis of diseases caused by them

- Define, mention the etiological agents, epidemiology, pathogenesis, clinical manifestations, complications, laboratory diagnosis of enteric fever

MI3.4 Identify the different modalities for diagnosis of Enteric fever, choose the appropriate test related to the duration of illness.

MI3.5 Food poisoning Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis

- Definition, source, pathogenesis, classification of food poisoning etiological agents based on type of food and pathogenesis, clinical manifestation laboratory diagnosis treatment and prophylaxis of food poisoning – *Staphylococcus*, *Bacillus cereus*, *Clostridium perfringens*, *Clostridium botulinum*, *Salmonella typhimurium*, halophilic vibrios etc

MI 3.6 Acid Peptic disease Describe the etiopathogenesis of Acid peptic disease and the clinical course . Discuss the diagnosis and management of the causative agent of Acid peptic disease .

- Etiopathogenesis, clinical features, complications laboratory diagnosis treatment and prophylaxis of Acid peptic disease -*H.pylori*

MI3.7 Viral hepatitis Describe the epidemiology, the etio- pathogenesis and discuss the viral markers in the evolution of viral hepatitis. Discuss the modalities in the diagnosis and prevention of viral hepatitis

MI 3.7.1 Discuss the pathogenesis, clinical manifestations, complications and laboratory diagnosis, treatment and prophylaxis of enterically transmitted viral hepatitis Hepatitis A & E

MI 3.7. 2 Discuss the pathogenesis, clinical features, laboratory diagnosis treatment and prophylaxis of parenteral transmitted viral hepatitis -Hepatitis B

MI 3.7. 3 Discuss the pathogenesis, clinical features, laboratory diagnosis treatment and prophylaxis of parenteral transmitted viral hepatitis C & D

- Note on national programme National Viral Hepatitis Control & Prevention Programme (NVHCP)

TOPIC: INFECTIONS OF SKIN & MUSCULOSKELETAL SYSTEM (MI4.1-4.3)

No of competencies–3

No of procedures requiring certification –NIL

MI4.1 - Enumerate the microbial agents causing anaerobic infections. Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of anaerobic infections

MI4.1.1 Introduction to anaerobic infections

- List the normal anaerobic flora of human body.
- Enumerate and classify disease causing anaerobic bacteria with disease caused by them.
- Define Anaerobiasis. Describe the types of samples and collection methods for anaerobic culture. Describe the transport of specimen and culture of clinical samples for anaerobic culture. List the antibiotics used to treat anaerobic infections
- Classify Genus Clostridium. Describe the morphology of Genus Clostridium
- Discuss the etiopathogenesis, clinical features, laboratory diagnosis, treatment and prophylaxis of **Gasgangrene**.

MI4.1.2 Discuss the pathogenesis, clinical features, laboratory diagnosis, treatment and prophylaxis of **Tetanus**.

MI4.1.3 Discuss the pathogenesis, clinical features, laboratory diagnosis and treatment of **botulism**.

MI4.1.4 Discuss the etiopathogenesis, clinical features, laboratory diagnosis and treatment of **pseudomembranous colitis**.

MI4.1.5 Classification, diseases, laboratory diagnosis & treatment of infections caused by **non sporing anaerobes**

MI4.1.6 Discuss the pathogenesis, clinical features, lab diagnosis, treatment and prophylaxis of **Actinomycosis & nocardiosis**

MI4.2 – Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of bone & joint infections

- Classify bone & joint infections
- Enumerate the microorganisms causing infections of bone & joint (infectious arthritis, osteomyelitis and orthopedic implant associated infections)
- Describe the etiopathogenesis & clinical course of bone & joint infections
- Discuss the laboratory diagnosis of bone & joint infections

MI4.3 – Describe the etiopathogenesis of infections of skin and soft tissue and discuss the clinical course and the laboratory diagnosis

MI4.3.1 Introduction to Skin & Soft Tissue Infections

- Describe the normal anatomy, innate immunity & commensals of skin
- Define folliculitis, furuncle, carbuncle, macule, papule, nodule, pustule, vesicle, scales, ulcer and bulla.

- List the various organisms causing skin and soft tissue infections - Bacteria, Viruses, Fungi, Parasites
- Describe the pathogenesis, clinical course and laboratory diagnosis of **Staphylococcus aureus**
- Enumerate the etiological agents and laboratory diagnosis of post-operative wound infections & burns wound infection.

MI 4.3.2

- Describe the pathogenesis, clinical course and laboratory diagnosis of **Leprosy**
- Describe the pathogenesis, clinical course and laboratory diagnosis of **Atypical mycobacterial infections.**

MI4.3.3 Enumerate **viruses causing skin and soft tissue lesions**. Discuss in detail Herpes viruses, pathogenesis, clinical features, laboratory diagnosis, treatment and prophylaxis

MI4.3.3a Viral exanthematous infections - Measles, Rubella, (Coxsackie, Pox, HPV, Molluscum, Hand foot mouth Disease)

MI4.3.4 List fungi causing **superficial fungal diseases**. Describe their clinical features, laboratory diagnosis, treatment and prophylaxis - Tinea versicolor, piedra, tinea nigra, dermatophytoses, Mucocutaneous candidiasis

MI4.3.5 subcutaneous mycosis – list the fungi causing subcutaneous mycosis. Describe the clinical features, laboratory diagnosis and treatment of subcutaneous mycosis.- Sporotrichosis, Chromoblastomycosis, Rhinosporidiosis, entomophthoromycosis, mycetoma

MI4.3.6 Enumerate the tissue nematode parasites causing skin and soft tissue lesions with their clinical course and laboratory diagnosis- Filariasis, Onchocerca, Loa loa, Mansonella, Dracunculus, Trichinella and Larvamigrans

MI4.3.7 Describe the pathogenesis, clinical course and laboratory diagnosis of Diabetic foot & cellulitis- Streptococcus & others

MI4.3.8 Describe the pathogenesis, clinical course and laboratory diagnosis of cutaneous Anthrax

TOPIC: CENTRAL NERVOUS SYSTEM INFECTIONS–(MI5.1-5.3)

No of competencies:(3)

No of procedures that require certification: NIL

MI5.1 Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of **meningitis**

MI5.1.1 Describe normal structure of CNS and normal protective mechanisms

MI5.1.2 Define meningitis

MI5.1.3 Classify meningitis based on age group and duration

MI5.1.4. Enumerate the causative agents of meningitis and classify them based on age group affected, duration of disease and immune status

MI5.1.5. Describe general pathogenesis and clinical features of meningitis

MI5.1.6. Discuss the general approach to diagnosis of meningitis

MI5.1.7. Describe pathogenesis, lab diagnosis, prevention and treatment of meningococcal meningitis

MI5.1.8. Describe pathogenesis, lab diagnosis, prevention and treatment of pneumococcal meningitis

MI5.1.9. Describe pathogenesis, lab diagnosis, prevention and treatment of meningitis caused by *Streptococcus agalactiae*

MI5.1.10. Describe pathogenesis, lab diagnosis, prevention and treatment of meningitis caused by *Haemophilus influenzae*

MI5.1.11. Describe pathogenesis, lab diagnosis, prevention and treatment of Listeria meningitis

MI5.1.12. Describe pathogenesis, lab diagnosis, prevention and treatment of gram negative bacterial meningitis

MI5.1.13. Describe pathogenesis, lab diagnosis, prevention and treatment of tubercular meningitis

MI5.1.14. Describe pathogenesis, lab diagnosis, prevention and treatment of meningitis caused by spirochetes

MI5.1.15. Describe pathogenesis, lab diagnosis, prevention and treatment of viral meningitis caused by *Herpes viruses, Enteroviruses, Mumps virus, etc*

MI5.1.16. Describe pathogenesis, lab diagnosis, prevention and treatment of meningitis caused by fungi - *Cryptococcus neoformans, Candida Spp., Coccidioides, Histoplasma, etc*

MI5.2 Describe the etiopathogenesis, clinical course and discuss the laboratory diagnosis of **encephalitis**

MI5.2.1. Define: Encephalitis

MI5.2.2. Classify Encephalitis

MI5.2.3. Enumerate the causative agents of Encephalitis

MI5.2.4. Describe general pathogenesis of encephalitis

MI5.2.5. Describe the clinical presentation of Encephalitis

MI5.2.6. Discuss the approach to diagnosis of viral Encephalitis

MI5.2.7. Describe morphology of polio virus. Describe pathogenesis, clinical features, lab diagnosis and prevention of poliomyelitis

MI5.2.8. Describe morphology of rabies virus. Describe pathogenesis, clinical features, lab diagnosis and prevention of rabies

MI5.2.9. Describe etiology, pathogenesis, clinical features, lab diagnosis and prevention of slow viral infections

MI5.2.10. Discuss the etiopathogenesis, clinical features and approach to diagnosis of parasitic meningitis and Encephalitis

MI5.2.11. Discuss the etiopathogenesis, clinical features and approach to diagnosis of brain abscess

MI5.2.12. Discuss the etiopathogenesis, clinical features and approach to diagnosis of cystic brain lesion- neurocysticercosis, hydatid disease of brain

MI5.3 Identify the microbial agents causing meningitis

MI5.3.1. Analyse clinical features, interpret laboratory test results provided to diagnose the clinical condition and identify the causative microorganism.

MI5.3.2 Describe normal ranges of common CSF parameters

MI5.3.3. Interpret abnormal results of CSF analysis report provided.

MI5.3.4 Demonstrate CSF collection in a mannequin

TOPIC: RESPIRATORY TRACT INFECTIONS MI6.1-6.3

No of Competency-3

No of procedures require Certification-2

Competency MI6.1 Describe the etio-pathogenesis, laboratory diagnosis and prevention of Infections of upper and lower respiratory tract

- **MI6.1.1** Describe the structure respiratory system and role of immunity in respiratory system
- **MI6.1.2** Discuss the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of rhinitis
- **MI6.1.3** Discuss the classification, etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of otitis
- **MI6.1.4** Discuss the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of sinusitis
- **MI6.1.5** Discuss the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of pharyngitis, tonsillitis
- **MI6.1.6** Discuss the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of laryngitis, bronchitis, bronchiolitis
- **MI6.1.7** Define & classify pneumonia. Enumerate the etiological agents of pneumonia general laboratory diagnosis and prophylaxis of pneumonia
- **MI6.1.8** Discuss pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of community acquired pneumonia-pneumococci
- **MI6.1.9** Enumerate the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of hospital acquired pneumonia-Klebsiella, Staphylococci, Legionella

- **MI6.1.10** Enumerate the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis treatment and prophylaxis of ventilator associated pneumonia- *Acinetobacter*
- **MI6.1.11** Enumerate the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of atypical pneumonia- *Mycoplasma*, *Chlamydia*
- **MI6.1.12** Enumerate the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of viral respiratory infections – Adeno, RSV,EBV
- **MI6.1.13** Enumerate the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of viral pneumonia – Influenza virus, SARS -corona
- **MI6.1.14** Enumerate the etiological agents, pathogenesis, epidemiology clinical features, complications and laboratory diagnosis of pneumonia in immune compromised host- *Pneumocystis jirovecii*, CMV
- **MI6.1.15** Describe the epidemiology, mode of transmission, pathogenesis, clinical features complications, laboratory diagnosis, treatment and prophylaxis of pulmonary tuberculosis
- **MI6.1.16** Discuss the importance of MDR TB, RNTCP HIV TB co-infection
- **MI6.1.17** Define and classify the atypical mycobacteria discuss the pathogenesis, clinical features, complications and treatment of pulmonary atypical mycobacterial infection
- **MI6.1.18** Discuss the general characters of dimorphic fungi. Discuss the mode of transmission, pathogenesis, clinical features, complications and laboratory diagnosis of pulmonary mycosis-*Histoplasma*, *coccidioides*, *Blastomyces*, *Paracoccidioides*
- **MI6.1.19** Discuss mode of transmission, pathogenesis, clinical features laboratory diagnosis of aspergillosis
- **MI6.1.20** Parasites affecting lung – *Paragonimus westermanii* (non core), Loefflers syndrome, amoebic lung abscess
- **MI6.1.21** Discuss the immune prophylaxis for respiratory tract infections

MI6.2 Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)

- **MI 6.2.1** Describe the method of sample collection and transportation
- **MI 6.2.2** Explain the steps of gram's staining procedure
- **MI 6.2.3** Do the grams staining procedure
- **MI 6.2.4** Observe the stained smear
- **MI 6.2.5** Interpret and Report the staining results

MI6.3 Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain)

- **MI 6.3.1** Enumerate the organisms causing LRTI
- **MI 6.3.2** Describe the method of sample collection
- **MI 6.3.3** Recap the Gram's staining procedure and repetition
- **MI 6.3.4** Explain the Acid fast staining procedure
- **MI 6.3.5** Perform the Acid fast staining procedure
- **MI 6.3.6** Interpret and Report the staining results

Topic: - Genitourinary & sexually transmitted infections (MI7.1-7.3)

No of competencies–3

No of procedures requiring certification –NIL

MI 7.1 - Describe the etiopathogenesis and discuss the laboratory diagnosis of infections of genitourinary system

MI 7.1.1 Describe the normal anatomy and innate defense mechanisms in the male and female genital tract

MI 7.1.2 Enumerate the various infections of genitourinary tract

MI 7.1.3 Describe the etiology and pathogenesis of Genitourinary tract infections in general

MI 7.1.4 Discuss the clinical features, sample collection and laboratory diagnosis of genitourinary infections in general

MI 7.1.5 Discuss the effect/ complications of genitourinary infections in pregnancy (Maternal & fetal)

MI 7.2 – Describe the etiopathogenesis and discuss the laboratory diagnosis of **Sexually Transmitted Infections**. Recommend preventive measures

MI 7.2.1 Enumerate the bacterial, viral, fungal and parasitic agents causing Sexually Transmitted infections

MI 7.2.2 Describe the pathogenesis, clinical features, laboratory diagnosis and treatment of pathogens causing ulcerative lesions in the genital tract (Syphilis, Haemophilus ducreyi, LGV, Calymmatobacterium granulomatis, Herpes Virus)

MI 7.2.3 Describe the pathogenesis, clinical features, laboratory diagnosis and treatment of pathogens causing Urethral syndrome/ white discharge per vagina (Gonococci, Candida spp, Trichomonas vaginalis, Bacterial vaginosis)

MI 7.2.4 Describe the pathogenesis, clinical features, laboratory diagnosis and treatment of Mycoplasma spp

MI 7.2.5 Describe non gonococcal urethritis. Enumerate the agents causing the same

MI 7.2.6 Differentiate between bacterial vaginosis & bacterial vaginitis

MI 7.2.7 Discuss the various measure for prevention of Sexually Transmitted infections

MI 7.2.8 Discuss the importance of confidentiality in reporting Sexually transmitted diseases

MI 7.2.9 Discuss the role of counselling in management of Sexually transmitted diseases

MI 7.2.10 Enumerate the pathogens causing congenital infections. Discuss the pathogenesis, lab diagnosis, prophylaxis, prevention and treatment of these infections.

MI 7.3 – Describe the etiopathogenesis, clinical features, the appropriate method for specimen collection and discuss the laboratory diagnosis of **Urinary tract infections**

MI 7.3.1 Describe the normal anatomy, physiology and Innate defense mechanisms of the urinary tract

MI 7.3.2 Mention the types of Urinary tract infections (upper and lower)

MI 7.3.3 Mention the causative agents of urinary tract infection

MI 7.3.4 Enumerate the predisposing factors in Urinary Tract infections

MI 7.3.5 Discuss the pathogenesis of urinary tract infection

MI 7.3.6 Discuss the clinical features of Urinary tract infections (Difference between upper and lower urinary tract infections)

MI 7.3.7 Describe the methods of collection of urine from infant, adult men/women, and catheterized patients

MI 7.3.8 Discuss the concept of significant bacteriuria

MI 7.3.9 Discuss about asymptomatic bacteriuria & conditions these are seen

MI 7.3.10 Describe about sterile pyuria and enumerate the disease causing sterile pyuria

MI 7.3.11 Define Catheter associated urinary tract infection. Enumerate the predisposing factors, prevention, diagnosis and treatment of CAUTI

MI 7.3.12 Discuss the laboratory diagnosis and treatment of Urinary tract infections

TOPIC- ZOONOTIC DISEASES & MISCELLANEOUS (MI8.1-8.16)

No of competencies-16

No of procedures require certification-1

MI8.1 Enumerate the microbial agents and their vectors causing **Zoonotic diseases**. Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention

Introduction -Define zoonotic infections. Enumerate organisms causing zoonotic infections in man and the mode of transmission/vectors transmitting them

MI8.1.1 Anthrax-Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention of Anthrax

MI8.1.2 Plague- Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention plague

MI8.1.3 Brucellosis-Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention brucellosis

MI8.1.4 Leptospirosis-Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention leptospirosis

MI 8.1.5 Rickettsia- Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention Rickettsial and miscellaneous zoonoses

MI8.1.6 Arboviral - Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention of Arboviral infections- Dengue, chikungunya, KFD

MI8.1.7 Toxoplasma & Balantidium - Describe the morphology, mode of transmission,

pathogenesis and discuss the clinical course laboratory diagnosis and prevention of toxoplasmosis & balantidiasis.

MI1.8.8Taeniasis-Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention of taeniasis

MI1.8.9 Hydatid disease-Describe the morphology, mode of transmission, pathogenesis and discuss the clinical course laboratory diagnosis and prevention of hydatid cyst disease

MI1.8.10 Rabies - Describe morphology of Rabies virus. Describe pathogenesis, clinical features, lab diagnosis and prevention of rabies

MI8.2 Describe the etio-pathogenesis of **Opportunistic Infections (OI)** and discuss the factors contributing to the occurrence of OI, and the laboratory diagnosis

- Define opportunistic infections
- Enumerate organisms causing opportunistic infections
- Discuss factors contributing to development of opportunistic infections

Viral agents

- Describe pathogenesis, clinical features, laboratory diagnosis and prevention of viral opportunistic infections - Herpse group, human papilloma virus,

Fungal OI

- Describe pathogenesis, clinical features, laboratory diagnosis and prevention of candidiasis
- Describe pathogenesis, clinical features, laboratory diagnosis and prevention of Cryptococcosis
- Describe pathogenesis, clinical features, laboratory diagnosis and prevention of mucormycosis

Parasitic OI

- Describe pathogenesis, clinical features, laboratory diagnosis and prevention of opportunistic parasitic infections - coccidian intestinal parasitic infections, strongyloidiasis

MI8.3 Describe the role of **oncogenic viruses** in the evolution of virus associated malignancy

- Define oncogenic viruses
- Enumerate oncogenic viruses
- Describe pathogenesis of viral oncogenesis
- Describe laboratory diagnosis of oncogenic viral infections
- Describe methods of prevention of oncogenic viral infections

MI8.4 Describe the etiologic agents of **Emerging Infectious diseases**.

- Discuss the clinical course and diagnosis
- Define emerging infectious agents.
- Enumerate agents causing emerging infections

- Describe factors contributing to emerging infections.
- Discuss clinical course and laboratory diagnosis of emerging infections
- Describe the Indian scenario of emerging infectious agents

MI8.5 Define **Healthcare Associated Infections (HAI)** and enumerate the types. Discuss the factors that contribute to the development of HAI and the methods for prevention

- Define Healthcare Associated Infections(HAI)
- Enumerate the types of HAI
- Discuss the factors that contribute to the development of and methods to prevent catheter associated urinary tract infection(CAUTI)
- Discuss the factors that contribute to the development of and methods to prevent central line associated blood stream infection(CLABSI)
- Discuss the factors that contribute to the development of and methods to prevent ventilator associated pneumonia(VAP)
- Discuss the factors that contribute to the development of and methods to prevent surgical site infection(SSI)
- Describe principles and application of antibiotic stewardship

MI8.6 Describe the basics of **PANDEMIC MANAGEMENT (Infection control)**

- Define Standard precautions
- List the components of Standard precautions
- Describe the various transmission-based precautions.
- Describe the constitution and functions of HICC.
- Define Biomedical waste
 - Classify biomedical waste and describe methods of segregation, decontamination and disposal of each type as per Biomedical waste management rule
 - Describe appropriate management of needle stick injury in health care setting
 - Manage bio-spill
 - Describe vaccines that are useful in health care workers

MI8.7 Demonstrate Pandemic management (Infection control) practices and use of **Personal Protective Equipment (PPE)**

MI8.8 Describe the methods used and significance of assessing the microbial contamination of food, water and air

- Describe the methods used and significance of assessing the microbial contamination of food.
- Describe the methods used and significance of assessing the microbial contamination of water.
- Describe the methods used and significance of assessing the microbial contamination of air.

MI8.9 Discuss the appropriate method of **collection of samples** in the performance of laboratory tests in the detection of microbial agents causing Pandemic (infectious diseases)

- Discuss methods of sample collection for laboratory diagnosis of upper respiratory infections
- Discuss methods of sample collection for laboratory diagnosis of lower respiratory infections

- Discuss methods of sample collection for laboratory diagnosis of CVS and blood stream infections
- Discuss methods of sample collection for laboratory diagnosis of CNS infections
- Discuss methods of sample collection for laboratory diagnosis of gastrointestinal infections
- Discuss methods of sample collection for laboratory diagnosis of infections of skin and soft tissues
- Discuss methods of sample collection for laboratory diagnosis of musculoskeletal infections
- Discuss methods of sample collection for laboratory diagnosis of infections eye, nose and ear.
- Discuss methods of sample collection for laboratory diagnosis of genitourinary infections

MI8.10 Demonstrate the appropriate method of collection of samples in the performance of laboratory tests in the detection of microbial agents causing Pandemic (Infectious diseases)

MI8.11 Demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases

MI8.12 Discuss confidentiality pertaining to patient identity in laboratory results

- Discuss the rights and responsibility of patients
- Discuss the rights and responsibility of laboratory with respect to confidentiality of laboratory results
- Discuss the ethical issues involved in confidentiality pertaining to patient identity.
- Discuss the medico legal consequences of breach in confidentiality

MI8.13 Choose the appropriate laboratory test in the diagnosis of the infectious disease

- Identify the clinical condition based on the history provided.
- Choose the appropriate laboratory tests in the diagnosis of given infectious disease.
- Justify why a particular laboratory test was chosen to diagnose a given infectious disease

MI8.14 Demonstrate **confidentiality** pertaining to patient identity in laboratory results

- Demonstrate the understanding of importance of confidentiality with respect to patient's laboratory test results
- Identify situations where confidentiality needs to be maintained regarding patient's laboratory test results and where it can be bypassed
- Demonstrate confidentiality pertaining to patient identity in laboratory results.
- Counsel the patient about the test results in simulated setting

MI8.15 Choose and **Interpret the results** of the laboratory tests used in diagnosis of the infectious diseases

- Choose appropriate laboratory test(s) in the diagnosis of the infectious disease based on the case scenario and the order in which they need to be performed, if applicable
- Interpret the results of the laboratory tests used in diagnosis of the given infectious disease scenario

MI8.16 Describe the **National Health Programs** in the prevention of common infectious disease (for information purpose only as taught in CM)

- Enumerate all the National Health Programs regarding common infectious diseases in India
- Describe the goals of the various National Health Programs in the prevention of common infectious disease.
- Describe laboratory diagnostic tools used in the National Programs related to infectious diseases
- Describe general immune prophylactic and chemo prophylactic measures used in the National Programs related to infectious diseases

V. TEACHING & LEARNING METHODS

TOPIC- GENERAL BACTERIOLOGY & IMMUNOLOGY MI 1.1-1.11

Sl. n o	LECTURES (16)	SGL (10)	SDL (3)	PRACTICAL (15)
1	MI1.1.1 Introduction to infectious diseases and History	Microscopy - Types of microscopes, principles and applications of each	MI1.7.2 immune system	Simple stain exercise and hanging drop demonstration
2	MI1.1.2 Morphology & Physiology of Bacteria	MI1.1.2.3 Culture Media	MI1.7.3 Antigen & immunoglobulins	MI1.1.2.3 Culture media and methods (including anaerobic)
3	MI1.1.3 Introduction to virology	MI1.1.2.4 Principles of lab diagnosis of infectious diseases – identification of bacteria (including biochemical tests)	MI1.10.4 Immunodeficiency	Identification of bacteria based on Biochemical tests
4	MI1.1.4 Introduction to mycology	MI1.3 Epidemiology & pathogenesis of Infectious diseases		MI1.1.3 Demonstration of Viral Diagnostic methods - microscopy /culture/immunological/molecular
5	MI1.1.5 Introduction to parasitology	Visit to CSSD		MI1.1.4 Demonstration of Diagnostic methods used in Fungal infections -

				microscopy/culture /i mmunological/mol ec ular
6	MI1.4.1 Sterilization & Disinfection - Physical methods	MI1.5.1 Sterilization & Disinfection, Spaulding's classification, chemical methods		MI1.1.5 Demonstration of Diagnostic methods used in parasitic infections - microscopy/culture /i mmunological/mol ec ular; stool examination Exercise (1)
7	MI1.6.1 Bacterial genetics (Bacteriophage)	MI1.6.2 Principles and types of antibiotic susceptibility testing (Introduce MRSA, ESBL, MBL, VRE)		MI1.2 Gram staining (1)
8	MI1.7.1 Immunity	MI1.9 Immunological basis of vaccine & Universal Immunization Schedule		MI1.2 Gram staining (2)
9	MI1.7.4 Complement system			MI1.2 Acid fast staining (1)
10	MI1.7.5 Antigen-Antibody reactions			MI1.2 Acid fast staining (2)
11	MI1.8.1 Immune response - Humoral			MI1.2 Stool examination (2)
12	MI1.8.2 Immune response - cell mediated			MI1.5 Physical methods of sterilization - Demo
13	MI1.10.1 Hypersensitivity -1			MI1.5 Identify the most appropriate method of sterilization / disinfection in the given case scenarios. Discuss the reason for

				choosing the method of sterilization / disinfection.
14	MI1.10.2 Hypersensitivity - 2			MI1.6.2 Antimicrobial susceptibility testing and interpretation – Disk diffusion Demo
15	MI1.10.3 Autoimmunity			MI1.7.5 Demonstration of types of Antigen Antibody reactions
16	MI1.11 Immunology of transplantation & tumour immunity			

SL.N O	LECTURE-9	SGL - 10	SDL - 1	PRACTICAL (6)
1	MI2.1 Rheumatic fever -Microbial agent and pathogenesis, Lab diagnosis and management - Streptococcus pyogenes	MI2.4 Anaemia(1)	Diphyllobothrium latum and Mansonella	MI2.1 AE Rheumatic fever - Streptococci - ASLO
2	MI2.2 Infective endocarditis	Case discussion- Hookworms, pathogenesis, clinical course, lab diagnosis, treatment and prevention	MI2.5.4 Filarial worm	MI2.3.1 AE Sepsis markers - CRP, Procalcitonin - Applied exercise
3	MI2.3.1 Septicemia	Case discussion- Malaria with complication and reinforce life cycle, Babesiosis		MI2.2 AE Infective endocarditis- (Viridans Streptococci, Coagulase negative Staphylococci)
4	MI2.5 Parasites endemic to India- Classification, distribution and diseases burden	MI2.5.3 Trypanosomes		MI2.4 stool examination (3) (Hookworm)
5	MI2.5.1 Malaria, mode of infection, pathogenesis, clinical course, lab diagnosis, treatment and prevention	MI2.5.5 Schistosomes		MI2.6 Demonstration of blood parasites - Plasmodia, Microfilaria (smear)
6	MI2.5.2 Leishmania pathogenesis, clinical course, lab diagnosis, treatment and prevention	MI2.7.2 Opportunistic infections - relevant to HIV/AIDS		MI2.5.2,3 Demonstration of blood parasites - Leishmania, Trypanosomes (smear/picture

7	MI2.7.1 HIV I	MI2.7.4 NACO guidelines, strategies, pre-test counseling, post-test counseling		MI2.7.3 AE Serological diagnosis of HIV - ICT, ELISA, PCR
8	MI2.7.3 HIV 2	MI2.7.5 Modes of transmission, prevention		MI2.7.3 Pre & Posttest counselling, Confidentiality (AETCO M - OSPE)

TOPIC: GASTROINTESTINAL & HEPATOBILIARY SYSTEM MI3.1-3.8

SL.NO	LECTURES (10)	SGL - 5	SDL(0)	PRACTICAL (6)
1	MI3.1.1 Introduction To gastrointestinal infections	MI3.1.2 Diarrheagenic E.coli	MI3.1.4 Antibiotic associated diarrhoea	MI3.1.2 ,3,5 AE -3 Diarrheagenic E.coli, cholera, food poisoning Hanging drop preparation
2	MI3.1.3 Cholera	MI3.1.5 Viral diarrhoea		MI3.1.7 ,8,9 DOAP: Stool examination (3,4,5); Demonstration - Entamoeba Giardia, Coccidia
3	MI3.1.6 Bacillary dysentery	MI3.1.9 Soil transmitted helminthic infections		MI3.1.6 AE Bacillary dysentery
4	MI3.1.7 Parasitic dysentery E.histolytica Balantidium coli	MI 3.6 Overview of Acid peptic disorder		MI3.4 AE – Lab diagnosis of Enteric fever 1st week- blood culture 2 nd week widal test

5	MI3.1.8 Parasitic Diarrhea in immune competent and Immune compromised			MI3.7 AE Seromarkers of Hepatitis B, Hepatitis C
6	MI3.3 Enteric fever			Applied bacteriology, virology and parasitology exercises in GIT
7	MI3.5 Food poisoning			
8	MI 3.7. 1 Enterically transmitted Viral hepatitis - Hepatitis A and E			
9	MI 3.7. 2 - Hepatitis B			
10	MI 3.7. 3 Hepatitis C and D			

TOPIC: INFECTIONS OF SKIN & MUSCULOSKELETAL SYSTEM MI 4.1-4.3

SL.NO	LECTURE (10)	SGL (5)	SDL (2)	PRACTICAL (6)
1	MI4.1.1 Introduction to anaerobic infections	MI4.1.6 Actinomycosis , Nocardia	MI4.3.3a Pox virus	MI4.3.1 Gram stain exercise Gram stain of Cl.tetani Demo) Demonstration of sample collection – (collection of pus)
				AE 3- 1.Cellulitis (Streptococcus pyogenes), 2.Surgical site infection, 3.Burns wound infection (Pseudomonas)

2	MI4.1.2 Tetanus	MI4.3.7 Cellulitis including diabetic foot		MI4.2 AE 1. Osteomyelitis 2. Infective arthritis
3	MI4.1.5 Infections of Nonsporing anaerobes	MI4.3.6 Tissue nematode infections of skin and soft-tissue		MI4.3.2 ZN staining - Demonstration of slides of 1. M Leprae, preparation of Slit Skin Smear demo (video)
4	MI4.2 Bone & joint infections			MI4.3.4, 5 AE Dermatophytoses & Mycetoma collection of sample KOH mount, culture, Side culture; LPCB mount
5	MI4.3 Introduction to skin and soft tissue infections			MI4.3.3 AE - Viral exanthematous fever
6	MI4.3.2 Leprosy, (Atypical mycobacteria affecting skin			
7	MI4.3.3- Herpes viruses			
8	MI4.3.3a Viral exanthematous infections			
9	MI4.3.4 Superficial mycoses			
10	MI4.3.5 Subcutaneous mycoses			

TOPIC: CENTRAL NERVOUS SYSTEM INFECTIONS MI5.1-5.3

SL.NO	LECTURES (6)	SGL (9)	SDL (2)	PRACTICAL (3)
	MI5.1.1 Introduction to CNS infections	MI5.1.2a Pyogenic meningitis	Prevention of Polio and rabies	MI5.2.7,8 Spotter - Polio vaccine, hydatid cyst MI5.2.8AE 1. Rabies - using Negri body slide/photograph MI5.2.12 2.- hydatid cyst, 3. Neurocysticercosis (specimen/CT scan picture) 4. cerebral malaria - peripheral smear- Pl. falciparum or ICT
2	MI5.1.2 Pyogenic meningitis	MI5.1.3 Chronic meningitis		MI5.1.8,9,10 AE. Pyogenic meningitis- Sample collection - CSF (Manequin) 1. Meningococcus, H. influenzae 2. Neonatal meningitis - Streptococcus agalctiae
3	MI5.1.5 Fungal meningitis	MI5.1.4 Aseptic meningitis - Viral causes		MI5.1.13 AE- 3. Tubercular meningitis MI5.1.16. AE 4. Cryptococcal meningitis MI5.2.11 AE - cerebral abscess - Anaerobes/ Staphylococcus/ Nocardia/

4	MI5.2.1 Viral encephalitis	MI5.2.4 Slow viral infections		
5	MI5.2.2 Polio	MI5.2.5 Parasitic meningitis and encephalitis Toxoplasmosis, cerebral malaria		
6	MI5.2.3 Rabies	MI5.2.5 Parasitic meningitis and encephalitis Primary amoebic encephalitis		
7		MI5.2.6 Infectious space occupying lesions of CNS		

TOPIC: RESPIRATORY TRACT INFECTIONS MI6.1-6.3

Sl.no	LECTURE (5)	SGL (11)	SDL (1)	PRACTICAL (9)
1	MI6.1-6.4 Introduction to URTI - normal structure & protective mechanisms, etiology, pathogenesis, general lab diagnosis, treatment	MI6.1.7&8 Community acquired pneumonia - Pneumococcus, H.influenzae	MI6.1.9 HAP- staph, Legionella	MI6.1.3 &4 AE otitis Proteus, Aspergillus
2	MI6.1.5 Diphtheria	MI6.1.6 Whooping cough and croup B.pertusis, Para influenza		MI6.1.5 AE -white patch in oral cavity - Albert stain,
3	MI6.1.13 Viral pneumonia - Influenza viruses	MI6.1.12 Viral lower respiratory infections - Adeno, RSV, EBV		AE- CA P S.pneumo,
	(Corona)			H.influenzae, K.pneumoniae VAP Acinetobacter

4	MI6.1.15 Mycobacterium tuberculosis- class 1	MI6.1.11 Atypical Pneumonia - Mycoplasma, Chlamydia, viral		MI 6.2 AE Gram's staining - with history - otitis media, sinusitis
5	MI6.1.16 Mycobacterium tuberculosis- class 2	Tb- lab diagnosis with diagnostic algorithm and treatment - integrated with Path, Pharmac		MI 6.3.1,2,3 AE Gram's staining - sputum (pneumococcus, Klebsiella, quality of sample)
6	MI6.1.18 & 19 Fungal infections of lower respiratory tract	MI6.1.17 Atypical Myco bacteria		MI6.3.4 Acid fast staining (4)
7		MI6.1.21 Immuno prophylaxis of Respiratory infection		MI6.3.4 Acid fast staining (5)
8		MI6.1.20 General diagnosis of pulmonary parasitic infections- Lung flukes, Paragonimus		
9		MI6.1.14 Pneumonia in immune compromised		

TOPIC: GENITOURINARY & SEXUALLY TRANSMITTED INFECTIONS (MI7.1-7.3)

Sl.no	LECTURE (5)	SGL (5)	SDL (1)	PRACTICAL (6)
1	MI 7.1 Normal anatomy & infections of Genito urinary system- pathogenesis, general lab diagnosis	MI 7.2.7 Prevention measures in STD	MI 7.2.4 Nongonococcal urethritis including mycoplasma, Ureaplasma, Chlamydia	MI 7.2.3 AE Discharge per vagina (difference between bacterial vaginosis & bacterial vaginitis), Urethral syndrome
2	MI 7.2.1 & 2.2 Pathogens causing ulcerative Lesions in the genital tract 1- Syphilis	MI 7.2.10 Congenital infections		MI 7.2.2 AE -ulcerative lesions in the external genitalia
3	MI 7.2.2 Pathogens causing ulcerative Lesions in the genital tract 2 (Haemophilus ducreyi, LGV Calymmatobacterium granulomatis, Herpes Virus)			MI 7.3 AE - UTI sample collection
4	MI 7.2.3 Pathogens causing urethral discharge/ white discharge per vagina (Gonorrhoea, Candida, Trichomonas vaginalis, Bacterial vaginosis)			MI 7.3.11 AE CAUTI
5	MI 7.3 Urinary tract infections - E.coli, Klebsiella, Proteus, Enterococcus, others			

TOPIC- ZOONOTIC DISEASES & MISCELLANEOUS (MI8.1-8.16)

SL.NO	LECTURE (10)	SGL (15)	SDL (1)	PRACTICAL (13)
1	MI8.1&1.1 Introduction to zoonotic infections, Anthrax	MI8.1.2 Plague	Zoonotic TB, cat scratch disease, rat bite fever	MI 8.1.3,4,5 AE- PUO Brucellosis leptospirosis SEROLOGY Brucella Agg Leptospirosis Weil Felix
2	MI8.1.3 Brucellosis	MI8.1.6 Viral hemorrhagic fevers - Yellow fever,		MI8.1.6 AE -Lab diagnosis of dengue,
		Ebola, Rotaviruses (Hanta, Arena), Lassa, Marburg		chikungunya
3	MI8.1.4 Leptospirosis, Borreliosis	MI8.1.8 Taeniasis, (Cysticercosis, partly covered in CNS) and (Hymenolepiasis)		Mi8.1.8&9 Stool Examination (5)-larva of Strongyloides Demonstration of specimen Taenia adult worms, hydatid cyst & slide of hydatid cyst
4	MI8.1.5 Rickettsial infections, Other zoonoses (Nontyphoidal Salmonellosis, Prions, Zoonotic mycoses)	MI8.2 Introduction to opportunistic infections & viral opportunistic infections, candidiasis (Also covered in HIV-CVS MI2.7)		MI8.2 AE Candidiasis Mucromycosis

5	MI8.1.6 Arboviral infections- Classification, Spotted fever group, Dengue, Chikungunya, KFD, Gen Lab diagnosis; (Zikavirus)	MI8.2 Opportunistic Intestinal parasitic infections - Cystisporiasis, Cryptosporidiasis, Cyclosporiasis, Microsporidiasis and Strongyloidiasis, Giardia - (covered in GIT 3.3)		MI8.7 Donning & doffing of PPE for a given situation - 1
6	MI8.1.9 Hydatid cyst disease	MI8.4 Emerging infections and bioterrorism		MI8.7 Donning & doffing of PPE for a given situation - 2
7	MI8.2 Zygomycosis	MI8.5 Hospital Associated Infections (seminar)		MI8.7 Donning & doffing of PPE for a given situation - 3
8	MI8.3 Oncogenic viruses -HPV, HTLV (HBV, HDV,,EBV etc)	MI8.6 Biomedical waste management		MI8.6 1.How to manage bio-spill in a simulated setting (AETCO M) 2. Advice a HCW with needle stick injury in complete and correct sequence in a simulated setting AETCOM 3. Segregate biomedical waste as per BMW2016 rules

9	MI8.6 Antibiotic stewardship	MI8.8 Food, water and air microbiology		MI8.9 Collection of throat swab, nasopharyngeal swab peripheral venous blood for culture in simulated situation
10	MI8.6 Infection control in hospitals- Principles, components and application; surveillance - standard & transmission based precautions, HICC	MI8.9,10&11 Sample collection and transportation - (T/L opportunities - General micro/Individual systems/Together at the end as applied Micro practical classes)		MI8.9 collection of wound swab and pus sample in simulated situation Instruct sample collection procedure (sputum, urine, stool, for culture)
11	MI8.16 National health programs on infectious diseases - Integrated with PSM	MI8.12 Discuss with help of case scenarios or role plays or videos : a. Request form or container with incomplete or wrong information		MI8.9 skin scraping, hair clippings and nail samples) collection procedure independently
		b. Lost CSF sample c. Contaminated blood for culture d. Delayed submission of urine sample for culture e. Salivary sample for ZN stain		in a simulated setting (covered in skin) Demonstrating respect to patient samples - OSPE (AETCOM)
12		MI8.14 Interaction with ICTC staff - AETCOM		

13		MI8.15 Case based discussion - reflection confidentiality- Pt identity, lab results) - AETCOM		

VI. CERTIFIABLE COMPETENCIES

It should be certified that the student is competent to perform the below skills independently without supervision.

SI. NO	NUMBER	COMPETENCY	Number required to certify
1	MI1.2	Perform and identify the different causative agents of Infectious diseases by Gram Stain, ZN stain and stool routine microscopy	5
2	MI6.2	Identify the common etiologic agents of upper respiratory tract infections (Gram Stain)	3
3	MI6.3	Identify the common etiologic agents of lower respiratory tract infections (Gram Stain & Acid fast stain)	3
4	MI8.7	Demonstrate Infection control practices and use of Personal Protective Equipment (PPE)	3 each in(Hand hygiene &PPE)

VII. TIMETABLE

Day	8-9 AM	9 AM -12 NOON		12-1 PM	1-2 PM	2-3 PM	3-4 PM
Monday	Microbiology	Clinical Postings		Lunch		Microbiology Practical	
Tuesday						Microbiology Practical	
Wednesday	Microbiology						
Thursday							
Friday							Microbiology
Saturday		9-11AM	11-12 Noon			AETCOM	
			Microbiology				

VIII. COMP ETENCY DISTRIBUTION IN EACH BLOCK

MCI No	BLOCK WISE COURSE	Competencies	LECTURE	SGL	Practical	SDL
MI1	I ST BLOCK	General Microbiology and Immunology	16	10	15	3
MI2		CVS and Blood	9	10	6	1
MI3	II nd BLOCK	Gastrointestinal and hepatobiliary system	10	5	6	0
MI4		Musculoskeletal system skin and soft tissue infections	10	5	6	2

MI5		Central Nervous System infections	5	9	4	1
MI6		Respiratory tract infections	5	11	9	1
MI7		Genitourinary & Sexually transmitted infections	5	5	6	1
MI8	IIIrd BLOCK	Zoonotic diseases and miscellaneous	10	15	13	1
			70	70	65	10

IX. TOPICS FOR INTEGRATION

	Pathology	Microbiology	Pharmacology	Forensic Medicine	Community Medicine	Concerned Clinical subjects
BLOCK 1 15 weeks	Immunology Anaemia Wound healing Shock	Immunology Anaemia Shock Surgical practice Infective endocarditis & Rheumatic heart disease Immunization	Immunology Anaemia Essential medicines Shock Toxicology	Wound healing Toxicology	Essential medicines	Shock Surgical practice Toxicology Infective endocarditis & Rheumatic heart disease Immunization
BLOCK 2 15 weeks	Infective endocarditis & Rheumatic heart disease (Nesting) Myocardial infarction Atherosclerosis Tuberculosis Leprosy AIDS Malaria	Tuberculosis Leprosy AIDS Malaria Enteric fever Viral hepatitis Acid peptic disease Bone & Joint infection Meningitis Encephalitis STI	Tuberculosis Leprosy AIDS Malaria Acid peptic disease		Tuberculosis Leprosy AIDS Malaria	Myocardial infarction Atherosclerosis Tuberculosis Leprosy AIDS Malaria Enteric fever Viral hepatitis Acid peptic disease Bone & Joint infection Meningitis Encephalitis STI
BLOCK 3 10 weeks	Diabetes mellitus Hepatitis (Sharing / Nesting)	Zoonotic disease Hospital acquired infection National health programs of communicable diseases	Diabetes mellitus Endocrines		Diabetes mellitus Zoonotic disease Hospital acquired infection National health programs of communicable diseases	Diabetes mellitus Zoonotic disease Hospital acquired infection Endocrines

- Beyond these topics, Institutions are free to integrate topics with concerned departments, wherever feasible.
- Minimum two of the suggested topics should be covered in each block

X. DISTRIBUTION OF ATTITUDE ETHICS AND COMMUNICATION SKILLS
(AETCOM) MODULE

SI NO	MO DU LE	TOPIC	DEPARTMENT					No. of hours	Form ative assess ment	Summ ative assess ment
			PA	MI	PH	CM	FM			
1	2.1	Foundation of communication				✓		5	✓	-
2	2.2	Foundation of bioethics					✓	2	-	✓
3	2.3	Health care as a right				✓		2	-	✓
4	2.4	Working in a health care team	✓					6	✓	-
5	2.5	Bioethics- case studies on patient autonomy and decision making (patient rights and shared responsibility in health care)			✓			6	✓	✓
6	2.6	Bioethics-Case studies on patient autonomy and decision making (refusal of care including do not resuscitate and withdrawal of Life Support)			✓			5	✓	✓
7	2.7	Bioethics- Case studies on patient autonomy and decision making (consent for surgical procedures)		✓				5	✓	✓
8	2.8	What does it mean to be a family member of sick patient					✓	6	✓	✓

EVALUATION METHODOLOGY

Summative Assessment - An assessment conducted at the end of instruction to check how much the student has learnt.

Formative Assessment - An assessment conducted during the instruction with primary purpose of providing feedback for improving learning.

Internal Assessment - Range of assessments conducted by the teachers teaching a particular subject with the purpose of knowing what is learnt. Internal assessment can have both formative and summative functions.

Note - Assessment requires specification of measurable and observable entities. This could be in the form of whole tasks that contribute to one or more competencies or assessment of a competency per se. Another approach is to break down the individual competency into learning objectives related to the domains of knowledge, skills, attitudes, communication etc. and then assess them individually.

Scheduling of Internal Assessment - Done once in three months.

Theory IA can include: Written tests should have essay questions, short notes and MCQs.

Practical IA can include: Practical tests, Objective Structured Practical Examination (OSPE), Directly Observed Procedural Skills (DOPS), records maintenance and attitudinal assessment.

Assessment of Log-book- Log book should record all activities like seminar, symposia, quizzes and other academic activities. It should be assessed regularly and submitted to the department. Up to ten (10) per cent IA Practical marks should be for Log book assessment.

Assessment of Practical Record book- Practical book should record all skills and other practical exercises done during the academic programme. It should be assessed regularly and submitted to the department. Up to ten (10) per cent IA Practical marks should be for Practical record book assessment.

Assessment for AETCOM will include: - Written tests comprising of short notes and creative writing experiences only in internal assessment.

THEORY											
Name of the Institute:											
DEPARTMENT OF Microbiology											
Faculty: MBBS		Year/Phase-II								Date:dd/mm/yyyy	
		Formative Assessment Theory			Continuous Internal Assessment Theory						
Roll. No	Name of Student	1st PCT Theory	2nd PCT Theory	Prelims Theory (Paper I & II)	Home Assignment	Continuous Class Test (LMS)	Seminar	Museum study	Library Assignments	Attendance Theory	Total
		100	100	200	15	30	15	15	15	10	

Professor & Head
Department of
Name of the Institute

PRACTICAL												
Name of the Institute:												
DEPARTMENT OF Microbiology												
Faculty MBBS		Year/Phase-II									Date:dd/mm/yyyy	
		Formative Assessment			Continuous Internal Assessment (Practical)							
S. No	Roll No.	Name of Student	1st PCT Practical/First Ward Leaving Examination	2nd PCT Practical/First Ward Leaving Examination	Prelims Practical	Log Book (150)				Journal (Record book/ Portfolio)	Attendance (Practical)	Total
						Certifiable skill based competencies (Through OSPE/OSCE/Sports/ Exercise/Other)	AETCOM Competencies	SVL Lab Activity	Research			
			100	100	100	60	30	40	20	40	10	500

Professor & Head
Department of
Name of the Institute

SUMMATIVE ASSESSMENT OR UNIVERSITY EXAMS

THEORY

GENERAL INSTRUCTIONS

1. The topics for the two papers are distributed
2. Questions in each paper will be as per distribution
3. The SLO needs to be referred while setting the question paper
4. Repetition of questions from the same SLO to be avoided
5. The marks allotted to the different topics & sections to be adhered.
6. Questions to be covered from the different sections of Microbiology
7. Main question needs to be structured questions with clinical history with marks allotted to each
8. As far as possible clinically oriented application-based questions to be framed

DISTRIBUTION OF TOPICS IN DIFFERENT PAPERS

Theory	Topics	Questions	Marks allotment
PAPER I	1.General microbiology &Immunology 2.CVS & Blood 3.Gastrointestinal & hepatobiliary system 4.Musculoskeletal system, Skin &soft tissue infections	Main Questions(MQ) Short Notes (SN) MCQ Total	2x15=30 10x5=50 20x1=20 100
PAPER II	5.Central Nervous system 6.Respiratory System 7.Genitourinary & Sexually Transmitted infections 8.Zoonotic diseases and Miscellaneous	Main Questions(MQ) Short Notes (SN) MCQ Total	2x15=30 10x5=50 20x1=20 100

PAPER 1

DISTRIBUTION OF MARKS FOR THE DIFFERENT TOPICS

Topics	Main Question	Short Notes	MCQ	Marks
General microbiology		2	2	12
Immunology		2	4	14
CVS & Blood	1 (only if no MQ from Skin)	1 OR 3 (if MQ is from skin)	4	24
GIT& hepatobiliary	1	2	6	26
Skin & soft tissue	1(only if no MQ from CVS)	1 OR 3(if MQ is from CVS)	4	24
	2	10	20	100

DISTRIBUTION FOR THE SECTIONS IN PAPER I

Topic	Main Question	Short Notes	MCQ	Total marks
General microbiology	-	2	3	13
Immunology	-	2	3	13
Bacteriology	1	2	3	28
Virology	1(only if no MQ from parasitology)	If MQ then NIL No MQ then 2	5	20
Parasitology	1(only if no MQ from Virology)	If MQ then NIL No MQ then 2	3	13
Mycology	Nil	2	3	13
	2	10	20	100

PAPER II

DISTRIBUTION OF MARKS FOR THE DIFFERENT TOPICS II

Topics	Main Question	Short Notes	MCQ	Marks
CNS 6.1-6.3	1(if not from genitourinary)	1 or 3(if MQ from genitourinary)	4	24
Respiratory system 7.1-7.3	1 (only if no MQ from zoonotic)	2 OR 4(if MQ is from zoonotic)	4	24
Genito Urinary Tract 7.1-7.3	1(only if no MQ from CNS)	1 or 3(if MQ from CNS)	4	24
Zoonotic 8.1	1(only if no MQ from RS)	1 OR 3(if MQ is from RS)	4	19
Miscellaneous 8.2 – 8.6	-	1	4	09
	2	10	20	100

DISTRIBUTION OF MARKS FOR DIFFERENT SECTIONS IN PAPER II

Topic	Main Question	Short Notes	MCQ	Total marks
Bacteriology	1	4	6	41
Virology	1	4	4	39
Parasitology	NIL	1	6	11
Mycology	NIL	1	4	09
	2	10	20	100

TOTAL DISTRIBUTION FOR DIFFERENT SECTIONS IN BOTH PAPERS

SECTION	PAPER I	PAPER II	MARKS
GEN.BACT	13	-	13
IMMUNOLOGY	13	-	13
BACTERIOLOGY	28	41	69
VIROLOGY	20	39	59
MYCOLOGY	13	09	22
PARASITOLOGY	13	11	24
	100	100	200

PRACTICAL ASSESSMENT

LIST OF INSTRUMENTS, SPECIMENS, SLIDES AND CHARTS

A .SLIDES

a. BACTERIOLOGY

1. Staphylococci
2. Streptococci
3. Pneumococci
4. Gonococci
5. Corynebacterium diphtheriae
6. Bacillus
7. Clostridium tetani
8. Mycobacterium tuberculosis
9. Mycobacterium leprae
10. Actinomyces

b. PARASITOLOGY

1. Plasmodium – ring form
2. Plasmodium – gametocyte form
3. Leishmania
4. Scolex of tapeworm
5. Egg of tapeworm
6. Egg of Ascaris
7. Egg of Ancylostoma
8. Larva of Strongyloides
9. Adult worm Enterobius vermicularis
10. Microfilaria
11. Hydatid cyst

c. MYCOLOGY

1. Candida
2. Cryptococcus
3. Aspergillus
4. Penicillium
5. Rhizopus /mucor
6. Dermatophytes
7. Mycetoma
8. Rhinosporidiosis

d. VIROLOGY

1. Poliovaccine
2. Negri body

B. MEDIA

1. Nutrient agar
2. Mac-conkey agar
3. Blood agar
4. Chocolate agar
5. LJ media
6. Loefflers serum slope
7. Potassium tellurite
8. TCBS
9. Wilson & Blair
10. Urease test
11. Indole test
12. Citrate test
13. Antibiotic susceptibility test – KB method
14. RCMB
15. Thioglycollate

C. INSTRUMENT

1. Anaerobic jar
2. Sterile swab
3. Filters

D. SPECIMENS

1. Roundworm
2. Hookworm
3. Taenia
4. Hydatid cyst

E. CLINICAL MICROBIOLOGY (Charts with case scenarios)

CASE SCENARIO- GENERALINSTRUCTIONS

- The exercise should be associated with clinical history
- It should be designed and evaluated in such a way that the student will be able to discuss about the sample collection, interpretation of results & management of cases
- The organism needs to be emphasized in the particular exercise to be decided after referring the **SLO** table
- Case related slides, culture, AST, serological tests, photos, specimens should be displayed in the particular exercise so that student will have comprehensive approach to the clinical case

1. TOPIC- CVS &BLOOD

- Rheumatic fever
- Sepsis – role of sepsis markers
- Infective endocarditis
- HIV - serodiagnosis

2. TOPIC- GIT &HEPATOBILIARY

- Diarrhoeal disease–cholera, diarrhoeogenic E.coli, diarrhea in immune compromised host, Food poisoning
- Dysentery –bacillary
- Viral gastroenteritis
- Lab diagnosis of Enteric fever (pathogen isolation)
- Lab diagnosis of Enteric fever (serological diagnosis)
- Virology exercise Sero markers of Hepatitis B, Hepatitis C

3.TOPIC – SKIN & SOFT TISSUE INFECTIONS

- Cellulitis (Streptococcus pyogenes)
- Surgical site infection
- Burns wound infection(Pseudomonas)
- Osteomyelitis & Infective arthritis
- Dermatophytoses - tineacorporis, tineacapitis, onchycomycosis
- Viral exanthematous fever

- Mycetoma

4.TOPIC-CNSINFECTIONS

- Rabies
- Hydatid cyst, Neurocysticercosis
- Cerebral malaria
- Meningitis -.
 - i)Pyogenic meningitis
 - ii) Neonatal meningitis
 - iii)Tubercular meningitis
 - iv) Cryptococcal meningitis
- Cerebral abscess

5.TOPIC- RESPIRATORY SYSTEMINFECTIONS

- Otitis media -Proteus, aspergillus
- White patch in oral cavity
- Influenza
- Pul. Aspergillosis
- Pneumonia–
 - i. Community Acquired Pneumonia
 - ii. Hospital Acquired pneumonia
 - iii. Ventilator Associated Pneumonia

6. TOPIC-GENITO URINARY SYSTEMINFECTIONS

- **STI**
 - i. Ulcerative lesions in the external genitalia
 - ii. Discharge per vagina
- **UTI**
- **CAUTI**

7. TOPIC- ZOONOTIC &MISCELLANEOUS

- PUO – serological diagnosis

- i. Brucellosis
 - ii. Leptospirosis
 - iii. Typhus fever
- Dengue, Chikungunya
- Candidiasis
- Mucor mycosis

8. OSPE

- Hand hygiene and selection; Donning & doffing of PPE for a given 3 different situation (thrice)
- Segregate biomedical waste as per BMW 2016 rules
- Collection of throat swab, nasopharyngeal swab in simulated situation
- Collection of peripheral venous blood for culture in simulated situation
- Collection of wound swab and pus sample in simulated situation
- Instruct sample collection procedure (sputum, urine, stool, for culture)
- skin scraping, hair clippings and nail samples) collection procedure independently in a simulated setting

AETCOM

- **Module 2.2A** Describe and discuss the role of nonmaleficence as a guiding principle in patient care
- **Module 2.2B** Describe and discuss the role of autonomy and shared responsibility as a guiding principle in patient care
- **Module 2.2C** Describe and discuss the role of beneficence of a guiding principle inpatient care
- **Module 2.2D** Describe and discuss the role of a Physician in health care system
- **Module 2.2E** Describe and discuss the role of justice as a guiding principle in patient Care
- **Module 2.3** Describe and discuss the role of justice as a guiding principle in patient care
- **Module 2.5** Identify, discuss and defend medico-legal, socio-cultural and ethical issues as it pertains to patient autonomy, patient rights and shared responsibility in health care

PRACTICAL ASSESSMENT

As per MCI 100 marks with viva

- Practical –80
- Viva –20

DISTRIBUTION OF MARKS FOR DIFFERENT EXERCISES

Exercise	Number	Marks
Spotters	10	10
Gram's stain	1	10
ZN/Alberts stain	1	10
Stool examination	1	10
Case scenario	1 Bacteriology/Virology 1 Parasitology/Mycology	15 15
OSPE & AETCOM	1+1	10
VIVA		20
TOTAL		100

SPOTTERS DISTRIBUTION

Section	Number
General microbiology	2
Immunology	1
Bacteriology	2
Virology	1
parasitology	2
Mycology	2
TOTAL	10

II. STAINING

1. Gram's
2. ZN/Alberts
3. Stool examination

III. CLINICAL BACTERIOLOGY/VIROLOGY

CASE

SCENARIO-

GENERAL INSTRUCTIONS

- The exercise should be associated with clinical history
- The history should be provided with relevant tests which will help the student to arrive at diagnosis
- It should be designed and evaluated in such a way that the student will be able to discuss about the sample collection, interpretation of results & management of cases

BACTERIOLOGY	VIROLOGY
Cardio vascular system & blood Rheumatic fever, endocarditis, sepsis	HIV
GIT & HB Diarrhoea - cholera, food poisoning Dysentery – bacillary Enteric fever- culture based, serological	Hepatitis A, Hepatitis B, hepatitis C
Skin & soft tissue infections -cellulitis, SSI, burns wound infection, bone and joint infection	Viral exanthematous fever- Measles, Zoster, Dengue, chikungunya
CNS - meningitis- pyogenic, tubercular, neonatal Cerebral abscess	Rabies,
RS - otitis media, white patch in the oral cavity Pneumonia- community acquired, hospital acquired	Influenza. corona
UTI & genitourinary STI- ulcerative , discharge UTI- community Acquired, Catheter associated	HSV, HPV
Zoonotic – PUO- brucella, Leptospira, Rickettsia	

MYCOLOGY & PARASITOLOGY

Mycology	Parasitology
Dermatophytosis - corporis, capitis, onychomycosis	Amoebic dysentery
Candida- mucocutaneous/systemic	Malaria – vivax, falciparum
Cryptococcus-meningitis	Intestinal helminthiasis- Ascaris, Ancylostoma, Enterobius etc
Mycetoma	Intestinal protozoan – diarrhoea in Immune compromised
Pulmonary aspergillosis	Neurocysticercosis
Mucor mycosis	Filariasis
Pneumocystis pneumonia	

- Hand hygiene and selection; Donning & doffing of PPE for a given 3 different situations
- Segregate biomedical waste as per BMW2016 rules
- Collection of throat swab, nasopharyngeal swab in simulated situation
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- **Module 2.2E** Describe and discuss the role of justice as a guiding principle in patient Care
- **Module 2.3** Describe and discuss the role of justice as a guiding principle in patient care
- **Module 2.5** Identify, discuss and defend medico-legal, socio-cultural and ethical issues as it pertains to patient autonomy, patient rights and shared responsibility in health care

QUESTION PAPER FORMAT

PAPER – I

MICROBIOLOGY –I

TIME: 3 HOURS

MAX.MARKS:100

Note: Answer all questions & draw neat diagrams wherever necessary

I. Essay Questions:

(2 x 15= 30 marks)

1. Enumerate the properties and types of antigen–antibody reactions. Describe in detail about the principle, types, and applications of ELISA?
2. A young adult female was admitted to the hospital with intense headache, abdominal discomfort for the past 5 days. She had also developed fever which is of remittent type with gradual rise in a step ladder fashion. On examination, she was toxic with temperature of 101° F, tongue was coated and mild splenomegaly was present.
 - a. What is the most probable etiological diagnosis?
 - b. Describe the pathogenesis of this condition.
 - c. Mention sample collection and laboratory diagnosis in detail.
 - d. Add a note on treatment and vaccination available for this clinical condition.

II. Write short notes on:

(10 X 5= 50 marks)

3. Bacterial capsule.
4. Anaerobic culture methods.
5. Mechanism of antibiotic resistance
6. Amoebic liver abscess
7. Dermatophytoses
8. Visceral larva migrans
9. Modes of transmission of infection
10. Laboratory diagnosis of brucellosis
11. Standard precautions
12. Categories of biomedical waste

III. MCQs

(20 x 1= 20marks)

1. Phage mediated transfer of DNA from one bacterium to another bacterium is known as
A. Transformation B. Transduction C. Transmission D. Conjugation
2. MRSA is mediated due to
A. Plasmid B. *mecA* gene C. Transposons D. None
3. Which antibody is elevated in acute infection
A. IgA B. IgG C. IgE D. IgM
4. Interferon gamma is secreted by
A. Macrophage B. Fibroblasts C. Activated T cell D. Neutrophils
5. How many movements of hand hygiene have been laid down by WHO ?
A. 5 B. 6 C. 7 D. 8
6. Which of the following disinfectant is used in plasma sterilization?
A. Formaldehyde B. Glutaraldehyde C. Hydrogen peroxide D. Ethylene oxide
7. Weil's disease is caused by:
A. *Leptospira interrogans* B. *Borrelia recurrentis*
C. *Treponema carateum* D. *Treponema pallidum*
8. The gene coding for core of HIV is
A. gag B. env C. pol D. tat
9. Kyasanur forest disease is transmitted by
A. Mite B. Louse C. Tick D. Mosquito
10. Which is the infective form of the malaria parasite to man?
A. Merozoite B. sporozoite C. Trophozoite D. Gametocyte
11. Vector for Leishmaniasis
A. Sandfly B. Reduviid bug C. Tsetse fly D. Anopheles mosquito
12. Germ tube test is diagnostic for
A. *Candida glabrata* B. *Candida albicans* C. *Cryptococcus* D. *Coccidioides immitis*
13. Traveler's diarrhea is caused by
A. ETEC B. EHEC C. EPEC D. EIEC
14. Selective media for *Vibrio cholera*
A. TCBS B. Mannitol salt agar C. Robertson cooked meat medium
D. Modified Thayer Martin medium
15. The most common viral cause of gastroenteritis
A. Rota virus B. Norwalk virus C. Adeno virus D. Hepadna virus
16. The larval form of *Hymenolepis nana* is called
A. Hydatid cyst B. Coenurus C. Cysticercus D. Cysticercoid
17. Definitive host for Echinococcosis is
A. Man B. Dog C. Sheep D. Pig
18. Scalded skin syndrome is mediated by
A. Hemolysin B. Coagulase C. Enterotoxin D. Epidermolytic toxin
19. CAMP test is useful in identification of
A. *S. pyogenes* B. *S. agalactiae* C. *S. pneumoniae* D. *Viridans streptococci*
20. Tinea versicolor is caused by
A. *Candida albicans* B. *Trichophyton rubrum*
C. *Trichophyton violaceum* D. *Malassezia furfur*

PAPER – II

MICROBIOLOGY PAPER-II

TIME: 3 HOURS

MAX.MARKS:100

Note: Answer all questions & draw neat labelled diagrams wherever necessary

I. Essay Questions:

(2 x 15= 30 marks)

1. A 28-year-old male, was admitted to the hospital with complaints of low-grade fever, loss of weight and appetite and chronic cough with expectoration for past 6 months. Sputum examination revealed long, slender and beaded acid-fast bacilli.
 - a. What is your provisional diagnosis?
 - b. Describe the pathogenesis of this condition.
 - c. Mention the laboratory diagnosis in detail.
 - d. Mention briefly about drug resistance that can occur in this etiological agent(2+4+5+4)
2. A 25-year-old man visited his local doctor complaining of difficulty in swallowing liquids, loss of appetite and restlessness. He had a travel history to India one month back and did mention being bitten by a street dog.
 - a. What is the most probable etiological diagnosis? (2+3+5+5)
 - b. Draw a labeled diagram of the morphology of the causative agent of this condition.
 - c. Discuss the laboratory diagnosis.
 - d. Name the vaccines available for human use. (4+6+5)

II. Write short notes on:

(10 X 5= 50 marks)

3. Nontuberculous mycobacteria infections
4. Adenovirus infections.
5. Mucormycosis
6. Free-living amoebae
7. Polio vaccine
8. Cryptococcal meningitis
9. Nongonococcal urethritis
10. Oncogenic viruses
11. Laboratory diagnosis of diphtheria
12. Laboratory diagnosis of syphilis

III. MCQs

(20 x 1= 20marks)

1. Scarlet fever is caused by
A. *Streptococcus pyogenes* B. *Corynebacterium diphtheriae*
C. *Streptococcus* group C and G D. *Arcanobacterium hemolyticum*
2. Wool Sorters disease caused by
A. *Bacillus anthracis* B. *Staphylococcus aureus* C. *Yersinia pestis* D. *Rhodococcus equi*
3. Ecthyma gangrenosum is caused by
A. *Pseudomonas* B. *Bordetella* C. *Brucella* D. *H. influenzae*
4. Neonatal meningitis acquired through infected birth canal is due to
A. *S. pyogenes* B. *Viridans streptococci* C. *S. agalactiae* D. *S. pneumoniae*
5. Mechanism of action of tetanospasmin:
A. Inhibition of GABA release B. Inhibition cAMP
C. Inactivation of ACh receptors D. Inhibition of cGMP
6. Rabies is identified by:
A. Guarnieri bodies B. Negri bodies C. Cowdry A bodies D. Paschen body
7. Oocysts of *Toxoplasma gondii* are excreted in the feces of:
A. Cat B. Sheep C. cattle D. Humans
8. Which of the following is the most common etiological agent of UTI ?
A. *Escherichia coli* B. *Klebsiella* C. *Proteus* D. *Enterobacter*
9. The most sensitive and specific test for Chlamydia diagnosis
A. Direct immunofluorescence test (DIF) B. Culture on McCoy cell line
C. Nucleic acid amplification tests (NAAT) D. Microimmunofluorescence (MIF) test
10. Rat bite fever is caused by
A. *Borrelia recurrentis* B. *Streptobacillus moniliformis* C. *Yersinia pestis* D. *Leptospira*
11. The agent of primary atypical pneumonia is
A. *Legionella pneumophila* B. *Klebsiella pneumoniae*
C. *Mycoplasma pneumoniae* D. *Streptococcus pneumoniae*
12. Which of the following virus is the agent of infectious mononucleosis ?
A. Epstein-Barr virus B. Human herpesvirus-6
C. Cytomegalovirus D. Varicella-zoster virus
13. The most effective way of preventing tetanus
A. Hyperbaric oxygen B. Antibiotics C. Tetanus toxoid
D. Surgical debridement and toilet
14. Hand-foot-and-mouth disease is caused by:
A. HSV B. Coxsackie virus C. Measles D. Chickenpox
15. The Highest risk of carcinoma cervix (squamous cell) is associated with which of the following HPV serotypes?
A. Serotypes 6 and 11 B. Serotypes 16 and 18
C. Serotypes 2 and 4 D. Serotypes 27 and 57
16. Plague is transmitted by:
A. Rat flea B. Soft tick C. Hard tick D. Louse
17. Most common manifestation of *Toxoplasma gondii* in immunocompromised adult
A. Lymphadenopathy B. Chorioretinitis C. Myocarditis D. Encephalitis
18. The drug of choice for *Pneumocystis pneumonia* is
A. Amphotericin B B. Flucytosine C. Cotrimoxazole D. Voriconazole
19. Which is the highly infective stage in whooping cough?
A. Catarrhal stage B. Paroxysmal stage C. Convalescent stage D. All of the above
20. A positive tuberculin skin test is indicated by an area of induration of
A. <5 mm in diameter B. 6–9 mm in diameter
C. No induration D. ≥10 mm in diameter

LIST OF BOOKS

1. Apurba Sastry and Sandhya Bhat; Essentials of Medical Microbiology, 4th Edition, 2023
2. Lippincott Illustrated Reviews Microbiology, South Asian Edition by Cynthia NauCornelissen
,Marcia Metzgar Hobbs SAE editors Sumathi Muralidharan & Rohith Chawla As per CBME
3. Ananthnaryan & Panikar's Text Book of Microbiology 13th Edition. edited by RebaKanungo
4. Basic Medical Microbiology Patric RMurray
5. Roitt's Essential Immunology Peter J ,Delves Seamus J. Martin Dennis R Burton Ivan MRoitt
6. Apurba Sastry and Sandhya Bhat; Essentials of Practical Microbiology,3rdEdition,2021
7. K D Chatterjee Para
8. sitology Protozoology and Helminthology 13th edition2019
9. C K Jayaram Panicker Panicker's text Book of Medical Parasitology 8Thedition
10. Text book of Medical parasitology by Subhash ChandraParija

REFERENCE BOOKS

1. Apurba Sastry and Sandhya Bhat; Essentials of hospital infection control 1stEdition,2019
2. Mandell, Douglas and Bennett's Principles and practice of Infectious diseases
3. Harrison's principles of internal Medicine
4. Essentials of Clinical infectious diseases –William F Wright

Department of Community Medicine

TABLE OF CONTENTS

Sl. No.	Content
1	Goal and Objectives
2	Terms and teaching guidelines
3	Competencies, Specific learning Objectives, Teaching learning and Assessment methods
4	Time table
5	Pandemic Module
6	Integrated teaching schedule
7	Family adoption programme
8	Evaluation methodology
9	Recommended Books

GOALS AND OBJECTIVES

- i) **GOAL:** The broad goal of the teaching of undergraduate students in Community Medicine is to prepare them to function as community and first level physicians in accordance with the institutional goals.

ii) **OBJECTIVES**

- a) **KNOWLEDGE** At the end of the course, the student should be able to: -

- (1) Describe the health care delivery system including rehabilitation of the disabled in the country;
- (2) Describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare planning and population control.
- (3) List epidemiological methods and describe their application to communicable and non-communicable diseases in the community or hospital situation.
- (4) Apply biostatistical methods and techniques.
- (5) Outline the demographic pattern of the country and appreciate the

roles of the individual, family, community and socio-cultural milieu in health and disease.

(6) Describe the health information systems.

(7) Enunciate the principles and components of primary health care and the national health policies to achieve the goal of 'Health for All'.

(8) Identify the environmental and occupational hazards and their control.

(9) Describe the importance of water and sanitation in human health.

(10) To understand the principles of health economics, health administration, health education in relation to community.

b) SKILLS At the end of the course, the student should be able to: -

(1) Use epidemiology as a scientific tool to make rational decisions relevant to community and individual patient intervention.

(2) Collect, analyse, interpret, and present simple community and hospital-based data.

(3) Diagnose and manage common health problems and emergencies at the individual, family and community levels keeping in mind the existing health care resources and in the context of the prevailing socio-cultural beliefs.

(4). Diagnose and manage maternal and child health problems and advise a couple and the community on the family planning methods available in the context of the national priorities.

(5) Diagnose and manage common nutritional problems at the individual and community level.

(6) Plan, implement and evaluate a health education programme with the skill to use simple audio-visual aids.

(7) Interact with other members of the health care team and participate in the organisation of health care services and implementations of national health programmes.

c) INTEGRATION:

Develop capabilities of synthesis between cause of illness in the environment or community and individual health and respond with leadership qualities to institute remedial measures for this.

EXPLANATION OF TERMS USED IN THE MANUAL

1. LECTURE

Any instructional large group method including traditional lecture and interactive lecture.

2. SMALL GROUP DISCUSSION

Any instructional method involving small groups of students in an appropriate learning context.

3. SELF DIRECTED LEARNING

A process in which individuals take the initiative, with or without the help of others in diagnosing their learning needs, formulating learning goals, identifying human and material sources for learning, choosing, and implementing appropriate learning methods.

4. FIELD VISIT

Any visit to an organization of public health importance to observe its functioning. It may also include visits to community for family study / clinicosocial case discussion.

5. SKILL ASSESSMENT

A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients or **in the community/ field** as the context demands.

6. CORE

A competency that is necessary in order to complete the requirements of the subject (traditional must know)

7. NON – CORE

A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)

SUGGESTED GUIDELINES FOR THE TEACHING AND LEARNING METHODS

LECTURE: Suggested topics for didactic and interactive lectures have been included along with specific learning objectives linked to each competency. Lectures should cover the core competencies with appropriate pictures, charts, or diagrams.

SMALL GROUP DISCUSSION: The topics for small group discussion that have been suggested, these topics included are those where more intensive and interactive learning sessions are required.

SELF DIRECTED LEARNING: Non-core competencies are suggested to be taken as topics for self-directed learning. At the end of the session, the teacher moderates the discussion and the learning is recorded in the logbook.

PRACTICAL DEMONSTRATION

Practical classes will include demonstration and discussion on topics of public health importance. All sessions will have specific learning objectives which are linked to the relevant competencies and are assessed as described in the assessment module.

All sessions will be done with the faculty as facilitator.

The students will be encouraged to observe the demonstrations and perform the requisite skills either independently or with assistance as required. Emphasis will be on acquiring relevant skills at the field level and clinically. Thus, case-based learning and discussions will be encouraged.

FIELD VISIT

Any visit to an organization of public health importance to observe its functioning. These may include visit to PHC, Anganwadi, DOTS Centre, Hospital Waste Management Facility, Water Treatment Plant, ART / ICTC Centre. It may also include visits to community for family study / clinic social case discussion.

Competencies, Specific learning Objectives, Teaching learning and Assessment methods

Number	COMPETENCY The student should be able to	Domain K/S/A/C	Level K/KH/ SH/P	Core Y/N	Suggested Teaching learning method	Teaching hours
Topic: Nutrition		Number of competencies: (05)				
CM5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management	K	KH	Y	Lecture	2 Hours
CM5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of socio-cultural factors.	K	KH	Y	SDL	1 Hour
CM5.6	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc	K	KH	Y	Lecture	2 Hours
CM5.7	Describe food hygiene	K	KH	Y	SDL	1 Hour
CM5.8	Describe and discuss the importance and methods of food fortification and effects of additives and adulteration	K	KH	Y	SDL	1 Hour
Topic: Epidemiology		Number of competencies: (07)				
CM7.1	Define Epidemiology and describe and enumerate the principles, concepts and uses	K	KH	Y	Lecture	2 Hours
CM7.2	Enumerate, describe and discuss the modes of transmission and measures for prevention and control of communicable and non-communicable diseases	K	KH	Y	Lecture	2 Hours

CM7.3	Enumerate, describe and discuss the sources of epidemiological data	K	KH	Y	SDL	1 Hour
CM7.5	Enumerate, define, describe and discuss epidemiological study designs	K	KH	Y	Lecture	4 Hours
CM7.6	Enumerate and evaluate the need of screening tests	S	SH	Y	Lecture	2 Hours
CM7.8	Describe the principles of association, causation and biases in epidemiological studies	K	KH	Y	SDL	1 Hour
CM7.9	Describe and demonstrate the application of computers in epidemiology	S	KH	Y	SDL	1 Hour
Topic: Occupational Health Number of competencies: (04)						
CM11.1	Enumerate and describe the presenting features of patients with occupational illness including agriculture	K	KH	Y	Lecture & SDL	2 Hours (1+1)
CM11.2	Describe the role, benefits and functioning of the employees state insurance scheme	K	KH	Y	SDL	1 Hour
CM11.3	Enumerate and describe specific occupational health hazards, their risk factors and preventive measures	K	KH	Y	SDL	1 Hour
CM11.4	Describe the principles of ergonomics in health preservation	K	KH	Y	SDL	1 Hour

Distribution of Teaching Hours for II MBBS

Subject	Lectures	SGL	Clinical postings*	SDL	Total
Community Medicine (Theory)	15	-	-	10	25
Community Medicine (Clinical posting)	-	-	60 (4 weeks)	-	60
FAP	-	-	30	-	30

***Note :** Clinical postings shall be for 3 hours per day, Monday to Friday.

There will be 15 hours per week for all clinical postings.

II MBBS Schedule

SVIMS-SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN, SVIMS, Tirupati.

2nd MBBS Theory Timetable (2022-23 batch) starting from 08.01.2024.

Day Time	8.00 am to 9.00 am	9:00a.m to 12:00 noon		12.00 noon to 1.00 pm	1.00 pm to 2.00 pm	2.00 pm to 3.00 pm	3.00 pm to 4.00 pm
Monday	Microbiology	CLINICAL POSTINGS		LUNCH	Pathology	Pathology/ Microbiology	
Tuesday	Medicine				Comm. Medicine	Pathology/ Microbiology	
Wednesday	Microbiology				Pathology	Forensic Medicine	
Thursday	Pharmacology				Comm. Medicine	Pharmacology	
Friday	OBG				Pathology	Pharmacology	Microbiology
Saturday	General Surgery	9.00 am to 11.00 am Pharmacology	11.00 am to 12.00 noon Microbiology		Pathology	AETCOM/ Integration	

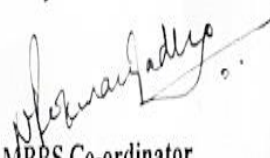
*1 Every Wednesday Yoga class will be taken from 4.00 pm to 5.00 pm.

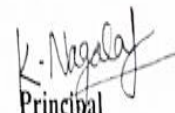
*2 Every Monday Roll nos. 2205001 to 2205089 to attend pathology classes between 2-4 pm and Roll nos. 2205090 to 2205176, 2105059, 165 students to attend microbiology classes between 2-4 pm.

*3 Every Tuesday Roll nos. 2205001 to 2205089 to attend microbiology classes between 2-4 pm and Roll nos. 2205090 to 2205176, 2105059, 165 batch students to attend Pathology classes between 2-4 pm.

*4 AETCOM classes will be taken by Pathology, Pharmacology and Microbiology departments in coordination with other departments to teach topics/modules concerned to the respective departments.

*5 Every Friday, PT/EC class will be taken between 4-5 pm.


2nd MBBS Co-ordinator
SVIMS-SPMCW

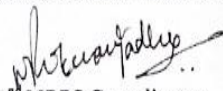

Principal
SVIMS-SPMCW.

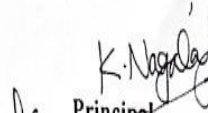
SVIMS-SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN, SVIMS, Tirupati.
2nd MBBS Clinical Postings Timetable for 2022-23 batch (08.01.2024 to 08.10.2024)

Dates	General Medicine	General Surgery	OBG	Community Medicine	ENT	Ophthalmology	Paediatrics	Orthopaedics	Psychiatry	TB & RD	Radiology	DVL
08.01.2024 to 10.01.2024	AB	CD	EF	GH	IJ	KL	M	N	O	P	Q	R
18.01.2024 to 28.01.2024							N	M	P	O	R	Q
29.01.2024 to 11.02.2024							O	P	Q	R	A	B
12.02.2024 to 25.02.2024	CD	EF	GH	IJ	KL	MN	P	O	R	Q	B	A
26.02.2024 to 10.03.2024							Q	R	A	B	C	D
11.03.2024 to 24.03.2024	EF	GH	IJ	KL	MN	OP	R	Q	B	A	D	C
25.03.2024 to 07.04.2024							A	B	C	D	E	F
08.04.2024 to 21.04.2024	GH	IJ	KL	MN	OP	QR	B	A	D	C	F	E
22.04.2024 to 05.05.2024							C	D	E	F	G	H
06.05.2024 to 15.05.2024	IJ	KL	MN	OP	QR	AB	D	C	F	E	H	G
01.06.2024 to 04.06.2024							E	F	G	H	I	J
05.06.2024 to 18.06.2024	KL	MN	OP	QR	AB	CD	F	E	H	G	J	I
19.06.2024 to 02.07.2024							G	H	I	J	K	L
03.07.2024 to 16.07.2024	MN	OP	QR	AB	CD	EF	H	G	J	I	L	K
17.07.2024 to 30.07.2024							I	J	K	L	M	N
31.07.2024 to 13.08.2024	OP	QR	AB	CD	EF	GH	J	I	L	K	N	M
14.08.2024 to 27.08.2024							K	L	M	N	O	P
28.08.2024 to 10.09.2024	QR	AB	CD	EF	GH	IJ	L	K	N	M	P	O
11.09.2024 to 24.09.2024												
25.09.2024 to 08.10.2024												

A-1-10 B-11-20 C-21-30 D-31-40 E-41-50 F-51-60 G-61-70 H-71-80 I-81-90 J-91-100 K-101-110 L-111-120 M-121-130 N-131-140
 O-141-150 P-151-160 Q-161-170 R-171-178.

Note: General Medicine to Paediatrics-4 weeks, Paediatrics to DVL- 2 weeks.


2nd MBBS Co-ordinator
SVIMS-SPMCW


Principal
SVIMS-SPMCW.

SVIMS-SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN, TIRUPATI

DEPARTMENT OF COMMUNITY MEDICINE

Theory Time Table for II Year MBBS

DATE	DAY	TIME	TOPIC	FACULTY
			C.M 5.3.10 Discuss briefly the prevention of Zinc deficiency	
			C.M 5.5.1 Describe briefly the important components of Nutritional Surveillance C.M 5.5.2 Differentiate between nutritional monitoring and nutritional surveillance	
			C.M 5.5.3 Describe briefly the principles of Nutritional Education with special emphasis on locally available foods	
			C.M 5.5.4 Describe briefly the principles of Nutritional Rehabilitation Keeping in mind the prevalent local socio cultural factors and according to the national program.	
			C.M 5.6.1 Discuss briefly the objectives and intervention strategies of the National nutrition Policy, 1993.	
			C.M 5.6.2 Discuss briefly the objectives and services provided by Integrated Child Development Services Scheme (ICDS) in the community.	
			Class Test	
			Mentoring	

DEPARTMENT OF COMMUNITY MEDICINE

Clinical Time Table for II Year MBBS (2022-23) 05-06-2024 to 02-07-2024 –June-July 2024 Schedule

DATE	DAY	TIME	TOPIC	FACULTY
05.06.2024	Wednesday	9.00 AM TO 12.00 PM	INTRODUCTION TO FHS	
06.06.2024	Thursday	9.00 AM TO 12.00 PM	FHS- DATA COLLECTION	
07.06.2024	Friday	9.00 AM TO 12.00 PM	FHS- DATA COLLECTION	
10.06.2024	Monday	9.00 AM TO 12.00 PM	FHS- DATA COLLECTION	
11.06.2024	Tuesday	9.00 AM TO 12.00 PM	FHS- DATA COLLECTION	
12.06.2024	Wednesday	9.00 AM TO 12.00 PM	FHS- DATA COLLECTION	
13.06.2024	Thursday	9.00 AM TO 12.00 PM	FHS- DATA COLLECTION	
14.06.2024	Friday	9.00 AM TO 12.00 PM	FHS- DATA COLLECTION	
18.06.2024	Tuesday	9.00 AM TO 12.00 PM	FORMATIVE ASSESSMENT	
19.06.2024	Wednesday	9.00 AM TO 12.00 PM	FEED BACK	
20.06.2024	Thursday	9.00 AM TO 12.00 PM	DATA CODING	
21.06.2024	Friday	9.00 AM TO 12.00 PM	DATA ENTRY	
24.06.2024	Monday	9.00 AM TO 12.00 PM	DATA ENTRY	
25.06.2024	Tuesday	9.00 AM TO 12.00 PM	PREPARATION OF DATA ANALYSIS	
26.06.2024	Wednesday	9.00 AM TO 12.00 PM	DATA ANALYSIS	
27.06.2024	Thursday	9.00 AM TO 12.00 PM	DATA ANALYSIS	
28.06.2024	Friday	9.00 AM TO 12.00 PM	PREPARATION OF PRESENTATION	
01.07.2024	Monday	9.00 AM TO 12.00 PM	PRESENTATION	
02.07.2024	Tuesday	9.00 AM TO 12.00 PM	END POSTING EXAMINATION	

PANDEMIC MODULE

Longitudinal Module on Management of Pandemics for MBBS course

Period	Module	Broad areas	No. of hours	Major department(s) to coordinate
Foundation Course	F.1	History of Outbreaks, Epidemics & Pandemics	2	Pre-Clinical
Phase I	1.1	Infection Control: Part - I Infection Control Practices – Hand washing, Decontamination Use of PPEs	4	Microbiology
Phase II	2.1	Infection Control: Part II Air borne precautions Contact Precautions Infection Control Committee	4	Microbiology
	2.2	Emerging and Re-emerging infections, early identification and control of new infections	6	Community Medicine
	2.3	Sample Collection, Microbial diagnosis, Serologic tests and their performance parameters	6	Microbiology
	2.4	Vaccination strategies including vaccine development & Implementation	6	Community Medicine, Biochemistry
	2.5	Therapeutic strategies including new drug development	6	Pharmacology, General Medicine
Phase III Part 1	3.1	Outbreak Management including Quarantine, Isolation, Contact Tracing	5	Community Medicine
	3.2	Interdisciplinary Collaboration, Principles of Public Health Administration, Health Economics, International Health	5	
	3.3	Operational Research, Field work, Surveillance	8	
Electives		Epidemiology and research Components		Community Medicine
Phase III Part 2	4.1	Care of patients during Pandemics	6	Clinical departments (General Medicine, Pulmonary Medicine, Anaesthesiology as Integrated sessions)
	4.2	Emergency Procedures	8	
	4.3	Death related management	2	
	4.4	Communications and media management	4	
	4.5	Intensive Care Management during Pandemics	4	
	4.6	Palliative Care during Pandemics	4	
Total			80 hours	

INTEGRATED TEACHING SCHEDULE

Date	Topic	Departments	Time
04.11.2023	Vectors, Vector borne diseases, NVBDCP, Insecticides and rodenticides:	Community Medicine, Microbiology, Pharmacology.	
	Vectors and vector borne disease	Microbiology	30 min
	NVBDCP: Objectives & implementation	Community medicine	45 min
	Insecticides & rodenticides	Pharmacology	30 min
	Discussion		15 min
	Describe the common sources of Pharmacology, Medicine, Paediatrics various nutrients and special		
11.11.2023	nutritional requirements according to age, sex, activity, physiological conditions:		
	Common sources of nutrients & nutritional requirements	Comm. Medicine	45 min
	Management of Nutritional disorders in children	Paediatrics	30 min
	Management of Nutritional disorders in adults	Medicine	30 min
	Discussion		15 min
	Describe and demonstrate the steps in the investigation of an epidemic of communicable disease and describe the principles of control measures.		
18.11.2023		Community Medicine, Medicine, Microbiology	
	Definition of terms and epidemiological investigations	Community Medicine	40 min
	Role of clinician in an Epidemic	Medicine	20 min
	Role of Microbiology in investigation		15 min
	Control Measures		30 min
	Discussion		15 min
	Enumerate and describe the methods of screening high risk groups and common health problems (Maternal Child Health).		
25.11.2023		Community Medicine, Obs & Gynae, Paediatrics	
	High risk groups in Pregnancy & its problems	OBG	30 min
	Problem in children from high risk pregnancy	Paediatrics	30 min
	Screening for high risk groups	Community Medicine	45 min
	Discussion		15 min
	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices.		
02.12.2023		Community Medicine, Obs & Gynae, Paediatrics	
	Local customs in pregnancy and childbirth.	Community Medicine	30 min
	Adverse consequences of local customs during pregnancy & childbirth.	OBG	30 min
	Local customs in lactation & child feeding	Community Medicine	20 min
	Adverse consequences of local custom during lactation and child feeding.	Paediatrics	25 min
	Discussion		15 min

FAMILY ADOPTION PROGRAMME

Family Adoption Programme Survey Camp Guidelines

1. Institutes/colleges are requested to conduct at least one health camp under family adoption programme survey (for MBBS batch admission year 2022:23).
2. A committee under the chairmanship of Head of the institute/college is to be formed for conducting the health camps under family adoption programme survey.
3. The department of community medicine will be the nodal department for the above activity.
4. Resources required for the camp (s) to be mobilized at the level of college/institute in coordination with Community Medicine department.
5. Faculty members and Resident Doctors from other departments can also be involved in the conduction of the health camp(s).
6. Data of the health camp (s) to be maintained by the department of community medicine.
7. Institutes/Colleges to share the de-identified data of all the families adopted during family adoption programme (admission year 2022) with UGMEB of NMC in the prescribed formats before 7th August, 2024.
8. Health awareness via health talks, role-plays, rallies etc. on relevant health topics as identified by the community medicine department may be done.
9. Cleanliness, sanitation and/or plantation drives can also be planned during the health camps with involvement of local community volunteers.
10. Queries may be raised to the following e mail ID: fap.ugr.neb@nmc.org.in

2 nd Professional	Take history and conduct clinical examination of all family members	By the end of this visit, students should be able to compile the updated medical history of family members and report their vitals and anthropometry	Family survey, Community clinics	Community case presentation, OSPE, logbook, journal of visit	6 hrs
	Organize health check-up and coordinate treatment of adopted family under overall guidance of mentor	By the end of this visit, students should be able to report the details of clinical examination like Hb %, blood group, urine routine and blood sugar along with treatment history of allocated family members	Community clinics, Multispecialty camps	Community case presentation, OSPE, logbook, journal of visit	9 hrs
	Maintain communication & follow up of remedial measures	By the end of this visit, students should be able to provide details of communication maintained with family members for follow-up of treatment, and suggested remedial measures along with details of vaccination drive	Reporting of follow up visits, PRA techniques (transact walk, group discussion) Community clinics,	Community case presentation, OSPE, logbook based certification of competency, journal of visit	9 hrs
	Take part in environment protection and sustenance activities.	By the end of this visit, students should be able to report the activities undertaken for environment protection and sustenance like study of environment of families, tree plantation/ herbal plantation activities conducted in the village	Participation in and Process documentation of activities (NSS activities) along with reporting of photographic evidences	logbook based certification of competency, journal of visit	6 hrs
					(Total 30 hrs, 10 visits)

DEPARTMENT OF COMMUNITY MEDICINE				
FAMILY ADOPTION PROGRAMME Time Table for II Year MBBS (2022-23)				
03-07-2024 to 16-07-2024 –July 2024 Schedule				
DATE	DAY	TIME	TOPIC	FACULTY
03.07.2024	Wednesday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME – HISTORY & CLINICAL EXAMINATION	
04.07.2024	Thursday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME- HISTORY & CLINICAL EXAMINATION	
05.07.2024	Friday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME- ORGANIZE HEALTH CHECK UP & COORDINATE TREATMENT OF ADOPTED FAMILY	
08.07.2024	Monday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME- ORGANIZE HEALTH CHECK UP & COORDINATE TREATMENT OF ADOPTED FAMILY	
09.07.2024	Tuesday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME- ORGANIZE HEALTH CHECK UP & COORDINATE TREATMENT OF ADOPTED FAMILY	
10.07.2024	Wednesday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME- MAINTAINS COMMUNICATION & FOLLOWUP OF REMEDIAL MEASURES	
11.07.2024	Thursday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME- MAINTAINS COMMUNICATION & FOLLOWUP OF REMEDIAL MEASURES	
12.07.2024	Friday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME- MAINTAINS COMMUNICATION & FOLLOWUP OF REMEDIAL MEASURES	
15.07.2024	Monday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME- ENVIRONMENT PROTECTION & SUSTENANCE ACTIVITIES	
16.07.2024	Tuesday	9:00 AM TO 12:00 PM	FAMILY ADOPTION PROGRAMME ENVIRONMENT PROTECTION & SUSTENANCE ACTIVITIES	

Eligibility to appear for Community Medicine University examinations

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

Attendance:

- In Community Medicine - the learner must have 75% attendance in theory and 80% in practical in each phase (3 phases).
- There shall be minimum of 80% attendance in family visits under Family adoption programme. Each student shall adopt minimum 3 families and preferably five families. The details shall be as per Family Adoption Program guidelines.

			Formative Assessment			Continuous Internal Assessment (Practical)						
S.No.	Roll No.	Name of Student	1st PCT Practical/First Ward Leaving Examination	2nd PCT Practical /Second Ward Leaving Examination	Prelims Practical	Log book (150)			Journal (Record book/ Portfolio)	Attendance (Practical)	Total	Percentage Practical (Minimum cut off 40%)
						Certifiable skill based competencies (Through OSPE/OSCE/Spots/Exercise/Other)	Family Adoption Programme competencies in Comm. Med	AETCOM competencies				
			100	100	100	60	30	30	40	10	500	%
1												
2												
3												

S/d
Professor & Head
Department of _____
* Medical College
University
State/ U.T.

DEPARTMENT OF Community Medicine

Faculty : MBBS Year/Phase 3, part 1

			Formative Assessment_Theory			Continuous Internal assessment_Theory								Cumulative percent of Theory & Practical
S.No.	Roll No.	Name of Student	1st PCT Theory	2nd PCT Theory	Prelims Theory (Paper I & II)	Home Assignment	Seminar	Continuous Class Test (LMS)	Museum study	Library assignments	Attendance Theory	Total	Percentage Theory (Minimum cut off 40%)	Theory+ Practical = 500+500= 1000 (Minimum cut off 50%) <i>Note: Minimum 40% separately for theory and practical and 50% cumulative in IA for eligibility in Summative examination</i>
			100	100	200	15	15	30	15	15	10	500	%	
1														
2														
3														

EVALUATION METHODOLOGY

Summative Assessment - Assessment will be conducted at the end of instruction to check how much the student has learnt.

Formative Assessment - Assessment will be conducted during the instruction with primary purpose of providing feedback for improved learning.

Internal Assessment - Range of assessments conducted by the teachers teaching a particular subject with the purpose of knowing what is learnt. Internal assessment can have both formative and summative functions.

Theory IA includes: Written test includes essay questions, short notes and MCQs.

Practical IA includes: Practical tests, Objective Structured Practical Examination (OSPE), Directly Observed Procedural Skills (DOPS), records maintenance and attitudinal assessment.

Assessment of Log-book- Log book should record all activities like seminar, symposia, quizzes and other academic activities. It should be assessed regularly and submitted to the department. Up to ten (10) per cent IA Practical marks should be for Log book assessment.

Assessment of Practical Record book- Practical book should record all skills and other practical exercises done during the academic programme. It will be assessed regularly and submitted to the department.

Recommended Text books-(Latest edition)

1. Park's text book of preventive and social medicine
2. Kulkarni's text book of preventive and social medicine
3. Sunderlal's text book of preventive and social medicine
4. Suryakantha's text book of Community medicine
5. Essentials of Community medicine practicals- DK Mahabalaraju
6. Nutritive values of Indian foods-C.Gopalan
7. Methods in bio-statistics – BK Mahajan
8. Text book of bio statistics – P Sundar Rao

Reference books

1. Public health and preventive medicine -Maxcy-rosenau
2. Oxford text book of public health -Oxford medical education
3. Uses of epidemiology -Morris
4. Medical statistics -Bradford and hill
5. Preventive and community medicine -Clark
6. Human nutrition and dietetics -Davidson and passmore
7. Practical epidemiology -Barker
8. Theory and practice of public health -Hobson

**DEPARTMENT OF FORENSIC
MEDICINE AND TOXICOLOGY**

CURRICULUM

A. Competencies:

The learner must demonstrate:

Understanding of medico-legal responsibilities of physicians in primary and secondary care settings,

Understanding of the rational approach to the investigation of crime, based on scientific and legal principles,

Ability to manage medical and legal issues in cases of poisoning /overdose,

Understanding the medico-legal framework of medical practice and medical negligence,

Understanding of codes of conduct and medical ethics,

Understanding concept of deceased donor, brain death, and Human Organ Transplantation Act.

B. Broad subject specific objectives:

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

- Identify the basic Medico-legal aspects of hospital and general practice.
- Define the Medico-legal responsibilities of a general physician while rendering community service either in a rural primary health centre or an urban health centre.
- Appreciate the physician's responsibilities in criminal matters and respect for the codes of Medical ethics.
- Diagnose, manage and identify legal aspect of common acute and chronic poisonings. • Describe the Medico-legal aspects and findings of post-mortem examination in cases of death due to common unnatural conditions and poisonings.
- Detect occupational and environmental poisoning, prevention and epidemiology of common poisoning and their legal aspects particularly pertaining to Workmen's Compensation Act.
 - Describe the general principles of analytical toxicology.

C. Skills

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

- Make observations and draw logical inferences in order to initiate enquiries in criminal matters and Medico-legal problems and be able to -
 - Carry on proper Medico-legal examination and documentation/Reporting of Injury and Age.
 - Conduct examination for sexual offences and intoxication.
 - Preserve relevant ancillary materials for medico-legal examination.
 - Identify important post-mortem findings in common unnatural deaths.
 - Diagnose and treat common emergencies in poisoning and chronic toxicity.
 - Make observations and interpret findings at post-mortem examination.
 - Observe the principles of medical ethics in the practice of his profession.

D. Integration:

The teaching should be aligned and integrated horizontally and vertically recognizing the importance of medico-legal, ethical and toxicological issues as they relate to the practice of medicine.

2. COURSE CONTENT AND TEACHING HOURS

A. Teaching Hours (Teaching Learning Methods)

Forensic Medicine and Toxicology	Lectures	SGL	SDL	Total
II MBBS	12	22	08	42
IIIMBBS –part -1	40	70	20	130
Total	52	92	28	172

*Small group discussion (SGD)

*self-directed learning (SDL)

B. Theory Syllabus

CORE COMPETENCIES FOR II MBBS		
UNIT	TOPIC	COMPETNCIES
1	General Information	FM 1.1-1.9
2	Forensic Pathology	FM 2.1-2.35
3	Medical Jurisprudence (Medical Law and ethics)	FM 4.1-4.30
4	General Toxicology	FM 8.1-8.10
SENSITISATION TOPICS FOR II MBBS		
5	Clinical Forensic Medicine	FM 3.1- 3.13 and 3.29 - 3.33
6	Forensic Psychiatry	FM 6.1-6.3
7	Forensic Laboratory investigation in medico-legal practice	FM 7.1
8	Emerging technologies in Forensic Medicine	FM 5.1-5.6
9	Chemical Toxicology	FM 9.1-9.6
10	Pharmaceutical Toxicology	FM 10.1
11	Bio-toxicology	FM 11.1
12	Socio-medical Toxicology	FM 12.1
13	Environmental Toxicology	FM 13.1-13.2

C. Practical syllabus (will be taught in III MBBS part I)

S. No	Experiment/ Exercise	Competencies
1	Age Estimation Certificate	FM 14.4
2	Sexual offence certificate - Accused	FM 14.14
3	Sexual offence certificate- Survivor	FM 14.15
4	Drunkenness certificate	FM 14.16
5	Wound Certificate	FM 14.1
6	Medico legal Autopsy	FM 14.5, 14.18
7	MLR for poisoning case & preservation of biological samples	FM 14.2 & 14.3
8	Examination of skeletal remains	FM 14.9
9	Weapon Examination	FM 14.11
10	Fetal examination	FM 14.13
11	Examination of wounds	FM 14.10
12	Examination of firearm cartridges	FM 14.12
13	Trace evidence	FM 14.6, 14.7, 14.8
14	Toxicology Specimens	FM 14.17

3. Skill certification

- Maintenance of patient case records, discharge summary, prescribed registers to be maintained in health centres.
- Maintenance of medico-legal register like accident register.
- Documents of issuance of wound/injury/trauma certificate
- Documents of issuance of drunkenness certificate. - documents of issuance of sickness and fitness certificate.
- Documents for issuance of death certificate.
- Documents of medical certification of cause of death form number 4 and 4a
- Documents for estimation of age by physical, dental and radiological examination and issuance of certificate
- Documents for sexual offences
- Documents for potency
- Establishing communication in medico legal cases with police, public health authorities, other concerned departments, etc.

4. Integration topics

Integration: The teaching should be aligned and integrated horizontally and vertically recognizing the importance of medico-legal, ethical and toxicological issues as they relate to the practice of medicine.

Integration of Forensic Medicine with Other departments:

The suggested topics, competencies and the subjects/departments for integrated teaching are shown in below table.

<i>Sl. No.</i>	<i>Topic for integration</i>	<i>Subject [Competencies]</i>
1	Injuries / Trauma	Forensic Medicine [FM 3.3, 3.4, 3.8, 3.9, 3.10] General Surgery [SU 17.1, 17.2, 17.3]
2	Wound healing	General Surgery [SU 5.1, 5.2, 5.3, 5.4] Pathology [PA 5.1] Forensic Medicine [FM 3.6]
3	Regional injuries	Forensic Medicine [FM 3.11, 3.12] General Surgery [SU 17.4, 17.5, 17.6, 17.7, 17.8, 17.9, 17.10]
4	Burns	Forensic Medicine [FM 2.24, 2.25] General Surgery [SU 4.1, 4.2, 4.3, 4.4]
5	Organ transplantation	General Surgery [SU 13.1, 13.2, 13.3, 13.4] Ophthalmology [OP 4.9, 4.10] Forensic Medicine [FM 2.4]
6	Pregnancy and labour	Forensic Medicine [FM 3.19, 3.20] OBG [OG 6.1, 7.1]
7	Abortion	Forensic Medicine [FM 3.27, 3.28] OBG [OG 1.3, 9.1, 9.2, 20.1, 20.2]
8	PCPNDT Act	OBG [OG 20.3] Radiodiagnosis [RD 1.13] Forensic Medicine [FM 3.21]
9	Impotence and Sterility	Forensic Medicine [FM 3.22, 3.23, 3.24, 3.25, 3.26] Pharmacology [PH 1.40] OBG [OG 28.1, 28.2, 28.3, 28.4]
10	Psychiatric disorders	Psychiatry [PS 3.7, 3.8] Forensic Medicine [FM 5.1, 5.2, 5.3, 5.4, 5.5, 5.6]

11	General toxicology	Forensic Medicine [FM 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8] Pharmacology [PH 1.4, 1.5, 1.11] General Medicine [IM 21.1, 21.5, 21.6, 21.7, 21.8]
12	Insecticides	Forensic Medicine [FM 8.6] Pharmacology [PH 1.52] Community Medicine [CM 3.8]
13	Corrosives	Forensic Medicine [FM 9.1] General Medicine [IM 21.3]
14	Heavy metal poisoning	Forensic Medicine [FM 9.2, 9.3] Pharmacology [PH 1.53]
15	Plant poisons	General Medicine [IM 21.2] Forensic Medicine [FM 10.1]
16	Snake, scorpion, insect bites	Forensic Medicine [FM 11.1] General Medicine [IM 20.1, 20.2, 20.3, 20.4, 20.5, 20.6, 20.7, 20.8, 20.9]
17	Alcohol disorders	Pharmacology [PH 1.20, 1.21] Pathology [PA 12.1, 25.4] General Medicine [IM 5.5] Forensic Medicine [FM 9.4]
18	Drugs of abuse	Pharmacology [PH 1.22, 1.23] Forensic Medicine [FM 12.1] Psychiatry [PS 4.1, 4.2, 4.3, 4.4, 4.6, 4.7]

Sl no	Subject	Competen cy number	Competency	TL meth od	Assess ment	Vertical Integratio n	Horizont al Integrati on
1	Anatomy	AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia	Lectur e	Viva voce / Practical s	Forensic Medicine	-
2	Pharmacol ogy	PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	Lectur e / SGD	Written / Viva voce	Psychiatry	Forensic Medicine
3		PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	SGD	Short note / viva voce	-	Forensic Medicine
4	Radiodiagn osis	RD1.13	Describe the components of the PC & PNDT act and its medicolegal implications	Lectur e / SGD		OBG, Forensic Medicine	-
5	Psychiatry	PS19.3	Describe and discuss the basic legal and ethical issues in psychiatry	Lectur e / SGD	Written / Viva voce	Forensic Medicine, AETCOM	-
6	General Medicine	IM20.1	Enumerate the poisonous snakes of your area and describe the	Lectur e / SGD	Written / Viva voce	Forensic Medicine, Pharmacolo gy	

			distinguishing marks of each				
7		M20.2	Describe, demonstrate in a volunteer or a mannequin and educate (to other health care workers / patients) the correct initial management of patient with a snake bite in the field	DOA P sessio n	Skill assessm ent /Written / Viva voce	Forensic Medicine	
8		M20.3	Describe the initial approach to the stabilisation of the patient who presents with snake bite	Lectur e / SGD	Written / Viva voce	Forensic Medicine	
9		M20.4	Elicit and document and present an appropriate history, the circumstance, time, kind of snake, evolution of symptoms in a patient with snake bite	Bedsi de clinic, DOA P sessio n	Skill assessm ent	Forensic Medicine	
10		IM21.2	Enumerate the common plant poisons seen in your area and describe their toxicology, clinical features, prognosis and specific	Lectur e / SGD	Written / Viva voce	Forensic Medicine, Pharmacolo gy	

			approach to detoxification				
11		IM21.3	Enumerate the common corrosives used in your area and describe their toxicology, clinical features, prognosis and approach to therapy	Lecture / SGD	Written / Viva voce	Forensic Medicine, Pharmacology	
12		IM21.4	Enumerate the commonly observed drug overdose in your area and describe their toxicology, clinical features, prognosis and approach to therapy	Lecture / SGD	Written / Viva voce	Forensic Medicine, Pharmacology	
13		IM21.5	Observe and describe the functions and role of a poison centre in suspected poisoning	DOA P Session	Document in log book	Forensic Medicine, Pharmacology	
14		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	Lecture / SGD / DOA P Session	Written / Viva voce / Skill assessment	Forensic Medicine, Pharmacology	

15		IM21.7	Counsel family members of a patient with suspected poisoning about the clinical and medico legal aspects with empathy	DOA P Session	Skill assessment	Forensic Medicine, Pharmacology	
16		IM21.8	Enumerate the indications for psychiatric consultation and describe the precautions to be taken in a patient with suspected suicidal ideation / gesture	DOA P Session	Skill assessment	Forensic Medicine, Psychiatry	
17	OBG	OG1.3	Define and Discuss still birth and abortion	Lecture / SGD	Notes	Forensic Medicine	
18		OG9.2	Describe the steps and observe/ assist in the performance of an MTP evacuation	DOA P Session, Bedside clinic	Viva voce	Forensic Medicine	
19		OG20.1	Enumerate the indications and describe and discuss the legal aspects, indications, methods for first and second trimester MTP; complications	Lecture / SGD	Written / Viva voce	Forensic Medicine	

			and management of complications of medical termination of pregnancy				
20		OG20.2	In a simulated environment administer informed consent to a person wishing to undergo medical termination of pregnancy	DOA P Session	Skill assessment	Forensic Medicine	
21		OG20.3	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC& PNDT) Act 1994 & its amendments	Lectur e / SGD	Written / Viva voce	Forensic Medicine	
22	General Surgery	SU8.1	Describe the principles of Ethics as it pertains to surgery	Lectur e / SGD	Written / Viva voce/ Skill assessment	Forensic Medicine, AETCOM	
23		SU8.2	Demonstrate Professionalism and empathy to the patient undergoing surgery	Lectur e / SGD / DOA P Session	Written / Viva voce/ Skill assessment	Forensic Medicine, AETCOM	
24		SU8.3	Discuss Medico legal issues in surgical practice	Lectur e / SGD	Written / Viva voce/ Skill assessment	Forensic Medicine, AETCOM	

5. AETCOM COMPETENCIES FOR THIRD YEAR (PART I)

Forensic Medicine & Toxicology	3.3 C	Administer informed consent and appropriately address patient queries to a patient undergoing a surgical procedure in a simulated environment
	3.4	Identify, discuss and defend medico-legal, socio-cultural and ethical issues as it pertains to confidentiality in patient care

University Examination

6. Marks distribution for of Theory, practical ,ECE,SGL SDL & etc

Phase of Course- Final MBBS part -1	Theory	Practicals	Passing criteria
Forensic Medicine & Toxicology	100 Marks	50 marks	Mandatory to get 40% marks separately in theory and in practicals; and totally 50% for theory plus practicals.

Distribution of marks for theory examination

Theory Examination

Theory examination consists of one paper and will have maximum marks of 100

Question paper pattern

Theory question paper pattern for 100 marks for a duration of 3 hours

MCQ	20 X 1(mark)	= 20 marks
Long Answer Question:(LAQ):	2 X 15(marks)	= 30 marks
Short Answer Question (SAQ):	10 X 5(marks)	= 50 marks

Distribution of Marks for Practical Examinations:

Practical Examination	(50 marks)
Long Exercise – Age Estimation, Sexual offence – accused, sexualoffence – survivor, Drunkenness certificate, post mortem certificate	2 x 10 = 20
Short exercise / OSPE - Wound certificate, Preservation ofbiological samples, Medico legal Autopsy, Skeletal remains	2 x 05 = 10
Spotters	10 x 1 = 10
Viva –Voce Examination	(10 marks)
General Information, Forensic Pathology	
Clinical Forensic Medicine	
Medical Jurisprudence , Forensic Psychiatry	
Toxicology	
TOTAL MARKS	50 MARKS

7. Internal Assessment

a) Assessment methods for theory:

- Part completion tests (PCT)
- Home assignments
- Seminar
- Continuous class test (LMS -learning Management system)
- Museum study
- Library assignments
- Attendance theory

b) Assessment methods for practicals

- Part completion tests
- Certifiable skill based competencies (osce/ospe/sports/exercise/others)
- AETCOM competencies
- SVL lab activity
- Journal (record book/ portfolio)
- Attendance practical

8. Recommended books: latest edition

- 1) Reddy KSN, Murthy OP. The Essentials of Forensic Medicine and Toxicology. 35th edition, 2024. Jaypee Brothers Medical Publishers, New Delhi.
- 2) Pillay VV. Textbook of Forensic Medicine and Toxicology, 20th edition, 2023, Paras Medical Publishers, Hyderabad.

- 3) Karmakar RN. Forensic Medicine and Toxicology: Theory, Oral and Practical, 5th edition, 2015. Academic Publishers, Kolkata.
- 4) Nandy A. Principles of Forensic Medicine including Toxicology, 3rd edition, 2010, New Central Book Agency.
- 5) Subrahmanyam BV. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology, 8th edition, 2019, CBS Publishers.
- 6) Guharaj PV, Gupta SK. Forensic Medicine and Toxicology, 3rd edition, 2019, Universities Press (India) Private Ltd., Hyderabad.
- 7) Bardale R. Principles of Forensic Medicine & Toxicology, 4th edition, 2024, Jaypee Brothers Medical Publishers, New Delhi.
- 8) Biswas G. Review of Forensic Medicine & Toxicology, 6th edition, 2024, Jaypee Brothers Medical Publishers, New Delhi.
- 9) Vij K. Textbook of Forensic Medicine and Toxicology: Principles and Practice, 6th edition, 2022, Elsevier Ltd.
- 10) Ignatius PC. Forensic Medicine and Toxicology, 5th edition, 2022, Elsevier India.
- 11) Pillay VV. NACPFMT's Practical Medicolegal Manual: Medical Ethics, Clinical Forensics & Toxicology, 1st edition, 2019, Paras Medical Publishers, Hyderabad.
- 12) Bakkannavar SM. Forensic Medicine and Toxicology: Practical manual, 1st edition, 2018, Elsevier India.
- 13) Borah. Medical Ethics for Students and Doctors, 1st edition, 2014, Ahuja Publishers.

9. Reference Books & Journals:

- 1) Kannan K. Modi's Medical Jurisprudence and Toxicology, 26th edition, 2019, LexisNexis.
- 2) Karmakar RN. JB Mukherjee's Forensic Medicine and Toxicology, 5th edition 2018, Academic Publishers.
- 3) Dogra TD, Rudra A. Lyon's Medical Jurisprudence and Toxicology. 11th edition (reprint), 2020. Delhi Law House, Delhi.
- 4) Saukko P, Knight B. Knight's Forensic Pathology. 4th edition. 2015, CRC Press
- 5) Pillay VV. Modern Medical Toxicology, 5th edition, 2023, Jaypee Brothers Medical Publishers Ltd., New Delhi.
- 6) Journal of Karnataka Medico-Legal Society.
- 7) Journal of South India Medico-Legal Association.
- 8) Journal of Indian Academy of Forensic Medicine.
- 9) Journal of Indian Society of Toxicology
- 10) Journal of Forensic and Legal Medicine
- 11) Journal of Forensic Sciences
- 12) Indian Journal of Medical Ethics

10. Division of Syllabus Along with Marks For MBBS

S. No	TOPICS	Competency Number	No. of MCQs	Weightage in %	LAQ	SAQ
1	General Information	FM 1.1-1.9	1	1-5		Y
2	Forensic Pathology	FM 2.1-2.35	2	2-17	Y	Y
3	Clinical Forensic Medicine	FM 3.1- 3.13 and 3.29 - 3.33	4	4-17	Y	Y
4	Medical Jurisprudence (Medical Law and ethics)	FM 4.1-4.30	2	2-17	Y	Y
5	Forensic Laboratory investigation in medico-legal practice	FM 6.1-6.3	1	1-6		Y
6	Emerging technologies in Forensic Medicine	FM 7.1	1	1-6		Y
7	Forensic Psychiatry	FM 5.1-5.6	1	1-16	Y	Y
8	General Toxicology	FM 8.1-8.10	1	1-16	Y	Y
9	Chemical Toxicology	FM 9.1-9.6	2	2-17	Y	Y
10	Pharmaceutical Toxicology	FM 10.1	1	1-6		Y
11	Bio-toxicology	FM 11.1	1	1-16	Y	Y
12	Socio-medical Toxicology	FM 12.1	2	2-17	Y	Y
13	Environmental Toxicology	FM 13.1-13.2	1	1-6		Y

11. Model Question papers

Department of Forensic Medicine & Toxicology *Forensic Medicine & Toxicology*

Answer all questions, Illustrate your answer with diagrams wherever relevant

Max Marks 100 Max Time 3 hours

Long Essays

(15x2= 30)

1). A 34 year old police officer with no previous relevant medical history suffers from crampy abdominal pain, intermittent nausea, occasional vomiting and persistent diarrhea for several weeks in conjunction with muscular weakness to his lower legs and exfoliative rash on paler surface of both hand and planta of both feet.

(2+2+1+3+2+3+2 = 15 Marks)

- i. What is the cause of this mans apparent gastroenteritis and why?
 - ii. What are the other usual signs and symptoms ?
 - iii. What studies should be obtaines when considering the diagnosis
 - iv. What is the medicolegal importance
 - v. As a trating physician, what is your role in such case.
- 2). Define Injury? Classify mechanical injuries. Write in detail about definition, types, Ageing, Medico Legal importance and Differential diagnosis of Abrasion?

(2+2+1+3+2+3+2 =15) Marks)

Write short notes on:

(10 X 5 = 50 Marks)

3. Medico Legal Importance of Age.
4. Causes of death in Burns.
5. Post mortem finding of ante mortem hanging.
6. Hypothermia
7. Differences between incised wound and lacerated wound.
8. Causes of sudden death.
9. Tattoo marks.
10. Dying Declaration.
11. Dactylography.
12. Harvard Criteria of Death.

MCQ s

20 X1 = 20 MARKS

- 1). Chief Judicial magistrate can give sentence of imprisonment upto:
()
- a) 3 years
 - b) 5 years
 - c) 7 years
 - d) Life imprisonment
2. Dying deposition is done by: ()
- a) Doctor
 - b) Magistrate
 - c) Police
 - d) All
3. A lady died due to unnatural death within 7 years of her marriage, in India Inquest is done by ()
- a) Forensic Medicine expert b) Deputy Superintendent of Police
 - c) Sub-divisional Magistrate d) Coroner
4. When a group of muscles of a dead body were in a state of strong contraction immediately prior to death and remain so even after death is termed as:
()
- a) Gas stiffening b) Rigor mortis
 - c) Cadaveric spasm d) Cold stiffening
5. Ideal place to record the body temperature in dead body is:
()
- a) Rectum
 - b) Axilla
 - c) Mouth
 - d) Groin

12. Convulsions, coma associated with metabolic acidosis may be caused by toxicity with

each of the following intoxication, except: ()

- a) Methanol.
- b) Salicylates.
- c) Carbolic acid.
- d) Amphetamine.

13. The manifestations of methanol toxicity include all of the following except:

- a) Diplopia. ()
- b) Hiccough.
- c) Slurred speech.
- d) Occupational delirium.

14. Benzodiazepines can be used in treatment of the following cases except:

- a) Tetanus. ()
- b) Insomnia.
- c) Schizophrenia.
- d) Anxiety.

15. Uncommon side-effects of tricyclic antidepressant therapy include which of the following?

- a) A dry mouth. ()
- b) Tremor.
- c) Constipation.
- d) Extra pyramidal movement disorders.

16. Oligemic Shock in cases of burn results from:

- a) Severe pain. ()
- b) Loss of plasma from burnt area.
- c) Histamine release.
- d) Burn toxins.

17. The upper part of the body is congested or cyanosed compared to the lower part in case of:

- a) Traumatic asphyxia. ()
- b) Overlying.
- c) Gagging.
- d) Mugging

18. A 6 years old female was found dead with a rope tightened around her neck. On examination, recent tears of the hymen and the anus were detected.

- What is the possible cause and condition of death? ()
- What is the PM picture of this type of fatality?
- Describe the tears detected and explain.\
- What are the medicolegal consequences of this crime?

19. After delivery, the fundal level reaches the symphysis pubis by the end of:

- a) 1st week.
- b) 2nd week.
- c) 3rd week.
- d) 4th week.

20. Maximum tissue destruction occurs with:

- a) Long jacketed bullet. ()
- b) Dumdum bullet.
- c) Tapering end bullet.
- d) Short jacketed bullet.

12. Theory and practical assessment marks as per NMC

Assessment methods for theory

Year/Phase
Part

S.No.	Roll No.	Name of Student	Formative Assessment_Theory			Continuous Internal assessment_Theory						Total	Percentage Theory (Minimum cut off 40%)	Cumulative percent of Theory & Practical
			1st PCT Theory	2nd PCT Theory	Prelims Theory	Home Assignmen t	Seminar	Continuous Class Test (LMS)	Museum study	Library assignments	Attendance Theory			Theory+ Practical = 375+500= 875 (Minimum cut off 50%)
					(Paper I & II)				Self Directed Learning					
			100	100	100	10	10	25	10	10	10	375	%	
1														
2														
3														

Assessment methods for practicals

Faculty: MBBS Year/Phase-

Date: dd/mm/yyyy

S.No.	Roll No.	Name of Student	Formative Assessment			Continuous Internal Assessment (Practical)					Total	Percentage Practical (Minimum cut off 40%)
			1st PCT Practical/First Ward Leaving Examination	2nd PCT Practical/Second Ward Leaving Examination	Prelims Practical	Log book (150)			Journal (Record book/Portfolio)	Attendance (Practical)		
						Certifiable skill based competencies (Through OSPE/OSCE/Spots/Exercise/Other)	AETCOM competencies	SVL Lab activity				
			100	100	100	70	40	40	40	10	500	%
1												
2												
3												

Department of Medicine

2nd MBBS

GENERAL GUIDELINES

A) 59 hours of lectures are allotted to Clinical subjects of which

- 19 hours for Medicine, 20 hours each for Surgery and Gynecology & Obstetrics.
- At least 3 hours of clinical instruction each week must be allotted to training in clinical and procedural skill laboratories. Hours may be distributed weekly or as a block in each posting based on institutional logistics.

B) Clinical postings

- 540 hours of clinical postings are allotted in Phase II MBBS.
- The clinical postings in the second professional shall be 15 hours per week (3 hours per day from Monday to Friday).

B) Internal Assessment-

- Regular periodic examinations shall be conducted throughout the course.
- There will be 3 internal assessment examinations, one in each clinical subject. The structure of the internal assessment examinations should be like the structure of University examinations.
- It is mandatory for the students to appear for all the internal assessment examinations.
- First internal assessment examination (THEORY) will be held at the end of 1st professional, second internal assessment examination will be held at the end of 2nd professional and third internal assessment examination will be held at the end of 3rd professional.
- An end of posting clinical internal assessment shall be conducted for each clinical posting in each professional year.
- Pattern of first and second Internal Assessment are left to the discretion of the individual institute. However, third internal assessment has to be conducted in the same pattern of the University exam
- Additional internal assessment examination for absent students can be considered due to genuine reason after approval by the head of the department. It should be taken before the

submission of internal assessment marks to the University.

- Internal assessment marks allotment for theory and practical for the first and second internal assessment are left to the discretion of the respective institutes. Marks allotted in the third (final) Internal Assessment should be preferably for 100 marks each for Theory and Practical.
- 20% of the internal assessment marks should be from Formative Assessment in Practical internal assessment

- Feedback in Internal Assessment - Feedback should be provided to students throughout the course so that they are aware of their performance and remedial action can be initiated well in time. The feedbacks need to be structured and the faculty and students must be sensitized to giving and receiving feedback.
 - The results of IA should be displayed on notice board within two weeks of the test and an opportunity provided to the students to discuss the results and get feedback on making their performance better.
 - It is also recommended that students should sign with date whenever they are shown IA records in token of having seen and discussed the marks.
 - Internal assessment marks will not be added to University examination marks and will reflect as a separate head of passing at the summative examination.
 - Internal assessment should be based on competencies and skills.
 - Criteria for appearing in University examination: Learners must secure at least 50% marks of the total marks (combined in theory and practical; not less than 40 % marks in theory and practical separately) assigned for internal assessment in order to be eligible for appearing at the final University examination.
- **Average marks obtained in all three internal assessments should be calculated to 40 marks.**
- A candidate who has not secured requisite aggregate in the internal assessment may be subjected to remedial assessment by the institution. If he/ she successfully complete the same, he/she is eligible to appear for University Examination. Remedial assessment shall be completed before submitting the internal assessment marks online to the University.

GENERAL MEDICINE

CURRICULUM FOR MBBS PHASE II

CHAPTER: OBESITY & METABOLISM:

NO. OF COMPETENCIES= 15; CERTIFIABLE PROCEDURES= 0 (NIL)

NUM BER	COMPETENCY	DOMAIN K/S/A/C	LEVEL K/KH/ SH/ P	CORE Y/ N	SPECIFIC LEARNING OBJECTIVES	SUGGESTED LEARNING METHOD	TIME ALLO TTED	SUGGESTED ASSESSMENT METHOD

IM 14.1	DEFINE AND MEASURE OBESITY AS IT RELATES TO INDIAN POPULATION	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; - Define Obesity as per WHO guidelines and with respect to Asia/ Indian population - List the normal BMI and calculate the same using various formulae - Classify Obesity as per WHO/ Indian guidelines	LECTURES SMALL GROUP DISCUSSION (SGD)	15 MINS	SHORT NOTE/ VIVA VOCE
IM 14.2	DESCRIBE AND DISCUSS THE AETIOLOGY OF OBESITY INCLUDING MODIFIABLE AND NON-MODIFIABLE RISK FACTORS AND SECONDARY CAUSES	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; - List the causes of Enumerate the reasons for increased prevalence of Obesity - List the modifiable and Non-modifiable causes of obesity - Describe the reasons for susceptibility to obesity reversible and irreversible weight gain	LECTURES SMALL GROUP DISCUSSION (SGD)	30 MINS	SHORT NOTE/ VIVA VOCE
IM 14.3	DESCRIBE AND DISCUSS THE MONOGENIC FORMS OF OBESITY	K	K	NO	DESIRABLE TO KNOW AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; List the Monogenic forms of Obesity Describe the variants of Monogenic forms of	LECTURES SMALL GROUP DISCUSSION (SGD)	15 mins	SHORT NOTE/ VIVA VOCE

					Obesity			
IM 14.4	DESCRIBE AND DISCUSS THE IMPACT OF ENVIRONMENTAL FACTORS INCLUDING EATING HABITS, FOOD, WORK, ENVIRONMENT & PHYSICAL ACTIVITY ON THE INCIDENCE OF OBESITY	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; - List the causes of obesity - Describe host/environment interactions in the pathogenesis of Obesity - Discuss the role of eating habits, physical activity, food and environment in weight management and obesity	LECTURES SMALL GROUP DISCUSSION (SGD)	30 minutes	SHORT NOTE/ VIVA VOCE
IM 14.5	DESCRIBE AND DISCUSS THE NATURAL HISTORY OF OBESITY AND ITS COMPLICATIONS	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; - Describe the pathophysiology of obesity - Discuss the natural history of obesity - List the complications of Obesity - Describe its	LECTURES SMALL GROUP DISCUSSION (SGD)	30 MINS	SHORT NOTE/ VIVA VOCE

					implications on the organ systems			
IM 14.13	DESCRIBE AND ENUMERATE THE INDICATIONS, PHARMACOLOGY AND SIDE EFFECTS OF PHARMACOTHERAPY FOR OBESITY	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; - List the non pharmacological methods of weight loss - Enumerate the indications for using drugs in obesity management - List the drugs available in management of obesity - Describe the mechanism of action of these drugs, dosing and efficacy of these drugs - Discuss the adverse effects of these drugs	LECTURES SMALL GROUP DISCUSSION (SGD)	30 MINUTES	SHORT NOTE/ VIVA VOCE

IM 14.14	DESCRIBE AND ENUMERATE THE INDICATIONS AND SIDE EFFECTS OF BARIATRIC SURGERY	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; - Describe the concept of Bariatric Surgery and its benefits - List the indications of Bariatric surgery - List the various methods of Bariatric surgery available - Discuss each method; vertical Banded Gastroplasty, Laparoscopic banding and Roux en y procedure - Discuss the complications and side effects of these procedures - Discuss the long term advantages and disadvantages of Bariatric surgery	LECT URES SMAL L GROU P DISCU SSION (SGD)	30 MINUT ES	SHOR T NOTE/ VIVA VOCE
IM 14.15	DESCRIBE AND ENUMERATE AND EDUCATE PATIENTS, HEALTH CARE WORKERS, & PUBLIC ON MEASURES TO PREVENT OBESITY AND PROMOTE HEALTHY LIFESTYLE	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; - Discuss the benefits of exercise and healthy balanced diet - Discuss the disadvantages of sedentary lifestyle and unhealthy eating - Enumer ate the side effects and complications of obesity - Discuss the concept of social well being and healthy eating	LECT URES SMAL L GROU P DISCU SSION (SGD)	30 MIN	SHOR T NOTE/ VIVA VOCE

						TOTAL	3.5 HOURS	

CHAPTER: NUTRITIONAL & VITAMIN DEFICIENCIES:

NO. OF COMPETENCIES= 05;

CERTIFIABLE PROCEDURES= 0 (NIL)

NUMBER	COMPETENCY	DOMAIN K/S/A /C	LEVEL K/KH/ SH/P	CORE Y/ N	SPECIFIC LEARNING OBJECTIVES	SUGGESTED ASSESSMENT METHOD	TIME ALL OT TED	SUGGESTED ASSESSMENT METHOD
IM 23.1	DISCUSS AND DESCRIBE THE METHODS OF NUTRITIONAL ASSESSMENT IN AN ADULT AND CALCULATION OF CALORIC REQUIREMENTS DURING ILLNESSES	K	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; • Discuss the Physiology of Nutrition and Energy Balance • Describe the regulation of Energy balance • List the Macronutrients and Micronutrients • Describe the consequences of Over nutrition and Under Nutrition • Discuss the Dietary recommendations of macro and micro nutrients • Calculate caloric requirements	LECTURES SMALL GROUP DISCUSSION (SGD) VISIT TO OPD/ WARD TO CALCULATE BMI, OTHER NUTRITIONAL PARAMETERS	30 MINUTES	WRITE N/ VIVA VOCE

					ts in health & illness • Discuss special circumstances like pregnancy and lactation • Enumerate the anthropometric measurements and their methods			
IM	DISCUSS	K	KH	Y	AT THE END OF	LECTURES		
IM 23.2	AND DESCRIBE THE CAUSES AND CONSEQUENCES OF PROTEIN CALORIC MALNUTRITION IN THE HOSPITAL				At THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; • Discuss the normal physiology of Protein metabolism • List the causes of Protein and Calorie malnutrition	SMALL GROUP DISCUSSION (SGD) VISIT TO WARDS AND CALCULATE CALORIC REQUIREMENTS FOR IN-PATIENTS	30 MINUTES	WRITTEN/ VIVA VOCE
					* Discuss consequences of Starvation and Famine			
					* Enumerate the investigations available commonly to assess protein malnutrition			
					* Describe the concept of 'Under Nutrition in the Hospital'			
					Discuss Energy Balance in old age			
					List the Nutritional support available in the hospital and describe their details			
IM	DISCUSS	K	KH	Y	AT THE END OF THE	LECTURES	4 Hrs	WRITTE
23.3	AND				SESSION THE	SMALL		N/

	DESCRIBE THE AETIOLOGY, CAUSES, CLINICAL MANIFESTATIONS, COMPLICATIONS, DIAGNOSIS AND MANAGEMENT OF COMMON				STUDENT SHOULD BE ABLE TO; List the fat and water soluble vitamins - List the common causes of vitamin deficiencies - Describe vitamin A deficiency causes, its eye signs and clinical manifestations.	GROUP DISCUSSION (SGD) VISIT TO OPD TO SEE PATIENTS WITH SUCH DEFICIENCIES		VIVA VOCE
	VITAMIN				Discuss on the management of it. - Discuss on Vitamin A toxicity and its features - Describe vitamin D deficiency causes, its clinical manifestations. Discuss on the management of it. Describe vitamin E			
	DEFICIENCIES							
					deficiency causes, its clinical manifestations. Discuss on the management of it. - Describe vitamin K deficiency causes, its clinical manifestations. Discuss on the management of it. - Describe			

					vitamin B1 (Thiamine) deficiency causes, its clinical manifestations. Discuss on the management of it. • Describe vitamin B2 (Riboflavin) deficiency causes, its clinical manifestations. Discuss on the management of it. • Describe vitamin B 3(Niacin) deficiency/ Pellagra causes, its clinical manifestations. Discuss on the			

					management of it. - Describe vitamin B6 (Pyridoxine) deficiency causes, its clinical manifestations. Discuss on the management of it. - Describe vitamin B12 & Folate deficiency causes, its clinical & Neurological manifestations. Discuss on the management of it. - Describe vitamin C deficiency/ Scurvy causes, its clinical manifestations. Discuss on the management of it. - List out the Inorganic nutrients and minerals. Briefly discuss about their importance in health and illness IRON			
IM 23.4	ENUMERATE THE INDICATIONS FOR ENTERAL	K	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO;	LECTURES SMALL GROUP DISCUSSION	30 MINUTES	WRITING/ VIVA VOCE

	AND PARENTERAL NUTRITION IN CRITICALLY ILL PATIENTS				• Enumerate the indications for enteral and parenteral nutrition • Discuss methods to screen hospitalized patients for risk of malnutrition • Describe the enteral formulations available and their use • List the methods to give Enteral nutrition and the procedures in their insertion- nasogastric tube feeds, percutaneous endoscopic gastrostomy (PEG) • List the methods to give Parenteral nutrition and the formulations • Describe the medical, legal and ethical complications and considerations in the management of Artificial Nutrition	N (SGD) Visit to Medical ICU and demonstrate various feeding- Enteral and Parenteral methods & formulations		
					support • Define Refeeding syndrome and its implications			

IM 23.5	COUNSEL AND COMMUNICATE TO PATIENTS IN A SIMULATED ENVIRONMENT WITH ILLNESS ON AN APPROPRIATE BALANCED DIET	S	SH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO; - Identify the dietary requirements of patients either in a simulated situation (Role Play) or in actual situation - Inform the patient about the importance of Balanced diet - Demonstrate a sample balanced diet plan for the patient who is ill - Counsel the patient about the need for balanced diet for health and inform about necessary dietary changes needed for the same	DOAP SESSION - ROLE PLAY - Attend ward & OPD with diet counselling sessions	30 MINUTES	SKILL ASSESSMENT
						TOTAL TIME	6 HRS	

CHAPTER: COMMON MALIGNANCIES

NO OF COMPETENCIES: 19,

CERTIFIABLE PROCEDURES: 0

NUMBER	COMPETENCY	DOMAIN K/S/A/C	LEVEL E L K/H/S/H/P	CORE Y/N	SPECIFIC LEARNING OBJECTIVES	SUGGESTED LEARNING METHOD	TIME ALLOTTED	SUGGESTED ASSESSMENT METHOD

IM13.	Describe the clinical epidemiology and inherited & modifiable risk factors for common malignancies in India	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO Discuss the epidemiology of common malignancies in India Describe the disease burden of common malignancies in India List most	Lecture, Small group discussion Visit to wards	30 MIN	Short notes/viva voce
					common solid organ malignancies Enumerate the risk factors for common malignancies List the modifiable risk factors of common malignancies Discuss genetics of common malignancies Describe the environmental determinants that predispose to common malignancies Discuss the role of occupation in common malignancies Enumerate the malignancies caused by radiation			
IM13.2	Describe the genetic basis of selected cancers	K	K	N	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO Discuss the genetic factors of common malignancies Enumerate inherited	Lecture, Small group discussion	30 MIN	Short notes/viva voce

					cancer predisposition syndromes and their respective malignancies List a few malignancies with their pattern of inheritance Enumerate the genes that predispose to malignancies			
IM13.3	Describe the relationship between infection and cancers	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO • Discuss the malignancies along with their infective agents • Enumerate the infections that predispose to common malignancies • List the viruses and bacteria that can cause malignancies	Lecture, Small group discussion Visit to wards	30 MIN	Short notes/viva voce
IM13.4	Describe the natural history, presentation, course, complications and cause of death for common cancers	K	K	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO Enumerate some malignant diseases with their Local features/symptoms • List the non-metastatic manifestations of malignant diseases and their site associations • Discuss the endocrine manifestations of tumors Describe the cutaneous manifestations of •	Lecture, Small group discussion Visit to wards	1 hour 30 minutes	Short notes/viva voce

					cancer • Enumerate and describe the emergency complications of cancer • Describe neurological paraneoplastic syndromes in cancer • Describe clinical features, diagnosis and management of superior vena caval obstruction • Discuss etiology, clinical features, diagnosis of hypercalcemia in • • Describe neutropenic sepsis • Enumerate the primary tumor sites that metastasize to brain • Enumerate the primary tumor sites that metastasize to the lung • List the tumors that lead to liver metastasis • Describe the etiology, clinical features, of bone metastasis • Discuss the major cause of death in cancer			

IM13.5	Describe the common issues encountered in patients at the end of life and principles of management	K	K	N	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO • Enumerate the presenting problems in palliative care • Discuss the principles of palliative care • List the pharmacological treatment of pain in palliative care Discuss non-pharmacological and complementary treatments for pain in palliative care • Enumerate, discuss in brief non-painful presenting problems in palliative care and their management.	Lecture, Small group discussion Visit to wards. Attend patient counselling sessions	1 hour	Short notes/viva voce
IM13.6	Describe and distinguish the difference between curative and palliative care in patients with cancer	K	K	N	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO • Enumerate the differences between curative and palliative care in patients with cancer • Enumerate the different modes of curative treatment in cancer • Describe in brief each of the curative therapies in cancer • Discuss biological therapies and their advantages over the other modes of treatment in cancer	Lecture, Small group discussion Visit to wards	30 MIN	Short notes/viva voce

IM13 .1 2	Describe the indications and interpret the results of Chest X Ray, mammogram, skin and tissue biopsies and tumor markers used in common cancers	K	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO - Enumerate the different methods of imaging in cancer - Discuss the role of mammogram in CA breast - Describe the tumor markers and enumerate them - Enumerate the different methods of histological analysis of a biopsy - Describe in brief the different methods of histological analysis of biopsy - Describe the role of immunohistochemistry in cancer - Describe in brief TNM classification	Bedside clinic, small group discussion Visit to wards and radiology department	1 hour	Short notes/viva voce
IM13 .1 3	Describe and assess pain and suffering objectively in a patient with	K	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO Enumerate the types of pain in	Bedside clinic, small group discussion	30 MIN	Short notes/viva voce

	cancer				cancer and their specific clinical features Define pain & describe mechanism s of pain and its classificatio n Describe assessment and measureme nt of pain in a patient with cancer Describe pharmacolo gical treatment of pain in cancer and its side effects Describe non pharmacolo gical treatments of pain in cancer Describe the WHO analgesic ladder of manageme nt of pain Discuss the different methods of measureme nt of pain and its score	Visit wards and assess pain and write a pain scale		
IM13 .1 4	Describe the indications for surgery, radiation and chemotherapy for common malignancies	K	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO Enumerate the modes of treatment in cancer	Bedside clinic, small group discussion Visit to	1 hour	Short notes/viva voce

					Describe the indications and role of surgery in common malignancies Discuss adjuvant chemotherapy and its indications and adverse effects Discuss radiation therapy, its indications and adverse effects	wards		
IM13 .1 5	Describe the need, tests involved, their utility in the prevention of common malignancies	K	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO Enumerate the different investigations required for the screening and prevention of common malignancies Discuss the need for various tests and investigations in common malignancies Describe the role of cytogenetic analysis in prevention of cancer	Bedside clinic, small group discussion Visit to wards	30 min	Short notes/viva voce
					List and discuss the imaging modalities in cancer			

IM13 .1 6	Demonstrate an understanding and needs and preferences of patients when choosing curative and palliative therapy	A/C	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO • Enumerate indications of palliative therapy in cancer • Discuss different forms of palliative therapy in cancer • Enumerate indications of curative therapy in cancer • Discuss different forms of curative therapy in cancer	Bedside clinic, small group discussion Visit to wards	30 min	Short notes/viva voce
IM13 .1 7	Describe and enumerate the indications, use, side effects of narcotics in pain alleviation in patients with cancer	K	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO • Enumerate the indications of narcotics/opioids in pain alleviation in patients with cancer • Enumerate and discuss about opioid use for pain in cancer • Describe WHO analgesic	Bedside clinic, small group discussion Visit wards and learn to counsel patients regarding side effects of narcotics and their advantages at the same	30 min	Short notes/viva voce

					ladder Describe opioid toxicity Enumerate , discuss, side effects of opioid and its manageme nt	time		
IM13 .1 8	Describe and discuss the ethical and the medico legal issues involved in end of life care	K	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO - Describe step wise how to manage a patient who is dying due to cancer - Discuss ethical issues at the end of life in a patient with terminal cancer - Discuss “talking about and planning towards dying” in a patient with terminal cancer - Describe euthanasia and its role in terminal cancer	Bedside clinic, small group discussi o n Visit wards and learn to discuss ethical issues with patient relatives	30 min	Short notes /viva voce
IM13 .1 9	Describe the therapies used in alleviatin g suffering in patients at the end of life	K	KH	Y	AT THE END OF THE SESSION THE STUDENT SHOULD BE ABLE TO Enumerate the pharmacolo gical and non-	Bedside clinic, small group discussi o n Visit wards	30 MIN	Short notes/viva voce

					pharmacological treatment in terminal cancer • Enumerate non-pharmacological and complementary treatment in terminal cancer • Describe palliative treatment of breathlessness and cough in patients with terminal cancer • Describe the management of GI disturbances in terminal cancer • Describe how to manage the psychosocial factors in terminal cancer	and learn to discuss palliative therapy with patient and their relatives		

Hematological

Recommended Books

1. Davidson's Principles and Practice of Medicine, 24th Ed., 2022, Churchill Livingstone, London.
2. API Text Book of Medicine 12th Ed, 2022, Jaypee.
3. Hutchison's Clinical Methods. 25th Edition, 2022
4. Chamberlain's Symptoms and Signs in Clinical Medicine 13th Edition, ELBS, 2010

Reference Books

1. Harrison's Principles of Internal Medicine 21st Ed 2022. McGraw Hill.
2. Macleod's Clinical Examination ISE 15th edition 2023, Elsevier.

Department of General Surgery

Name of the program: COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR INDIAN MEDICAL GRADUATE

Name of the subject: General Surgery (SU)

Paper I Course code: GES003

Paper II Course code: GES004

Practical's Course code: GES205

Orthopedics – **OR**

Anesthesiology – **AS**

Dentistry – **DE**

Radiodiagnosis - **RD**

Radiotherapy – **RTGOAL**

General Surgery

The broad goal of the teaching of undergraduate students in Surgery is to produce graduates capable of delivering efficient first contact surgical care. The student should be able to develop the clinical skills, professional attitudes and knowledge base for the practice of general surgery through exposure to general surgical disorders. The student must appreciate the medical management and basic foundations underlying the care of surgical patients.

COMPETENCIES

General surgery

The student must demonstrate:

- Understanding of the structural and functional basis, principles of diagnosis and management of common surgical problems in adults and children.
- Ability to choose, calculate and administer appropriately intravenous fluids, electrolytes, blood and blood products based on the clinical condition.
- Ability to apply the principles of asepsis, sterilization, disinfection, rational use of prophylaxis, therapeutic utilities of antibiotics and universal precautions in surgical practice.
- Knowledge of common malignancies in India and their prevention, early detection and therapy.
- Ability to perform common diagnostic and surgical procedures at the primary care level,
- Ability to recognize, resuscitate, stabilize and provide Basic & Advanced Life Support to patients following trauma,
- Ability to administer informed consent and counsel patient prior to surgical procedures.
- Commitment to advancement of quality and patient safety in surgical practice.

Orthopedics (including Trauma)

The student must demonstrate:

- Ability to recognize and assess bone injuries, dislocation and poly-trauma and provide first contact care prior to appropriate referral.
- Knowledge of the medico-legal aspects of trauma.
- Ability to recognize and manage common infections of bone and joints in the primary care setting.
- Ability to recognize common congenital, metabolic, neoplastic, degenerative and inflammatory bone diseases and refer appropriately.

- Ability to perform simple orthopedic techniques as applicable to a primary care setting.
- Ability to recommend rehabilitative services for common orthopedic problems across all ages.

OBJECTIVES

General Surgery

Knowledge:

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

- Describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children.
- Define indications and methods for fluid and electrolyte replacement therapy including blood transfusion.
- Define asepsis, disinfection and sterilization and recommend judicious use of antibiotics.
- Describe common malignancies in the country and their management including prevention.
- Enumerate different types of anesthetic agents, their indications mode of administration.
- Contraindications and side effects.

Skills

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

- Perform clinical examination for various surgical conditions.
- Diagnose common surgical conditions both acute and chronic, in adult and children.
- Plan various laboratory tests for surgical conditions and interpret the results:
- Identify and manage patients of hemorrhagic, septicemia and other types of shock.

- Be able to maintain patient air-way and resuscitate; a critically injured patient.
- Monitor patients of head, chest, spinal and abdominal injuries, both in adults and children.
- Provide primary care for a patient of burns.
- Acquire principles of operative surgery, including pre-operative, operative and post operative care and monitoring.
- Treat open wounds including preventive measures against tetanus and gas gangrene.
- Diagnose neonatal and pediatric surgical emergencies and provide sound primary care before referring the patient to secondary/tertiary center
- Identify congenital anomalies and refer them for appropriate management.

In addition to the skills referred above in items, he shall have observed/assisted/performed the Following:

- Incision and drainage of abscess in a simulated environment:
- Suturing in a simulated environment
- Observe blood transfusion in a simulated environment
- Demonstrate techniques of asepsis in a simulated environment
- Observe common surgical procedures emergency & life-saving procedures.

Attitude and communication

- Communication with empathy to patients & patient's attenders
- To counsel & obtain informed consent from patient & patients attenders

Integration

The undergraduate teaching in surgery shall be aligned and integrated horizontally and vertically in order to provide a sound biologic basis and a holistic approach to the care of the surgical patient.

Orthopedics

Knowledge

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

- Acquire a broad - based knowledge of injuries and disorders affecting the musculoskeletal system and its relevance in the overall treatment and rehabilitation programme.
- Recognize fractures, dislocations, injuries to ligaments, muscles and peripheral nerves.
- Recognize life threatening and limb threatening injuries and plan their primary management.
- Identify congenital anomalies involving the musculoskeletal system their genetic background, prognosis and broad principles of management.
- Evolve a clear understanding of the nature of infections involving bone and joints - to appreciate the importance of their early recognition and treatment.
- Recognize metabolic bone disease and endocrinological anomalies as it applies to the musculo skeletal system.
- Recognize the nature, principles of investigations and management of degenerative diseases and rheumatologic conditions. Broad principles of rehabilitation and reconstructive surgery shall be introduced during the lectures.
- Recognize neoplasms involving the musculo-skeletal system, their behavior, prognosis and current methods or treatment.
- Develop a sound understanding of widely prevalent conditions in the community such as tuberculosis, poliomyelitis and leprosy and their impact in orthopedic practice.
- Develop understanding of the imaging modalities available today; their indications, advantages and

disadvantages.

Skills:

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

- Perform correct application of bandages.
- Perform application of different types of splints for fractures, sprains and other painful affections.
- Perform application of plaster casts and slabs.
- Perform aseptic and non - touch techniques of dressing of wounds.
- Perform application of skin traction.
- Provide proper Care of an acutely injured patient, resuscitation methods and first - aid measures.

Attitude and communication

- Communication with empathy to patients & patient's attenders.
- To counsel & obtain informed consent from patient & patients attenders.

Integration

The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand the structural basis of orthopedic problems, their management and correlation with function, rehabilitation and quality of life.

Anesthesiology

Knowledge:

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

- Describe the evolution of Anesthesiology as a modern specialty.
- Describe the roles of Anesthesiologist in the medical profession.
- Understand the stepwise algorithm approach of BLS and ACLS.
- Describe the principles of preoperative evaluation.
- Observe and describe the principles and the practical aspects of induction and maintenance of anesthesia.
- Describe and discuss the pharmacology of drugs used in induction and maintenance of general anesthesia.
- Describe the principles of fluid therapy in the preoperative period.
- Describe the principles of monitoring and resuscitation in the recovery room.
- Enumerate and describe the criteria for admission and discharge of a patient to an ICU.
- Describe principles of providing post-operative pain relief and management of chronic pain.

Skills

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

- Observe Pre-anesthetic checkup and prescribe pre-anesthetic medications.
- Demonstrate Venipuncture and set up intravenous drip in a simulated environment.
- Observe Laryngoscopy and endotracheal intubation.
- Observe Lumbar puncture, spinal anesthesia and simple nerve blocks.
- Demonstrate Simple general anesthetic procedures under supervision in a simulated environment.
- Observe monitoring of patients during anesthesia and in the post-operative period.
- Observe maintenance of anesthetic records.
- Observe cardio-pulmonary resuscitation including recognition of cardiac arrest.
- Demonstrate Counseling and advice regarding various methods of anesthesia in a simulated environment.

- Observe Anesthesia for major and minor surgical and other procedures.

Attitude and communication

- Communication with empathy to patients & patient's attenders.
- To counsel & obtain informed consent from patient & patients attenders.

Integration:

The undergraduate teaching in Anesthesia shall be aligned and integrated horizontally and vertically in order to provide a sound biologic basis and a holistic approach to the care of the surgical patient.

SYLLABUS

Reference:

Medical Council of India, Competency Based Undergraduate Curriculum for the Indian Medical Graduate, 2018. Volume 3 ; General Surgery Pg 41-55 , OrthopedicsPg130-137 ; AnaesthesiaPg145-151 ; Dentistry Pg 163-164; Radio Therapy Pg 160-161;Radio Diagnosis Pg 154-155

COMPETENCY NUMBER	TOPIC	LECTURE(20 HRS)	SDL(HRS)	SGL(HRS)	DOAP SESSION(4 HRS)	TOTAL HOURS(24 HRS)
Topic: Metabolic response to injury						
SU1.1	Describe Basic concepts of homeostasis, enumerate the metabolic changes in injury and their mediators.	1				1
SU1.2	Describe the factors that affect the metabolic response to injury.	1				1
SU1.3	Describe basic concepts of perioperative care.	1				1
Topic: Shock						
SU2.1	Describe Pathophysiology of shock, types of shock & principles of resuscitation including fluid replacement and monitoring.	1				1
SU2.2	Describe the clinical features of shock and its appropriate treatment.	1				1

SU2.3	Communicate and counsel patients and families about the treatment and prognosis of shock demonstrating empathy and care				1	1
Topic : Blood and blood components						
SU3.1	Describe the Indications and appropriate use of blood and blood products and complications of blood transfusion.	1				1
SU3.2	Observe blood transfusions.	1				1
SU3.3	Counsel patients and family/ friends for blood transfusion and blood donation.				1	1
Topic: Burns						
SU4.1	Elicit document and present history in a case of Burns and perform physical examination. Describe Pathophysiology of Burns.	1				1
SU4.2	Describe Clinical features, Diagnose type and extent of burns and plan appropriate treatment.	1				1
SU4.3	Discuss the Medicolegal aspects in burn injuries.	1				1
SU4.4	Communicate and counsel patients and families on the outcome and rehabilitation demonstrating empathy and care.				1	1
Topic: Wound healing and wound care						
SU5.1	Describe normal wound healing and factors affecting healing.	1				1
SU5.2	Elicit, document and present a history in a patient presenting with wounds.	1				1
SU5.3	Differentiate the various types of wounds, plan and observe management of wounds.	1				1
SU5.4	Discuss medico legal aspects of wounds	1				1

Topic: Surgical infections						
SU6.1	Define and describe the aetiology and pathogenesis of surgical Infections	1				1
SU6.2	Enumerate Prophylactic and therapeutic antibiotics Plan appropriate management	1				1
Topic: Surgical Audit and Research						
SU7.1	Describe the Planning and conduct of Surgical audit	1				1
SU7.2	Describe the principles and steps of clinical research in General Surgery	1				1
Topic: Ethics						
SU8.1	Describe the principles of Ethics as it pertains to General Surgery	1				1
SU8.2	Demonstrate Professionalism and empathy to the patient undergoing General Surgery				1	1
SU8.3	Discuss Medico-legal issues in surgical practice	1				1

**LECTURES =
20 HRS**

**DOAP
SESSIONS = 4
HRS
TOTAL = 24
HRS**

RECOMMENDED BOOKS:

Textbooks: General Surgery

S. No	Name of Book	Author(s)	Edition	Publishers
1	Bailey & Love's Short Practice of Surgery	Norman Williams, P Ronan O'Connell, Andrew McCaskie	28th Edition	CRC Press
2	Manipal Manual of Surgery	K.R Shenoy	4th edition	CBS Publishers & Distributors
3	SRB's Manual of Surgery	SriramBhat Paperback Bunko	7th edition	Jaypee Brothers Medical Publishers
4	Manual On Clinical Surgery	Das S	16th edition	Author Self
5	Hamilton Bailey's Physical Signs: Demonstrations of Physical Signs in Clinical Surgery,	John S.P Lumley, Anil K. D'Cruz , Jamal J. Hoballah, Carol E.H. Scott-Connor	19th Edition	CRC Press

6	Browse's – introduction to the symptoms and signs of surgical disease	Kevin.G.Burnand	5 th edition	CRC Press

Department of OBG

1. Curriculum

a. Competencies

The student must demonstrate ability to:

- Provide peri-conceptual counseling and antenatal care,
- Identify high-risk pregnancies and refer appropriately,
- Conduct normal deliveries, using safe delivery practices in the primary and secondary care settings,
- Prescribe drugs safely and appropriately in pregnancy and lactation,
- Diagnose complication so labor, institute primary care and refer in a timely manner.
- Perform early neonatal resuscitation,
- Provide postnatal care, including education in breast-feeding,
- Counsel and support couples in the correct choice of contraceptives.
- Interpret test results of laboratory and radiological investigations as they apply to the care of the obstetric patient,
- Apply medico-legal principles as they apply to
- tubectomy, Medical Termination of Pregnancy (MTP), Pre-conception and Prenatal Diagnostic Techniques (PC PNDT Act) and other related Acts.
- Elicit a gynecologic history, perform appropriate physical and pelvic examinations and PAP smear in the primary care setting.
- Recognize, diagnose and manage common reproductive tract infections in the primary care setting,
- Recognize and diagnose common genital cancers and refer them appropriately.

b. Broad subject specific objectives

Knowledge

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

- Outline the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it.
- Diagnose normal pregnancy, labor, puerperium and manage the problems he is likely to encounter therein.
- List of leading causes of maternal and perinatal morbidity and mortality.
- Understand the principles of contraception and various techniques employed, methods of medical termination of pregnancy, sterilization and their complications.
- Identify the use, abuse and side effects of drugs in pregnancy, peri- menopausal and post-menopausal periods.
- Describe the national programme of maternal and child health and family welfare and their implementation at various levels.
- Identify common gynecological diseases and describe principles of their management.
- State the indications, techniques and complications of surgeries like Caesarean section, laparotomy, abdominal and vaginal hysterectomy, Fothergill's operation and vacuum Aspiration for Medical Termination of pregnancy (MTP) and minor surgeries like EB, D and C, Cervical Biopsy and Cervical encircage

c. Skills

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

- Take proper history and writing a good case sheet
- Writing a good discharge summary, proper referral letter
- Examination of patient and arrival at a diagnosis
- Planning for investigation and treatment
- Community orientation, participation in community health promoting and preventing programmes
- Examine a pregnant woman, recognize high- risk pregnancies and make appropriate referrals.
- Conduct a normal delivery, plot and interpret partogram
- Recognize complications and decision of referral, provide postnatal care,
- Resuscitate the newborn and recognize the congenital anomalies.
- Advise a couple on the use of various available contraceptive devices (student should see at least 5 Cu-T insertions and 5 cases of female sterilization operations.)
- Perform pelvic examination, diagnose and manage common. Gynecological problems including early detection of genital malignancies.

- Make a vaginal cytological smear, perform a post coital test and wet vaginal smear examination for Trichomonas vaginalis, Monilia and gram stain for gonorrhea, catheterization of urinary bladder
- Interpretation of data of investigations like biochemical, histopathological, radiological ultrasound etc.

d. Integration

- The teaching should be aligned and integrated horizontally and vertically in order to provide comprehensive care for women in their reproductive years and beyond, based on a sound knowledge of structure, functions and disease and their clinical, social, emotional, psychological correlates in the context of national health priorities.
- The student shall be able to integrate clinical skills with other disciplines and bring about coordination of family welfare programme for the national goal of population control.

2. Course content teaching hours

a. Teaching hours (Teaching learning methods)

Sl No	Topic	Number of competencies	Lecture	SGD/ Tutorial	DOAP	SDL
1	Demographic and Vital Statistics	3	4	0	0	0
2	Anatomy of the female reproductive tract	2	3	0	0	0
3	Physiology of conception	1	2	0	0	0
4	Development of the fetus and the placenta	1	1	0	0	0
5	Preconception counselling	2	1	1	0	0
6	Diagnosis of pregnancy	1	1	1	0	0
7	Maternal Changes in pregnancy	1	1	0	0	0
8	Antenatal Care	8	5	1	1	1
9	Complications in early pregnancy	5	3	2	0	0
10	Antepartum haemorrhage	2	3	2	0	0
11	Multiple pregnancies	1	1	1	0	0
12	Medical Disorders in pregnancy	8	10	7	0	0
13	Labour	5	5	2	2	0
14	Abnormal Lie and Presentation; Maternal Pelvis	4	4	3	1	1
15	Operative obstetrics	2	0	2	1	0
16	Complications of the third stage of labour	4	4	3	1	0
17	Lactation	3	3	3	0	0
18	Care of the new born	4	2	2	2	0
19	Normal and abnormal puerperium	4	2	2	2	0
20	Medical termination of pregnancy	3	2	2	1	0
21	Contraception	2	5	4	1	0
22	Vaginal discharge	2	2	2	0	0
23	Normal and abnormal puberty	3	3	1	0	0
24	Abnormal uterine bleeding	2	2	1	0	0
25	Amenorrhea	2	2	1	0	0

26	Genital injuries and fistulae	1	2	1	0	0
27	Genital infections	6	6	6	0	1
28	Infertility	5	5	5	0	0
29	Uterine fibroids	1	1	1	0	1
30	PCOS and hirsutism	2	2	2	0	1
31	Uterine prolapse	1	1	1	0	1
32	Menopause	2	2	1	0	0
33	Benign, Pre-malignant (CIN) and Malignant Lesions of the Cervix	4	4	2	1	1
34	Benign and malignant diseases of the uterus and the ovaries	5	8	3	0	1
35	Obstetrics & Gynecological skills-I	17	0	12	17	0
36	Obstetrics & Gynecological skills - II	3	0	3	3	0
37	Obstetrics& Gynecological skills - III	7	0	7	0	0

b. Theory syllabus

Obstetrics:

1. Demographic and Vital Statistics
2. Anatomy of the female reproductive tract (Basic anatomy and embryology)
3. Physiology of conception
4. Development of fetus and placenta
5. Pre conception counselling
6. Diagnosis of pregnancy
7. Maternal changes in pregnancy
8. Antenatal care
9. Complications in early pregnancy
10. Antepartum hemorrhage
11. Multiple pregnancies
12. Medical disorders in pregnancy
13. Labour
14. Abnormal lie and presentation, maternal pelvis
15. Operative obstetrics
16. Complications of Third Stage
17. Care of the Newborn
18. Lactation
19. Normal and abnormal Puerperium
20. Medical Termination of Pregnancy

Gynaecology:

21. Contraception
22. Vaginal Discharge
23. Normal and Abnormal Puberty
24. Abnormal uterine bleeding
25. Amenorrhea
26. Genital injuries and fistulae
27. Genital infections
28. Infertility
29. Uterine fibroids
30. PCOS and hirsutism
31. Uterine prolapse
32. Menopause
33. Benign, Pre Malignant (CIN) and Malignant lesions of the cervix
34. Benign and Malignant diseases of the uterus and ovaries

c. Practical syllabus

Number	Topics
OG5.1	Describe, discuss and identify pre-existing medical disorders and discuss their management; discuss evidence-based intrapartum care
OG5.2	Determine maternal high risk factors and verify immunization status
OG6.1	Describe, discuss and demonstrate the clinical features of pregnancy, derive and discuss its differential diagnosis, elaborate the principles underlying and interpret pregnancy tests
OG8.2	Elicit document and present an obstetric history including menstrual history, last menstrual period, previous obstetric history, comorbid conditions, past medical history and surgical history
OG8.3	Describe, demonstrate, document and perform an obstetric examination including a general and abdominal examination
OG8.4	Describe and demonstrate clinical monitoring of maternal and fetal well-being
OG8.5	Describe and demonstrate pelvic assessment in a model
OG8.6	Assess and counsel a patient in a simulated environment regarding appropriate nutrition in pregnancy
OG9.2	Describe the steps and observe/assist in the performance of an MTP evacuation
OG13.1	Enumerate and discuss the physiology of normal labor, mechanism of labor in occipito-anterior presentation; monitoring of labor including partogram; conduct of labor, pain relief; principles of induction And acceleration of labor; management of third stage of labor.
OG13.2	Define, describe the causes, pathophysiology, diagnosis, investigations and management of preterm labor, PROM and postdated pregnancy
OG13.3	Observe/assist in the performance of artificial rupture of membranes
OG13.4	Demonstrate the stages of normal labor in a simulated environment/ mannequin and counsel on methods of safe abortion.
OG13.5	Observe and assist the conduct of normal vaginal delivery
OG15.1	Enumerate and describe the indications and steps of common obstetric procedures, technique and complications: Episiotomy, vacuum extraction; low forceps; Caesarean section, assisted breech delivery; External cephalic version; cervical cerclage
OG15.2	Observe and assist in the performance of an episiotomy and demonstrate the correct suturing technique of an episiotomy in a simulated environment. Observe/ Assist in operative obstetrics cases– including– Caesarean Section, Forceps, vacuum extraction, and breech delivery
OG16.3	Describe and discuss causes, clinical features, diagnosis, investigations; monitoring of fetal well-being, – Including ultrasound and fetal Doppler; principles of management; prevention and counselling in intrauterine growth retardation
OG17.2	Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding
OG18.2	Demonstrate the steps of neonatal resuscitation in a simulated environment
OG19.2	Counsel in a simulated environment, contraception and puerperal sterilization

OG19.3	Observe/ assist in the performance of tubal ligation
OG19.4	Enumerate the indications for, describe the steps in and insert and remove an intrauterine device in a simulated environment
OG20.2	In a simulated environment administer informed consent to a person wishing to undergo Medical Termination of Pregnancy
OG26.1	Describe and discuss the etiopathogenesis, clinical features; investigation and implications on health and fertility and management of endometriosis and adenomyosis
OG31.1	Describe and discuss the etiology, classification, clinical features, diagnosis, investigations, principles of management and preventive aspects of prolapse of uterus
OG33.1	Classify, describe and discuss the etiology, pathology, clinical features, differential diagnosis, investigations and staging of cervical cancer
OG33.3	Describe and demonstrate the screening for cervical cancer in a simulated environment
OG34.2	Describe and discuss the etiology, pathology, classification, staging of ovarian cancer, clinical features, differential diagnosis, investigations, principles of management including staging laparotomy
OG34.3	Describe and discuss the etiology, pathology, classification, staging, clinical features, differential diagnosis, investigations and management of gestational trophoblastic disease
OG34.4	Operative Gynaecology: Understand and describe the technique and complications: Dilatation & Curettage (D&C), EA-ECC, cervical biopsy, abdominal hysterectomy, myomectomy, surgery for ovarian tumours, staging laparotomy, vaginal hysterectomy including pelvic floor repair, foothergill's operation, laparoscopy, hysteroscopy, management of post operative complications
OG35.1	Obtain a logical sequence of history, and perform a humane and thorough clinical examination, Excluding internal examinations (per-rectal and per-vaginal)
OG35.2	Arrive at a logical provisional diagnosis after examination
OG35.3	Recognize situations, which call for urgent or early treatment at secondary and tertiary centers and make a prompt referral of such patients after giving first aid or emergency treatment
OG35.4	Demonstrate interpersonal and communication skills befitting a physician in order to discuss illness and Its outcome with patient and family
OG35.5	Determine gestational age, EDD and obstetric formula
OG35.6	Demonstrate ethical behaviour in all aspects of medical practice
OG35.7	Obtain informed consent for any examination/ procedure
OG35.8	Write a complete case record with all necessary details
OG35.9	Write a proper discharge summary with all relevant information
OG35.10	Write a proper referral note to secondary or tertiary centers or to other physicians with all necessary details.
OG35.11	Demonstrate the correct use of appropriate universal precautions for self-protection against HIV and hepatitis and counsel patients

OG35.12	Obtain a PAP smear in a stimulated environment
OG35.13	Demonstrate the correct technique to perform artificial rupture of membranes in a simulated/supervised environment
OG35.14	Demonstrate the correct technique to perform and suture episiotomies in a simulated/ supervised environment
OG35.15	Demonstrate the correct technique to insert and remove an IUD in a simulated/ supervised environment
OG35.16	Diagnose and provide emergency management of antepartum and post partum hemorrhage in a simulated/ guided environment
OG35.17	Demonstrate the correct technique of urinary catheterization in a simulated/ supervised environment
OG36.1	Plan and institute a line of treatment, which is need based, cost effective and appropriate for common conditions taking into consideration Patient Disease Socio-economic status Institution/ Governmental guidelines
OG36.2	Organize antenatal, postnatal, well-baby and family welfare clinics
OG36.3	Demonstrate the correct technique of punch biopsy of cervix in a simulated/ supervised environment
OG37.1	Observe and assist in the performance of a Caesarean section
OG37.2	Observe and assist in the performance of Laparotomy
OG37.3	Observe and assist in the performance of Hysterectomy–abdominal/vaginal
OG37.4	Observe and assist in the performance of Dilatation & Curettage (D&C)
OG37.5	Observe and assist in the performance of Endometrial aspiration-endocervical curettage (EA-ECC)
OG37.6	Observe and assist in the performance of outlet forceps application of vacuum and breech delivery
OG37.7	Observe and assist in the performance of MTP in the first trimester and evacuation in incomplete abortion
OG38.1	Observe Basic Laparoscopy
OG38.2	Observe Basic Hysteroscopy
OG38.3	Observe Laparoscopic sterilization
OG38.4	Assess the need and issue appropriate medical certificates to patients for various purposes

THEORY SYLLABUS

MBBS PHASE II

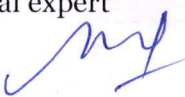
Number	Unit2-Anatomyofthefemalereproductivetract(Basic anatomy andembryology)
OG2.1	Describeanddiscussthe developmentandanatomyofthefemalereproductivetract,relationship toootherpelvic organs, applied anatomy asrelatedtoObstetrics and Gynecology.
Number	Unit3-Physiologyofconception
OG3.1	Describethephysiologyof ovulation,menstruation,fertilization,implantationandgametogenesis
Number	Unit4-Developmentof thefetusandtheplacenta
OG4.1	Describeanddiscussthebasicembryologyoffetus,factorsinfluencingfetalgrowthanddevelopment,anatomyandphysiology ofplacenta,andteratogenesis
Number	Unit8-AntenatalCare
OG8.3	Describe,demonstrate,documentandperformobstetricalexaminationincludinggeneralandobstetricexamination
OG8.5	Describeanddemonstrate pelvic assessmentinamodel
OG8.6	Assessandcounselapatientinasimulatedenvironmentregardingappropriatenutritioninpregnancy
OG8.7	Enumeratetheindications andtypesofvaccinationinpregnancy``
OG8.8	Enumeratetheindicationsanddescribetheinvestigationsincludingtheuseofultrasoundintheinitial assessmentandmonitoringinpregnancy
Number	Unit13– Labour
OG13.1	Enumerateanddiscussthe physiologyofnormallabor, mechanism oflaborinoccipito-anterior presentation;monitoringoflaborincludingpartogram;conductoflabor, painrelief;principlesofinductionand accelerationoflabor;activemanagementofthirdstageoflabor
Number	Unit18-Careofthenewborn
OG18.1	Describeanddiscusstheassessmentofmaturityofthenewborn,diagnosisofbirthasphyxia,principlesofresuscitation,commonneonatal problems
Number	Unit20-Medicalterminationofpregnancy
OG20.1	Enumeratetheindications anddescribeanddiscussthelegalaspects,indications,methodsoffirstand secondtrimesterMTP;complicationsandmanagementofcomplicationsofMedicalTerminationofPregnancy

**SRI VENKATESWARA INSTITUTE OF MEDICAL SCIENCES
SVIMS-SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN::TIRUPATI**

**MBBS - 3rd BOARD OF STUDIES MEETING
HELD ON 24.07.2024, 25.07.2024, 30.07.2024 & 31.07.2024**

Minutes of the 3rd Board of Studies (1st MBBS, 2nd MBBS, 3rd MBBS Part-I & II) Meeting held at College Council Hall, SVIMS-SPMCW on 24.07.2024, 25.07.2024, 30.07.2024 & 31.07.2024 from 10.00 AM onwards.

Members of the Board of Studies:

1.	Dr Alladi Mohan Dean SVIMS	Chairman
2.	Dr.UshaKalawat Principal, SVIMS-SPMCW	Member Secretary
3.	Dr. Aparna R. Bitla Registrar, SVIMS - Virtual	Member
4.	Dr. V. Vanajakshamma Controller of Examinations SVIMS	Member
5.	Dr. C. Sreekanth Professor & HoD Dept. of Anatomy SVIMS-SPMCW, Tirupati	Member
6.	Dr. D. Jagadeesh Babu Professor Dept. of Anatomy SVMC, Tirupati	External expert
7.	Dr. M. Sharan B Singh Professor & HoD Dept. of Physiology SVIMS-SPMCW, Tirupati	Member
8.	Dr. V S Bhagyalakshmi Professor & HOD Dept. of Physiology S.V. Medical College, Tirupati	External expert
9.	Dr. Aparna R. Bitla Professor & HoD Dept. of Biochemistry SVIMS-SPMCW, Tirupati - Virtual	Member
10.	Dr. Madhavalatha Professor & HoD Dept. of Biochemistry SVMC, Tirupati - Virtual	External expert 
11.	Dr. K. Umamaheswara Rao Professor & HoD Dept. of Pharmacology SVIMS-SPMCW, Tirupati	Member
12.	Dr. Ashalatha Professor & HoD, Dept of Pharmacology SVMC, Tirupati - Virtual	External expert
13.	Dr. N. Rukmangadha Professor & HoD 2 nd MBBS, Coordinator Dept. of Pathology SVIMS, Tirupati	Member
14.	Dr. Janaki, Professor & HoD Dept. of Pathology Shanthi Ram Medical College, Nandyal - Virtual	External expert
15.	Dr. B. Venkataramana Professor & HoD Dept. of Microbiology SVIMS-SPMCW, Tirupati	Member

16.	Dr. Animireddy Kishore Professor, Dept. of Microbiology Apollo Institute of Medical Sciences and Research Murakambattu, Chittoor - Virtual	External expert
17.	Dr. K. Nagaraj Professor & HoD 3 rd MBBS Part-I, Coordinator Dept. of Community medicine SVIMS-SPMCW, Tirupati	Member
18.	Dr. Pankaj B Shah Professor & Associate Dean (Research) Dept of community medicine SRMC, Chennai - Virtual	External expert
19.	Dr. K. Jyothi Prasad Professor & HoD, Dept. of Forensic Medicine SVIMS-SPMCW, Tirupati	Member
20.	Dr. Kilari Bhaskar Md Professor & Head Dept. of Forensic Medicine & Toxicology Government Medical College, Eluru - Virtual	External expert
21.	Dr. J. Harikrishna Professor & HoD 3 rd MBBS Part-II, Coordinator Dept. of General Medicine SVIMS-SPMCW, Tirupati	Member
22.	Dr. Ravi. K Professor & HoD, Dept. of Medicine Bangalore Medical College and Research Institute Fort, K. R. Road, Bangalore - Virtual	External expert
23.	Dr. Y. Mutheeswaraiiah Professor & HoD Dept. of General Surgery SVIMS-SPMCW, Tirupati	Member
24.	Dr. S. Nagamuneiah, MS., Professor, Dept. of General Surgery ACSR Govt., Medical College, Nellore	External expert
25.	Dr.J. Malathi Professor & HoD Dept.of OBG, SVIMS-SPMCW Tirupati.	Member
26.	Dr. Keshava Gangadharan Professor & HoD Dept. of OBG PES Medical College, Kuppam - Virtual	External expert
27.	Dr. S. B. Amarnath Professor & HoD Dept. of ENT, SVIMS-SPMCW	Member
28.	Dr. Ravi. D Professor & HoD, Dept. of ENT Mandya Institute of Medical Sciences Mandya, Karnataka - Virtual	External expert
29.	Dr.Prabhanjankumar Associate Professor & HoD Dept. of Ophthalmology SVIMS-SPMCW	Member
30.	Dr. V. Vijaya Lakshmi Professor & HoD, Dept. of Ophthalmology Govt. Medical College, Guntur - Virtual	External expert
31.	Dr. N. Punith Patak Professor & HoD Dept. of Pediatrics, SVIMS-SPMCW	Member
32.	Dr.Vinayaka.G Professor & HoD, Dept. of Paediatrics Subbaiah Institute of Medical sciences Shimoga - Virtual	External expert
33.	Dr. S. M. Venugopal Associate Professor & HoD Dept. of Orthopaedics, SVIMS-SPMCW	Member

34.	Dr Arun H S Professor, Dept. of Orthopaedics Sri Devaraj Urs Medical College, Tamaka, Kolar - Virtual	External expert
35.	Dr. Arpana Bhide Professor, Dept. of Physiology SVIMS-SPMCW	1 st MBBS Coordinator

SVIMS-SPMCW has conducted the 3rd Board of Studies (1st MBBS, 2nd MBBS, 3rd MBBS Part-I & II) Meeting for approval of the Competent Based Medical Education Curriculum notified by NMC (UGMEB) vide No.U.14021/8/2023-UGMEB, dated, 01.08.2023 for implementation of the said regulations from the Academic Year 2023 onwards in SVIMS-Sri Padmavathi Medical College for Women of SVIMS University.

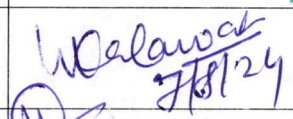
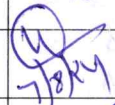
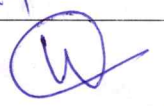
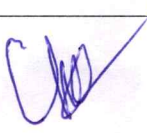
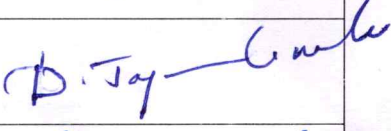
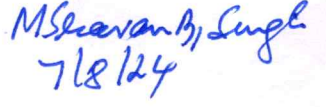
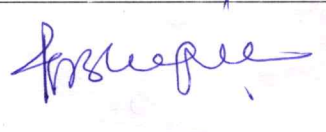
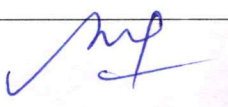
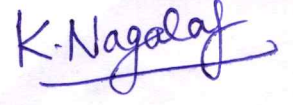
MINUTES OF THE MEETING:

1. Curriculum of respective Phases were approved separately.
2. **COMMON REGULATIONS** - The Committee approved to implement Competency Based Medical Education Curriculum for MBBS course notified by NMC (UGMEB) vide No.U.14021/8/2023-UGMEB, dated, 01.08.2023 for the batches admitted in MBBS from the Academic year 2019-20, effective from the year 2023 onwards in SVIMS-SPMCW and to follow the guidelines notified by NMC from time to time.

CBME New Regulations:

- 1 Regulations and teaching approach as per CBME of NMC (Preamble, Objectives of the Indian Graduate Medical Training Programme, National Goals, Institutional Goals, Goals for the Learner, Competency based training programme of the Indian Medical Graduate, Lifelong learner committed to continuous improvement of skills & knowledge) Approved
- 2 Phase Wise Training and Time distribution for Professional Development Approved
 - Training period, time distribution & University examinations:
 - Distribution of teaching hours phase wise
 - New teaching /learning elements
 - Foundation Course
 - Early Clinical Exposure
 - Electives
 - Professional Development including Attitude, Ethics and Communication Module (AETCOM)
 - Learner-doctor method of clinical training (Clinical Clerkship)
 - Assessment (in the phase wise Internal Assessment marks distribution (theory & practical) provided as tables, the split up of logbook marks to be adjusted as per total marks mentioned.
 - Eligibility to appear for Professional examinations
Attendance and Internal Assessment Advised to display the results of Internal Assessment on the Notice Board within one week of the Test.
 - University Examinations
 - AETCOM Question in university examination:
 - It was resolved to include at least one question in each paper (both paper I & II) of each clinical specialty in the university examination.
 - The 3rd MBBS Part-I University Examinations 2024 will be held as per 2023 New NMC Regulations, that is Two subjects (Community Medicine & Forensic Medicine)
 - Appointment of Examiner
- 3 Readmission after discontinuation of study Approved

- 4 Migration/ Transfer of candidates Approved
- 5 SUBMISSION OF LABORATORY/ CLINICAL RECORD. Approved
- 6 Log Book Approved
- 7 Malpractice Approved
- 8 Declaration of Class Approved
- 9 Award of Degree Approved
- 10 Academic calendar proposed by NMC Approved
- Table 1: Time distribution of MBBS Program and Examination Schedule – 2023-2024 batch onwards
- Table 2: Distribution of subjects in each Professional Phase
- Table 3: Foundation Course
- Table 4: Distribution of Subject Wise Teaching Hours for 1st MBBS
- Table 5: Distribution of Subject Wise Teaching Hours for II MBBS
- Table 6: Distribution of Subject Wise Teaching Hours for 3rd MBBS part 1.
- Table 7: Distribution of Subject Wise Teaching Hours for 3rd MBBS part II.
- Table 8: Clinical Posting Schedules in weeks
- Table 9: Learner- Doctor program (Clinical Clerkship)
- Table 10 : Marks distribution for various subjects for University Annual Examinations
- Phase wise marks distribution of internal assessment – Theory & Practical

S. No.	Member	Signature
1.	Dr Alladi Mohan Dean SVIMS	Chairman  AMO 7/8/24
2.	Dr.UshaKalawat Principal SVIMS-SPMCW	Member Secretary  U.Kalawat 7/8/24
3.	Dr. Aparna R. Bitla Registrar, SVIMS	Member  A. Bitla 7/8/24
4.	Dr. V. Vanajakshamma Controller of Examinations SVIMS.	Member  V. Vanajakshamma
5.	Dr. C. Sreekanth Professor & HOD Dept. of Anatomy SVIMS-SPMCW, Tirupati	Member  C. Sreekanth
6.	Dr. D. Jagadeesh Babu Professor, Dept. of Anatomy, SVMC, Tirupati.	External expert  D. Jagadeesh Babu
7.	Dr. M. Sharan B Singh Professor & HOD Dept. of Physiology SVIMS-SPMCW, Tirupati	Member  M. Sharan B Singh 7/8/24
8.	Dr. V S Bhagyalakshmi Professor & HOD Dept. of Physiology S.V. Medical College, Tirupati	External expert  V. S. Bhagyalakshmi
9.	Dr. Aparna R. Bitla Professor & HOD Dept. of Biochemistry SVIMS-SPMCW, Tirupati.	Member  A. Bitla
10.	Dr. Madhavilatha Professor & HOD Dept. of Biochemistry SVMC, Tirupati	External expert  M. Madhavilatha
11.	Dr. K. Nagaraj Professor & HOD Dept. of Community medicine SVIMS-SPMCW, Tirupati	Member  K. Nagaraj

12.	Dr. Pankaj B Shah Professor & Associate Dean (Research) Dept of community medicine SRMC, Chennai - Virtual	External expert	Mail Attached
13.	Dr. K. Umamaheswara Rao Professor & HoD Dept. of Pharmacology SVIMS-SPMCW, Tirupati	Member	Kuo
14.	Dr. Ashalatha Professor & HOD Dept of Pharmacology SVMC, Tirupati - Virtual	External expert	M. Ashu
15.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS, Tirupati	Member	rukmanjuly
16.	Dr. Janaki, Professor & HoD Dept. of Pathology Shanthi Ram Medical College Nandyal - Virtual	External expert	mail Attached
17.	Dr. B. Venkataramana Professor & HOD Dept. of Microbiology SVIMS-SPMCW, Tirupati	Member	bh
18.	Dr. Animireddy Kishore Professor, Dept. of Microbiology Apollo Institute of Medical Sciences and Research, Murakambattu, Chittoor - Virtual	External expert	mail Attached
19.	Dr. K. Jyothi Prasad Professor & HoD, Dept. of Forensic Medicine SVIMS-SPMCW, Tirupati	Member	KJ Prasad
20.	Dr. Kilari Bhaskar Md Professor & Head Dept. of Forensic Medicine & Toxicology Government Medical College, Eluru - Virtual	External expert	mail Attached
21.	Dr. J. Harikrishna Professor & Head Dept. of General Medicine SVIMS-SPMCW, Tirupati	Member	Harikrishna
22.	Dr. Ravi. K Professor & Head, dept. of Medicine Bangalore Medical College and Research Institute Fort, K. R. Road, Bangalore - Virtual	External expert	mail Attached
23.	Dr. Y. Mutheeswaraiah Professor & HoD Dept. of General Surgery SVIMS-SPMCW, Tirupati	Member	Mutheeswaraiah
24.	Dr. S. Nagamuneiah, MS., Professor, Dept. of General Surgery, ACSR Govt., Medical College, Nellore	External expert	mail Attached
25.	Dr.J.Malathi Professor & i/c HoD Dept.of OBG, SVIMS-SPMCW Tirupati	Member	Malathi
26.	Dr. Keshava Gangadharan Professor & HOD, Dept. of OBG PES Medical College, Kuppam - Virtual	External expert	mail Attached
27.	Dr.S.B.Amarnath Professor & i/c, HoD Dept. of ENT, SVIMS-SPMCW	Member	S.B. Amarnath

28.	Dr. Ravi. D Professor & Head, Dept. of ENT Mandya Institute of Medical Sciences Mandya, Karnataka	External expert	mail Attached
29.	Dr. Prabhankumar Associate Professor & HoD i/c Dept. of Ophthalmology SVIMS-SPMCW	Member	P. Prabhankumar
30.	Dr. V. Vijaya Lakshmi Professor & Head, Dept. of Ophthalmology Govt. Medical College, Guntur	External expert	mail Attached
31.	Dr. N. Punith Patak Associate Professor & i/c HoD Dept. of Pediatrics, SVIMS-SPMCW	Member	ADP
32.	Dr. Vinayaka.G Professor & HOD Dept. of pediatrics Subbaiah Institute of Medical sciences, Shimoga	External expert	mail Attached
33.	Dr. Venugopal Associate Professor Dept. of Orthopaedics SVIMS-SPMCW	Member	Venugopal
34.	Dr Arun H S Professor Dept. of Orthopaedics Sri Devaraj Urs Medical College, Tamaka, Kolar	External expert	mail Attached
35.	Dr. Arpana Bhide Professor Dept. of Physiology SVIMS-SPMCW	1 st MBBS Co-coordinator	Arpana Bhide 21/8/24
36.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS-SPMCW, Tirupati	2 nd MBBS Coordinator	N. Rukmangadha
37.	Dr. K. Nagaraj Professor & HOD Dept. of Community medicine SVIMS-SPMCW, Tirupati	Coordinator 3rd MBBS Part-I	K. Nagaraj
38.	Dr. J. Harikrishna Professor Dept. of General Medicine SVIMS-SPMCW, Tirupati	3rd MBBS Part-II Coordinator	J. Harikrishna

Pathology

	SVIMS-SPMCW, Tirupati		
12.	Dr. Pankaj B Shah Professor & Associate Dean (Research) Dept of community medicine SRMC, Chennai - Virtual	External expert	
13.	Dr. K. Umamaheswara Rao Professor & HoD Dept. of Pharmacology SVIMS-SPMCW, Tirupati	Member	
14.	Dr. Ashalatha Professor & HoD Dept of Pharmacology SVMC, Tirupati - Virtual	External expert	
15.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS, Tirupati	Member	
16.	Dr. Janaki Professor & HoD Dept. of Pathology Shanthi Ram Medical College Nandyal - Virtual	External expert	
17.	Dr. B. Venkataramana Professor & HoD Dept. of Microbiology SVIMS-SPMCW, Tirupati	Member	
18.	Dr. Animireddy Kishore Professor, Dept. of Microbiology Apollo Institute of Medical Sciences and Research, Murakambattu, Chittoor - Virtual	External expert	
19.	Dr. K. Jyothi Prasad Professor & HoD, Dept. of Forensic Medicine SVIMS-SPMCW, Tirupati	Member	
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22.	Dr. Ravi K Professor & Head, dept. of Medicine Bangalore Medical College and Research Institute Fort, K. R. Road, Bangalore - Virtual	External expert	
23.	Dr. Y. Mutheswaraiiah Professor & HoD Dept. of General Surgery SVIMS-SPMCW, Tirupati	Member	
24.	Dr. S. Nagamuneiah, MS, Professor, Dept. of General Surgery, ACSR Govt., Medical College, Nellore	External expert	
25.	Dr. J. Malathi Professor & HoD Dept. of OBG, SVIMS-SPMCW Tirupati	Member	
26.	Dr. Keshava Ganeshwararaj		

**SRI VENKATESWARA INSTITUTE OF MEDICAL SCIENCES
SVIMS- SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN::TIRUPATI**

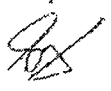
Minutes of the 3rd Board of Studies (2nd MBBS) Meeting held at College Council Hall,
SVIMS-SPMCW on 25.07.2024 from 10 AM onwards.

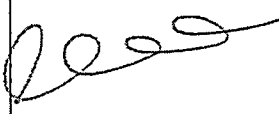
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2	Dr.UshaKalawat Principal SVIMS-SPMCW	Member Secretary
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4	Dr V. Vanajakshamma, Controller of Examinations SVIMS	Member
5	Dr. N. Rukmangadha Professor & HoD 2 nd MBBS Coordinator Dept. of Pathology SVIMS-SPMCW, Tirupati	Member
6	Dr. Janaki, Professor & HoD, Dept. of Pathology Shanthi Ram Medical College, Nandyal - Virtual	External expert
7	Dr. K. Umamaheswara Rao Professor & HoD Dept. of Pharmacology SVIMS-SPMCW, Tirupati	Member
8	Dr. Ashalatha Professor & HoD, Dept of Pharmacology SVMC, Tirupati - Virtual	External expert
9	Dr. B. Venkataramana Professor & HoD Dept. of Microbiology SVIMS-SPMCW, Tirupati	Member
10	Dr. Animireddy Kishore Professor, Dept. of Microbiology Apollo Institute of Medical Sciences and Research, Murakambattu, Chittoor - Virtual	External expert 

SVIMS-SPMCW has conducted the 3rd Board of Studies (2nd MBBS) Meeting for approval of the Competent Based Medical Education Curriculum notified by NMC (UGMEB) vide No.U.14021/8/2023-UGMEB, dated, 01.08.2023 for implementation of the said regulations from the Academic Year 2023 onwards in SVIMS-Sri Padmavathi Medical College for Women of SVIMS University.

Community Medicine
Dr. Pankaj

15.	Dr. Animireddy Kishore Professor, Dept. of Microbiology Apollo Institute of Medical Sciences and Research Murakambattu, Chittoor - Virtual	External expert
17.	Dr. K. Nagaraj Professor & HoD 3 rd MBBS Part-1, Coordinator Dept. of Community medicine SVIMS-SPMCW, Tirupati	Member
18.	Dr. Pankaj B Shah Professor & Associate Dean (Research) Dept of community medicine SRMC, Chennai - Virtual	External expert 
19.	Dr. K. Jyothi Prasad Professor & HoD, Dept. of Forensic Medicine SVIMS-SPMCW, Tirupati	Member
20.	Dr. Kilari Bhaskar Md Professor & Head Dept. of Forensic Medicine & Toxicology Government Medical College, Eluru - Virtual	External expert
21.	Dr. J. Harikrishna Professor & HoD 3 rd MBBS Part-II, Coordinator Dept. of General Medicine SVIMS-SPMCW, Tirupati	Member
22.	Dr. Ravi. K Professor & HoD, Dept. of Medicine Bangalore Medical College and Research Institute Fort, K. R. Road, Bangalore - Virtual	External expert
23.	Dr. Y. Mutheeswaraiah Professor & HoD Dept. of General Surgery SVIMS-SPMCW, Tirupati	Member
24.	Dr. S. Nagamuneiah, MS., Professor, Dept. of General Surgery ACSR Govt., Medical College, Nellore	External expert
25.	Dr. J. Malathi Professor & HoD Dept. of OBG, SVIMS-SPMCW Tirupati.	Member
26.	Dr. Keshava Gangadharan Professor & HoD Dept. of OBG PES Medical College, Kuppam - Virtual	External expert
27.	Dr. S. B. Amarnath Professor & HoD Dept. of ENT, SVIMS-SPMCW	Member
28.	Dr. Ravi. D Professor & HoD, Dept. of ENT Mandya Institute of Medical Sciences Mandya, Karnataka - Virtual	External expert
29.	Dr. Prabhanjankumar Associate Professor & HoD Dept. of Ophthalmology SVIMS-SPMCW	Member
30.	Dr. V. Vijaya Lakshmi Professor & HoD, Dept. of Ophthalmology Govt. Medical College, Guntur - Virtual	External expert
31.	Dr. N. Punith Patak	Member

	Professor & Associate Dean (Research) Dept of community medicine SRMC, Chennai - Virtual		
13.	Dr. K. Umamaheswara Rao Professor & HoD Dept. of Pharmacology SVIMS-SPMCW, Tirupati	Member	
14.	Dr. Ashalatha Professor & HoD Dept of Pharmacology SVMC, Tirupati - Virtual	External expert	
15.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS, Tirupati	Member	
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17.	Dr. B. Venkataramana Professor & HoD Dept. of Microbiology SVIMS-SPMCW, Tirupati	Member	
18.	Dr. Animireddy Kishore Professor, Dept. of Microbiology Apollo Institute of Medical Sciences and Research, Murakambattu, Chittoor - Virtual	External expert	
19.	Dr. K. Jyothi Prasad Professor & HoD, Dept. of Forensic Medicine SVIMS-SPMCW, Tirupati	Member	
20.	Dr. Kilari Bhaskar Md Professor & Head Dept. of Forensic Medicine & Toxicology Government Medical College, Eluru - Virtual	External expert	
21.	Dr. J. Harikrishna Professor & HoD Dept. of General Medicine SVIMS-SPMCW, Tirupati	Member	
22.	Dr. Ravi. K Professor & Head, dept. of Medicine, Bangalore Medical College and Research Institute Fort, K. R. Road, Bangalore - Virtual	External expert	
23.	Dr. Y. Mutheeswaraiiah Professor & HoD Dept. of General Surgery SVIMS-SPMCW, Tirupati	Member	
24.	Dr. S. Nagamuneiah, MS., Professor, Dept. of General Surgery, ACSR Govt., Medical College, Nellore	External expert	
25.	Dr. J. Malathi Professor & HoD Dept. of OBG, SVIMS-SPMCW Tirupati	Member	
26.	Dr. Keshava Gangadharan Professor & HoD.	External expert	

Medicine

	Professor & Associate Dean (Research) Dept of community medicine SRMC, Chennai - Virtual		
13.	Dr. K. Umamaheswara Rao Professor & HoD Dept. of Pharmacology SVIMS-SPMCW, Tirupati	Member	
14.	Dr. Ashalatha Professor & HoD Dept of Pharmacology SVMC, Tirupati - Virtual	External expert	
15.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS, Tirupati	Member	
16.	Dr. Janaki, Professor & HoD Dept. of Pathology Shanthi Ram Medical College Nandyal - Virtual	External expert	
17.	Dr. B. Venkataramana Professor & HoD Dept. of Microbiology SVIMS-SPMCW, Tirupati	Member	
18.	Dr. Animireddy Kishore Professor, Dept. of Microbiology Apollo Institute of Medical Sciences and Research, Murakambattu, Chittoor – Virtual	External expert	
19.	Dr. K. Jyothi Prasad Professor & HoD, Dept. of Forensic Medicine SVIMS-SPMCW, Tirupati	Member	
20.	Dr. Kilari Bhaskar Md Professor & Head Dept. of Forensic Medicine & Toxicology Government Medical College, Eluru – Virtual	External expert	
21.	Dr. J. Harikrishna Professor & HoD Dept. of General Medicine SVIMS-SPMCW, Tirupati	Member	
22.	Dr. Ravi. K Professor ~~and Head~~ , dept. of Medicine Bangalore Medical College and Research Institute Fort, K. R. Road, Bangalore – Virtual	External expert Dr. K. Ravi MBBS, MD, FICR Professor ~~and Head~~ - Internal Medicine Bangalore Medical College & Research Institute Bangalore - 560 007. K.M.C. Reg. No. 33/13	
23.	Dr. Y. Mutheeswaraiah Professor & HoD Dept. of General Surgery SVIMS-SPMCW, Tirupati	Member	
24.	Dr. S. Nagamuneiah, MS., Professor, Dept. of General Surgery, ACSR Govt., Medical College, Nellore	External expert	
25.	Dr.J.Malathi Professor & HoD Dept. of OBG, SVIMS-SPMCW Tirupati	Member	
26.	Dr. Keshava Gangadharan Professor & HoD, Dept. of OBG PES Medical College, Kuppam - Virtual	External expert	
27.	Dr.S.B.Amarnath Professor & HoD Dept. of ENT, SVIMS-SPMCW	Member	
28.	Dr. Ravi. D	External expert	

Gen. Surgery

	SVIMS-SPMCW, Tirupati		
12.	Dr. Pankaj B Shah Professor & Associate Dean (Research) Dept of community medicine SRMC, Chennai - Virtual	External expert	
13.	Dr. K. Umamaheswara Rao Professor & HoD Dept. of Pharmacology SVIMS-SPMCW, Tirupati	Member	
14.	Dr. Ashalatha Professor & HoD Dept of Pharmacology SVMC, Tirupati - Virtual	External expert	
15.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS, Tirupati	Member	
16.	Dr. Janaki, Professor & HoD Dept. of Pathology Shanthi Ram Medical College Nandyal - Virtual	External expert	
17.	Dr. B. Venkataramana Professor & HoD Dept. of Microbiology SVIMS-SPMCW, Tirupati	Member	
18.	Dr. Animireddy Kishore Professor, Dept. of Microbiology Apollo Institute of Medical Sciences and Research, Murakambattu, Chittoor - Virtual	External expert	
19.	Dr. K. Jyothi Prasad Professor & HoD, Dept. of Forensic Medicine SVIMS-SPMCW, Tirupati	Member	
20.	Dr. Kilari Bhaskar Md Professor & Head Dept. of Forensic Medicine & Toxicology Government Medical College, Eluru - Virtual	External expert	
21.	Dr. J. Harikrishna Professor & HoD Dept. of General Medicine SVIMS-SPMCW, Tirupati	Member	
22.	Dr. Ravi. K Professor & Head, dept. of Medicine Bangalore Medical College and Research Institute Fort, K. R. Road, Bangalore - Virtual	External expert	
23.	Dr. Y. Mutheeswaraiiah Professor & HoD Dept. of General Surgery SVIMS-SPMCW, Tirupati	Member	
24.	Dr. S. Nagamuniah, MS., Professor, Dept. of General Surgery, ACSR Govt., Medical College, Nellore	External expert	
25.	Dr. J. Malathi Professor & HoD Dept. of OBG, SVIMS-SPMCW Tirupati	Member	

Sd/-
20/5/24

OBG

**SRI VENKATESWARA INSTITUTE OF MEDICAL SCIENCES
SVIMS- SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN::TIRUPATI**

Minutes of the 3rd Board of Studies (3rd MBBS Part-II) Meeting held at College Council Hall, SVIMS-SPMCW on 30.07.2024 from 10 AM onwards.

Members of the Board of Studies:

1	Dr Alladi Mohan Dean SVIMS	Chairman
2	Dr.UshaKalawat Principal, SVIMS-SPMCW	Member Secretary
3	Dr. Aparna R. Bitla Registrar, SVIMS - Virtual	Member
4	Dr. V. Vanajakshamma Controller of Examinations SVIMS	Member
5	Dr. J. Harikrishna Professor & HoD 3 rd MBBS Part-II, Coordinator Dept. of General Medicine SVIMS, Tirupati	Member
6	Dr. Ravi. K Professor & HoD, Dept. of Medicine Bangalore Medical College and Research Institute Fort, K. R. Road, Bangalore - Virtual	External expert
7	Dr. Y. Mutheeswaraiah Professor & HoD Dept. of General Surgery SVIMS-SPMCW, Tirupati	Member
8	Dr. S. Nagamuneiah, MS., Professor, Dept. of General Surgery, ACSR Govt., Medical College, Nellore	External expert
9	Dr. J. Malathi Professor & HoD Dept.of OBG, SVIMS-SPMCW Tirupati.	Member
10	Dr. Keshav Gangadharan Professor Dept. of OBG PES Medical College, Kuppam - Virtual	External expert
11	Dr. S. B. Amarnath Professor & HoD Dept. of ENT, SVIMS-SPMCW	Member
12	Dr. Ravi. D Professor & HoD, Dept. of ENT Mandya Institute of Medical Sciences Mandya, Karnataka - Virtual	External expert
13	Dr.Prabhanjankumar Associate Professor & HoD Dept. of Ophthalmology SVIMS-SPMCW	Member

Paediatrics

28.	Dr. Ravi. D Professor & HoD, Dept. of ENT Mandya Institute of Medical Sciences Mandya, Karnataka - Virtual	External expert	
29.	Dr. Prabhanjankumar Associate Professor & HoD Dept. of Ophthalmology SVIMS-SPMCW	Member	
30.	Dr. V. Vijaya Lakshmi Professor & HoD, Dept. of Ophthalmology Govt. Medical College, Guntur - Virtual	External expert	
31.	Dr. N. Punith Patak Professor & HoD Dept. of Pediatrics, SVIMS-SPMCW	Member	
32.	Dr. Vinayaka. G Professor & HoD Dept. of Paediatrics Subbaiah Institute of Medical sciences Shimoga - Virtual	External expert	
33.	Dr. S. M. Venugopal Associate Professor & HoD Dept. of Orthopaedics SVIMS-SPMCW	Member	
34.	Dr. Arun H S Professor Dept. of Orthopaedics Sri Devaraj Urs Medical College, Tamaka Kolar - Virtual	External expert	
35.	Dr. Arpana Bhide Professor Dept. of Physiology SVIMS-SPMCW	1 st MBBS Co-coordinator	
36.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS-SPMCW, Tirupati	2 nd MBBS Coordinator	
37.	Dr. K. Nagaraj Professor & HoD Dept. of Community medicine SVIMS-SPMCW, Tirupati	Coordinator 3rd MBBS Part-I	
38.	Dr. J. Harikrishna Professor & HoD Dept. of General Medicine SVIMS-SPMCW, Tirupati	3rd MBBS Part-II Coordinator	

ENT

28.	Dr. Ravi. D Professor & HoD, Dept. of ENT Mandya Institute of Medical Sciences Mandya, Karnataka - Virtual	External expert	
29.	Dr. Prabhanjankumar Associate Professor & HoD Dept. of Ophthalmology SVIMS-SPMCW	Member	
30.	Dr. V. Vijaya Lakshmi Professor & HoD, Dept. of Ophthalmology Govt. Medical College, Guntur - Virtual	External expert	
31.	Dr. N. Punith Patak Professor & HoD Dept. of Pediatrics, SVIMS-SPMCW	Member	
32.	Dr. Vinayaka. G Professor & HoD Dept. of Paediatrics Subbaiah Institute of Medical sciences Shimoga - Virtual	External expert	
33.	Dr. S. M. Venugopal Associate Professor & HoD Dept. of Orthopaedics SVIMS-SPMCW	Member	
34.	Dr. Arun H S Professor Dept. of Orthopaedics Sri Devaraj Urs Medical College, Tamaka Kolar - Virtual	External expert	
35.	Dr. Arpana Bhide Professor Dept. of Physiology SVIMS-SPMCW	1 st MBBS Co-coordinator	
36.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS-SPMCW, Tirupati	2 nd MBBS Coordinator	
37.	Dr. K. Nagaraj Professor & HoD Dept. of Community medicine SVIMS-SPMCW, Tirupati	Coordinator 3rd MBBS Part-I	
38.	Dr. J. Harikrishna Professor & HoD Dept. of General Medicine SVIMS-SPMCW, Tirupati	3rd MBBS Part-II Coordinator	

Ophthalmology

	Mandya Institute of Medical Sciences Mandya, Karnataka - Virtual		
29.	Dr. Prabhankumar Associate Professor & HoD Dept. of Ophthalmology SVIMS-SPMCW	Member	
30.	Dr. V. Vijaya Lakshmi Professor & HoD, Dept. of Ophthalmology Govt. Medical College, Guntur - Virtual	External expert	V. Vijaya Lakshmi
31.	Dr. N. Punith Patak Professor & HoD Dept. of Pediatrics, SVIMS-SPMCW	Member	
32.	Dr. Vinayaka G Professor & HoD Dept. of Paediatrics Subbaiah Institute of Medical sciences Shimoga - Virtual	External expert	
33.	Dr. S. M. Venugopal Associate Professor & HoD Dept. of Orthopaedics SVIMS-SPMCW	Member	
34.	Dr. Arun H S Professor Dept. of Orthopaedics Sri Devaraj Urs Medical College, Tamaka Kolar - Virtual	External expert	
35.	Dr. Arpana Bhide Professor Dept. of Physiology SVIMS-SPMCW	1 st MBBS Co-coordinator	
36.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS-SPMCW, Tirupati	2 nd MBBS Coordinator	
37.	Dr. K. Nagaraj Professor & HoD Dept. of Community medicine SVIMS-SPMCW, Tirupati	Coordinator 3rd MBBS Part-I	
38.	Dr. J. Harikrishna Professor & HoD Dept. of General Medicine SVIMS-SPMCW, Tirupati	3rd MBBS Part-II Coordinator	

V. Vijaya Lakshmi

05/10

28.	Dr. Ravi. D Professor & HoD, Dept. of ENT Mandya Institute of Medical Sciences Mandya, Karnataka - Virtual	External expert	
29.	Dr. Prabhankumar Associate Professor & HoD Dept. of Ophthalmology SVIMS-SPMCW	Member	
30.	Dr. V. Vijaya Lakshmi Professor & HoD, Dept. of Ophthalmology Govt. Medical College, Guntur - Virtual	External expert	
31.	Dr. N. Punith Patak Professor & HoD Dept. of Pediatrics, SVIMS-SPMCW	Member	
32.	Dr. Vinayaka G Professor & HoD Dept. of Paediatrics Subbaiah Institute of Medical sciences Shimoga - Virtual	External expert	
33.	Dr. S. M. Venugopal Associate Professor & HoD Dept. of Orthopaedics SVIMS-SPMCW	Member	
34.	Dr. Arun H S Professor Dept. of Orthopaedics Sri Devaraj Urs Medical College, Tamaka Kolar - Virtual	External expert	
35.	Dr. Arpana Bhide Professor Dept. of Physiology SVIMS-SPMCW	1 st MBBS Co-coordinator	
36.	Dr. N. Rukmangadha Professor & HoD Dept. of Pathology SVIMS-SPMCW, Tirupati	2 nd MBBS Coordinator	
37.	Dr. K. Nagaraj Professor & HoD Dept. of Community medicine SVIMS-SPMCW, Tirupati	Coordinator 3rd MBBS Part-I	
38.	Dr. J. Harikrishna Professor & HoD Dept. of General Medicine SVIMS-SPMCW, Tirupati	3rd MBBS Part-II Coordinator	

DR. ARUN H.S.
KMC Reg. No. 46362
Professor & Unit Chief
Department of Orthopaedics
R.L. Jalappa Hospital

**SRI VENKATESWARA INSTITUTE OF MEDICAL SCIENCES
SVIMS- SRI PADMAVATHI MEDICAL COLLEGE FOR WOMEN::TIRUPATI**

Minutes of the 3rd Board of Studies (2nd MBBS) Meeting held at College Council Hall,
SVIMS-SPMCW on 25.07.2024 from 10 AM onwards.

Members of the Board of Studies:

1	Dr Alladi Mohan Dean SVIMS	Chairman
2	Dr.UshaKalawat Principal SVIMS-SPMCW	Member Secretary
3	Dr Aparna R Bitla Registrar, SVIMS - Virtual	Member
4	Dr V. Vanajakshamma, Controller of Examinations SVIMS	Member
5	Dr. N. Rukmangadha Professor & HoD 2 nd MBBS Coordinator Dept. of Pathology SVIMS-SPMCW, Tirupati	Member
6	Dr. Janaki, Professor & HoD, Dept. of Pathology Shanthi Ram Medical College, Nandyal - Virtual	External expert
7	Dr. K. Umamaheswara Rao Professor & HoD Dept. of Pharmacology SVIMS-SPMCW, Tirupati	Member
8	Dr. Ashalatha Professor & HoD, Dept of Pharmacology SVMC, Tirupati - Virtual	External expert
9	Dr. B. Venkataramana Professor & HoD Dept. of Microbiology SVIMS-SPMCW, Tirupati	Member
10	Dr. Animireddy Kishore Professor, Dept. of Microbiology Apollo Institute of Medical Sciences and Research, Murakambattu, Chittoor - Virtual	External expert

SVIMS-SPMCW has conducted the 3rd Board of Studies (2nd MBBS) Meeting for approval of the Competent Based Medical Education Curriculum notified by NMC (UGMEB) vide No.U.14021/8/2023-UGMEB, dated, 01.08.2023 for implementation of the said regulations

from the Academic Year 2023 onwards in SVIMS-Sri Padmavathi Medical College for Women of SVIMS University.

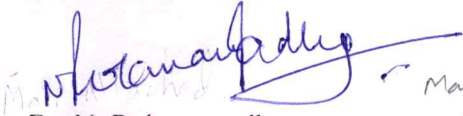
The Principal, SVIMS-SPMCW welcomed all the members and initiated the proceedings as per the agenda. The Members discussed the agenda in detail and resolved as mentioned below.

MINUTES OF THE MEETING
Subject wise Curriculum – 2nd MBBS

The Committee approved to implement Competent Based Medical Education Curriculum for MBBS course notified by NMC (UGMEB) vide No.U.14021/8/2023-UGMEB, dated, 01.08.2023 for the batches admitted in MBBS from the Academic year 2019-20 effective from the year 2023 onwards in SVIMS-SPMCW and to follow the guidelines notified by NMC from time to time.

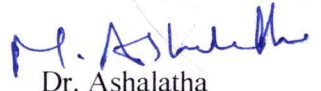
Curriculum of 2nd MBBS Course:

1	Pathology	<u>Approved</u>
2	Pharmacology	<u>Approved</u>
3	Microbiology	<u>Approved</u>
4	Non Component Subjects i.e., Community Medicine, Forensic Medicine, General Medicine, General Surgery & OBG	<u>Approved</u> in BOS Meetings held on 30.07.2024 & 31.07.2024


Dr. N. Rukmangadha
Professor & HoD
Dept. of Pathology
2nd MBBS Coordinator
SVIMS-SPMCW, Tirupati

mail Attached
Dr. Janaki,
Professor & HoD
Dept. of Pathology
Shanthi Ram Medical
College, Nandyal


Dr. K. Umamaheswara
Rao
Professor & HoD
Dept. of Pharmacology
SVIMS-SPMCW
Tirupati

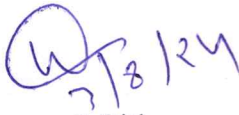

Dr. Ashalatha
Professor & HOD
Dept of
Pharmacology
SVMC, Tirupati


Dr. B. Venkataramana
Professor & HOD
Dept. of Microbiology
SVIMS-SPMCW, Tirupati

mail Attached
Dr. Animireddy Kishore
Professor
Dept. of Microbiology
Apollo Institute of Medical
Sciences and Research,
Murakambattu, Chittoor


Dr. Usha Kalawat
Principal
SVIMS-SPMCW


Dr V. Vanajakshamma
Controller of
Examinations
SVIMS


Dr Aparna R Bitla
Registrar
SVIMS


Dr Alladi Mohan
Dean
SVIMS

Dr. Janaki
Dept. of Pathology

The Principal, SVIMS-SPMCW welcomed all the members and initiated the proceedings as per the agenda. The Members discussed the agenda in detail and resolved as mentioned below.

MINUTES OF THE MEETING
Subject wise Curriculum - 2nd MBBS

The Committee approved to implement Competent Based Medical Education Curriculum for MBBS course notified by NMC (UGMEB) vide No.U.14021/8/2023-UGMEB, dated, 01.08.2023 for the batches admitted in MBBS from the Academic year 2019-20 effective from the year 2023 onwards in SVIMS-SPMCW and to follow the guidelines notified by NMC from time to time.

Curriculum of 2nd MBBS Course:

1	Pathology	<u>Approved</u>
2	Pharmacology	<u>Approved</u>
3	Microbiology	<u>Approved</u>
4	Non Component Subjects i.e., Community Medicine, Forensic Medicine, General Medicine, General Surgery & OBG	<u>Approved in BOS Meetings held on 30.07.2024 & 31.07.2024</u>

Dr. N. Rukmangadha
Professor & HoD
Dept. of Pathology
2nd MBBS Coordinator
SVIMS-SPMCW, Tirupati

Dr. Janaki
Professor & HoD
Dept. of Pathology
Shanthi Ram Medical
College, Nandyal

Dr. K. Umamaheswara
Rao
Professor & HoD
Dept. of Pharmacology
SVIMS-SPMCW
Tirupati

Dr. Ashalatha
Professor & HoD
Dept. of
Pharmacology
SVIMS, Tirupati

Dr. B. Venkataramana
Professor & HoD
Dept. of Microbiology
SVIMS-SPMCW, Tirupati

Dr. Animireddy Kishore
Professor
Dept. of Microbiology
Apollo Institute of Medical
Sciences and Research
Murakambattu, Chittoor

Dr. Usha Kalawat
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SVIMS-SPMCW

Dr. V. Vanajakshamma
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SVIMS

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Registrar
SVIMS

Dr. Alladi Mohan
Dean
SVIMS

The Principal, SVIMS-SPMCW welcomed all the members and initiated the proceedings as per the agenda. The Members discussed the agenda in detail and resolved as mentioned below

MINUTES OF THE MEETING
Subject wise Curriculum – 2nd MBBS

The Committee approved to implement Competent Based Medical Education Curriculum for MBBS course notified by NMC (UGMEB) vide No.U.14021/8/2023-UGMEB, dated, 01.08.2023 for the batches admitted in MBBS from the Academic year 2019-20 effective from the year 2023 onwards in SVIMS-SPMCW and to follow the guidelines notified by NMC from time to time.

Curriculum of 2nd MBBS Course:

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4	Non Component Subjects i.e., Community Medicine, Forensic Medicine, General Medicine, General Surgery & OBG	<u>Approved</u> in BOS Meetings held on 30.07.2024 & 31.07.2024

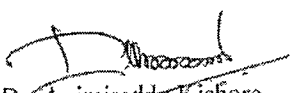
Dr. N. Rukmangadha
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SVIMS-SPMCW
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Dept of
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SVMC, Tirupati

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Dept. of Microbiology
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Dept. of Microbiology
Apollo Institute of Medical
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Murakambattu, Chittoor

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SVIMS