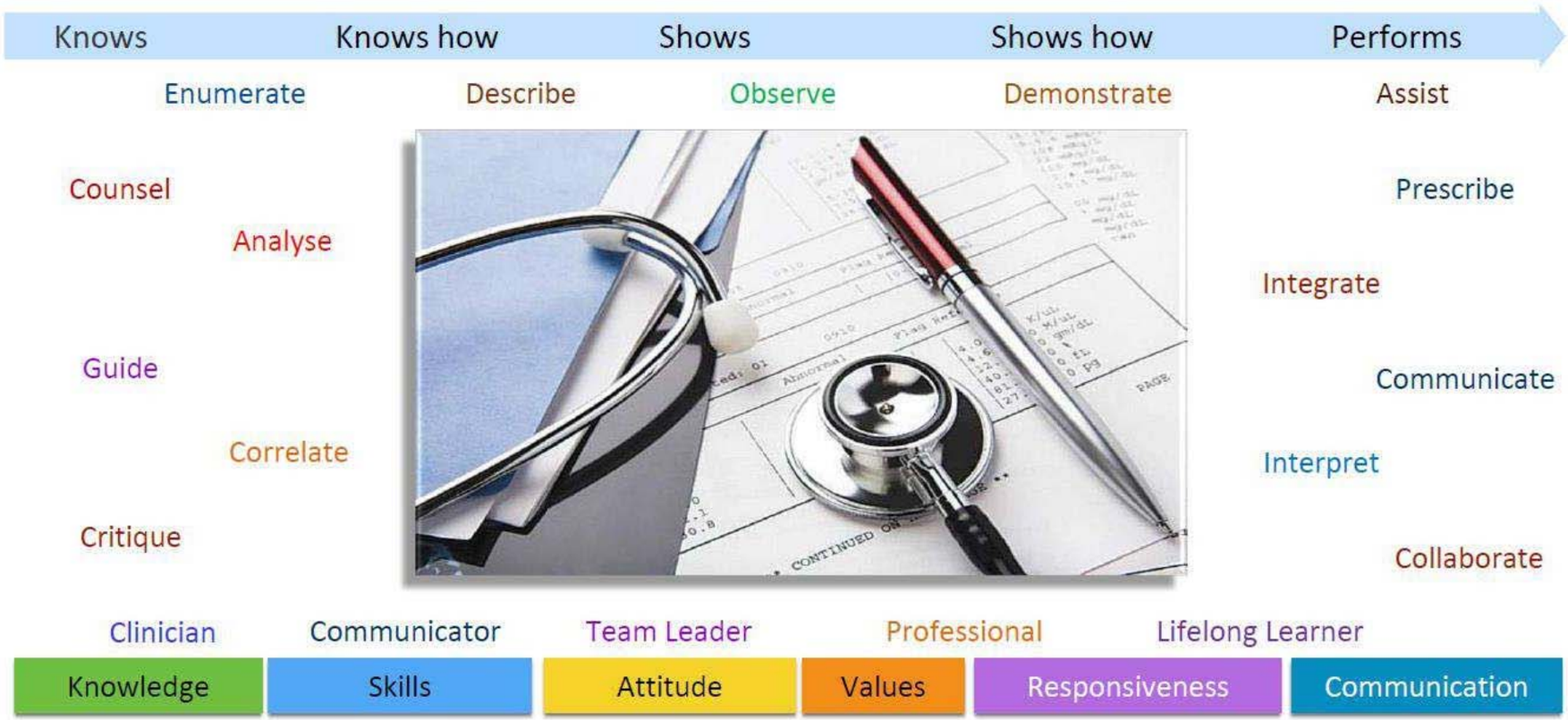
NATIONAL MEDICAL COMMISSION

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE



Volume I-2024

COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR THE INDIAN MEDICAL GRADUATE

2024

National Medical Commission
Pocket-14, Sector- 8, Dwarka
New Delhi 110 077

FOREWORD

The National Medical Commission (NMC) was created on 24th September, 2020 by the Act of Parliament replacing the erstwhile Medical Council of India and Board of Governors. The foundation for making of an Indian Medical Graduate ('Doctor') depends on building a sound base of medical education. In the year 2019, a committed team appointed by erstwhile MCI revolutionized the age-old didactic teaching system in Indian medical colleges by bringing in Competency Based Medical Education (CBME). This unique approach has raised the level of medical education with respect to quality, versatility and horizontal- vertical alignment of all subjects. The mandate of NMC to see that the first line of health care leaders who reach out to the common masses empathizing with the problems of the rural populace are being met with. The two-pronged approach of increasing the quantity and improving the quality of medical education is being tackled with this approach.

Education has now become student-centric and patient-centric instead of pedagogic system. The first batch of students have now completed their training under CBME implemented in 2019. It was a demand from actively involved academia to revisit the curriculum and modify it so as to keep abreast at international level. Interim years of covid pandemic also were 'a good teaching academy' for all. Increasing influence of artificial intelligence on student community, matched with rising cost of medical education and competitiveness, instead of accommodative, helping and balanced approach,

has led to increasing risk of losing social intelligence and humane approach amidst the emerging doctors. The risk of creating overqualified clerks looms large on our medical system.

A national team of experienced as well as emerging empathetic and talented teachers engaged as full-time faculty in various medical institutions were invited by the Undergraduate Education Board (UGMEB) of the NMC to invest their extra energy and hours to assess the curricula, examinations, AETCOM, vertical and horizontal integration of various subjects and bring in modifications. Each subject had committee of five persons on an average, from different parts of the country. Totally 93 experts have given their valuable time and energy in framing this new curriculum and all three volumes, prepared by their predecessors in 2019. The hard work done by them was the base on which this edifice has further been refined.

We are sure that fraternity and students are going to have an educational journey that will be full of fun, knowledge and experience sharing. UGMEB of the NMC acknowledges each and every one involved in the process, named and unsung heroes who have been the part of this exercise of bringing the document to the readers.

Dr. Aruna V. Vanikar, President,
Dr. Vijayendra Kumar, Member,
UGMEB.

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How to use the Manual

This Manual is intended for curriculum planners in an institution to design learning and assessment experiences for the MBBS student. Contents created by subject experts have been curated to provide guidance for the curriculum planners, leaders and teachers in medical schools. The manual must be used with reference to and in the context of the Regulations.

Section 1

Competencies for the Indian Medical Graduate

Section 1 - provides the Roles (global competencies) extracted from the Competency Based Medical Education (CBME) Guidelines, 2024. The global competencies identified as defining the roles of the Indian Medical Graduate are the broad competencies that the learner must aspire to achieve, teachers and curriculum planners must ensure that the learning experiences are aligned to this Manual.

Extract from the Competency Based Medical Education (CBME) Guidelines, 2024

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 r equisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training program are hereby advocated. The first contact physician needs to be skilful to perform duties of primary care physician and have requisite skills for promotive, preventative, rehabilitative, palliative care & referral services.

2.1 National Goals

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

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

b. Learn key aspects of National policies on health and devote himself to its practical implementation.

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

d. Develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.

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

2.2 Institutional Goals

In consonance with the national goals, each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.

a. Be competent for working in the health care team from Phase I MBBS to Compulsory rotatory medical internship (CRMI) in a gradual manner with increasing complexity in an integrated multi-department involvement.

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

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

d. Appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.

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

f. Be familiar with the basic factors which are essential for the implementation of the National Health Programs including practical aspects of the following:

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

ii. Sanitation and water supply;

iii. Prevention and control of communicable and non-communicable diseases;

iv. Immunization;

v. Health Education and advocacy;

vi. Indian Public Health Standards (IPHS) at various level of service delivery;

vii. Bio-medical waste disposal;

viii. Organizational and or institutional arrangements.

g. Acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, general and hospital management, principal inventory skills and counselling.

h. Be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures with maximum community participation.

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

j. Be competent to work in a variety of health care settings.

k. Have personal characteristics and attitudes required for professional life including personal integrity, sense of responsibility, dependability, and ability to relate to or show concern for other individuals.

All efforts must be made to equip the medical graduates to acquire certifiable skills as given in comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) Indian Medical Graduate, as given in the Graduate Medical Education Regulations.

2.3 Goals for the Learner

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

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

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

c. Communicate with patients, families, colleagues, community and community in a methodological and skillful way using various approaches in family visits, family adoption program, clinic-social cases, clinical cases and AETCOM training programs.

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

e. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community, profession, and society. Training of humanities and social sciences will be useful for this training.

3. 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 activity in real life situations. In order to effectively fulfil the roles, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

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

3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biological, clinical, behavioral and social perspective.

3.1.2 Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioral and social perspective.

3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence healthcare.

3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.

3.1.5 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.

3.1.6 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.

3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.

3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.

3.1.9 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.

3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frameworks.

3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.

3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:

a. Disease prevention,

b. Health promotion and cure,

c. Pain and distress alleviation, and

d. Rehabilitation and palliation.

3.1.13 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,

3.1.14 Demonstrate ability to appropriately identify and refer patients who may require· specialized or advanced tertiary care.

3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2 Leader and member of the health care team and system

3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.

3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.

3.2.3 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.

3.2.4 Access and utilize components of the health care system and health delivery in a_ manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyse and utilize health data.

3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.

3.2.6 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.

3.3 Communicator with patients, families, colleagues and community

3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients, families, colleagues and community in a language that patients, families, colleagues and community understands and in a manner that will improve patient patients, families, colleagues and community satisfaction and health care outcomes.

3.3.2 Demonstrate ability to establish professional relationships with patients, families, colleagues and community that are positive, understanding, humane, ethical, empathetic, and trustworthy.

3.3.3 Demonstrate ability to communicate with patients, families, colleagues and community in a manner respectful of patient's preferences, values, prior

experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision- making and overcoming hesitancy towards health initiatives.

3.4 Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1 Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2 Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3 Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4 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.

3.4.5 Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

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

3.5.1 Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2 Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3 Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4 Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5 Demonstrate commitment to the growth of the medical profession as a whole.

Section 2

Subject-wise competencies

Section 2 contains subject-wise competencies that must be achieved at the end of instruction in that subject. These are organised in tables.

Competencies (Outcomes) in each subject are grouped according to topics number-wise. It is important to review the individual competencies in the light of the topic outcomes as a whole. For each competency outlined - the learning domains (Knowledge, Skill, Attitude, and Communication) are identified. The expected level of achievement in that subject is identified as – [knows (K), knows how (KH), shows how (SH), perform (P)]. As a rule, 'perform' indicates independent performance without supervision and is required rarely in the pre-internship period. The competency is a core (Y - must achieve) or a non-core (N - desirable) outcome. Suggested learning and assessment methods (these are suggestions) and explanation of the terms used are given under the section "definitions used in this document". The suggested number of times a skill must be performed independently for certification in the learner's log book is also given.

The number of topics and competencies in each subject are given below:

Topics and competencies in Phase 1 & Phase 2 subjects (Volume I)

Sr. No.	Subjects	Number of topics	Number of competencies
1.	Anatomy	82	413
2.	Physiology	12	136
3.	Biochemistry	14	84
4.	Pharmacology	10	92
5.	Pathology	35	182
6.	Microbiology	11	74
7.	Forensic Medicine	14	158
	Total	**178**	**1139**

Topics competencies in Medicine and Allied subjects (Volume II)

Sr. No.	Subjects	Number of topics	Number of competencies
1.	Community Medicine	20	136
2.	General Medicine	29	525
3.	Paediatrics	35	406
4.	Psychiatry	13	17
5.	Dermatology, Venereology & Leprosy	15	48
	Total	**112**	**1132**

Topics and competencies in Surgery and Allied subjects (Volume III)

Sr. No.	Subjects	Number of topics	Number of competencies
1.	General Surgery	30	133
2.	Ophthalmology	10	60
3.	Otorhinolaryngology	04	63
4.	Obstetrics & Gynaecology	38	141
5.	Orthopaedics’	14	40
6.	Anaesthesiology	11	52
7.	Radiodiagnosis	07	21
	Total	**114**	**510**

Understanding the competencies table

Understanding the competencies table

A	B	C	D	E	F	G	H
No.	**Competencies**	**Domain**	**K/KH/SH/P**	**Core**	**Suggested Teaching Learning Method**	**Suggested Assessment method**	**No. required to certify (P)**
Physiology							
PY1.1	Describe the structure and functions of a	K	KH	Y	LGT, SGT	Written/Viva	
IM 4.10	Elicit *document* and present a medical history that helps delineate the	S	SH	Y	Bed Side clinic, DOAP	OSCE, Direct observation	3

. Unique number of the competency

First two alphabets represent the subject code (see list); number following alphabet reflects competency number, following period is a running number.

Description of competency

Identifies the domain or domains addressed
K - Knowledge
S - Skill
A - Attitude
C - Communication

Identifies the level of competency required based on the Miller's pyramid
K - Knows
KH - Knows How
SH - Show How
P - Perform independently

Identifies if the competency is core or desirable
Y indicates Core;
N-non-core

Identifies the suggested learning method.
DOAP - **D**emonstrate (by Student) Observe, Assist Perform)

Identifies the suggested assessment method
Skill assessment in Clinics, Skills lab, Practicals etc. by direct observation

Number of times a Skill needs to be done

LGT-Large group teaching; SGT-Small group teaching; OSCE-Objective structured clinical examination; P- indicate how many competencies/competencies must be done independently under

observation for Certification. ***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning objectives from competencies

Deriving learning objectives from competencies

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA42.3*	**Identify the etiology of meningitis based on given CSF parameters**	**K/S**	**SH**	**Y**

LO 1	At the end of the session the **phase II student** must be able to enumerate the most common causes of meningitis correctly
LO 2	At the end of the session the **phase II student** must be able to enumerate the components of CSF analysis correctly
LO 3	At the end of the session the **phase II student** must be able to **describe** the CSF features for a given etiology of meningitis **accurately**
LO 4	At the end of the session the **phase II student** must be able to identify the aetiology of meningitis correctly from a **given set of CSF parameters**

Audience - who will do the behavior

Behavior - What should the learner be able to do?

Condition - Under what conditions should the learner be able to do it?

Degree – How well must it be done

Learning Objective (LO): Statement of what a learner should be able to do at the end of a specific learning experience

***Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents**

Deriving learning methods from competencies

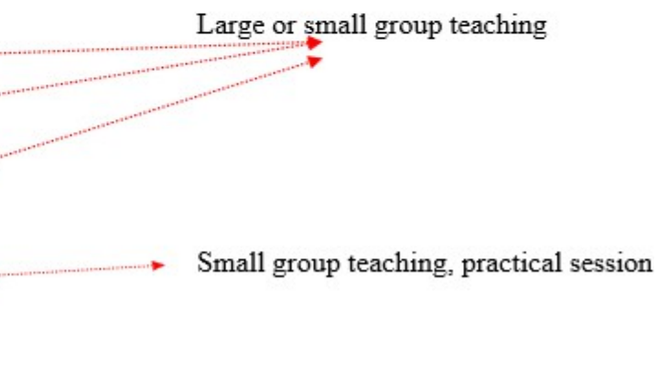
Deriving learning methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA34.3*	**Identify** the etiology of meningitis based on given CSF parameters	K, S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

LO 1	At the end of the session the **Phase II student** must be able to enumerate the most common causes of meningitis **correctly**
LO 2	At the end of the session the **Phase II student** must be able to enumerate the components of a CSF analysis correctly
LO 3	At the end of the session the **Phase II student** must be able to **describe** the CSF features for a given etiologic of meningitis **accurately**
LO 4	At the end of the session the **Phase II student** must the able to identify the aetiology of meningitis correctly from a **given set of CSF parameters**



*Numbers given are for illustrative purposes only and should not be compared with the same in curriculum documents

Deriving assessment methods from competencies

Deriving assessment methods from competencies

Competency: An **observable** ability of a health professional, **integrating multiple components** such as knowledge, skills, values and attitudes.

PA34.3*	**Identify** the etiology of meningitis based on given CSF parameters	K, S	SH	Y

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

LO 1	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Written/SAQ: Enumerate 5 causes of meningitis based on their prevalence in India
LO 2	At the end of the session the **Phase II student** must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
LO 3	At the end of the session the **Phase II student** must be able to **describe** the CSF features for a given aetiology of meningitis **accurately**	Short note or part of structured essay: Describe the CSF findings that are characteristic of tuberculous meningitis
LO 4	At the end of the session the **Phase II student** must the able to identify the aetiology of meningitis correctly from a **given set of CSF parameters**	Short note / part of the structured essay/ Direct observation/OSPE/ Viva voce Review the CSF findings in the following patient and identify (write or vocalize) the most likely etiology

*** Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document**

Definitions used in the Manual

1. **Goal:** A projected state of affairs that a person or system plans to achieve. In other words: Where do you want to go? or What do you want to become?
2. **Competency:** The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served. In other words: What should you have? or What should have changed?
3. **Objective:** Statement of what a learner should be able to do at the end of a specific learning experience. In other words: What the Indian Medical Graduate should know, do, or behave.

Action Verbs used in this manual

Knowledge	Skill	Attitude/communicate
Enumerate	Identify	Counsel
List	Demonstrate	Inform
Describe	Perform under supervision	Demonstrate understanding of
Discuss	Perform independently	Communicate
Differentiate	Document	
Define	Present	
Classify	Record	
Choose	Elicit	
Interpret		
Report		

Note: Specified essential competencies only will be required to be performed independently at the end of the final year MBBS.

1. The word 'perform' or 'do' is used ONLY if the task has to be done on patients or in laboratory practical in the pre/para- clinical phases.
2. Most tasks that require performance during undergraduate years will be performed under supervision.
3. If a certification to perform independently has been done, then the number of times the task has to be performed under supervision will be indicated in the last column.

Explanation of terms used in this manual

LGT (LGT)	Any instructional large group method including interactive lecture
SGT (SGT)	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
Skill assessment/ Direct observation	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
DOPS (Directly observed procedural skills)	DOPS is a method of assessment for assessing competency of the students in which the examiner directly observes the student performing procedure
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)
National Guidelines	Health programs as relevant to the competency that are part of the National Health Program

Domains of learning

K	Knowledge
S	Skill
A	Attitude
C	Communication

Levels of competency

K	Knows	A knowledge attribute - Usually enumerates or describes
KH	Knows how	A higher level of knowledge - is able to discuss or analyze
SH	Shows how	A skill attribute: is able to interpret/ demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre-specified number of times - certification or capacity to perform independently results

Note:

1. In the table of competency - the highest level of competency acquired is specified and implies that the lower levels have been acquired already. Therefore, when a student is able to SH - Show how - an informed consent is obtained - it is presumed that the preceding steps - the knowledge, the analytical skills, the skill of communicating have all been obtained.

2. It may also be noted that attainment of the highest level of competency may be obtained through steps spread over several subjects or phases and not necessarily in the subject or the phase in which the competency has been identified

Volume I
Competency based Undergraduate Curriculum
in
Phase 1 & Phase 2 subjects

ANATOMY (CODE: AN)

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
Anatomy (Topics = 82, Competencies = 413)							
	Topic 1: Anatomical terminology -	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN1.1	Describe & Demonstrate normal anatomical position, various planes, relation, comparison, laterality & movements in the human body	K/S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skills assessment	
AN1.2	Describe composition of bone and bone marrow	K	KH	Y	LGT	Written/ viva	
	Topic 2: General features of bones & Joints	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN2.1	Describe parts, types, peculiarities of each type, blood and nerve supply of bones.	K	KH	Y	LGT	Written/ viva voce	
AN2.2	Describe the laws of ossification, epiphysis, its various types and their importance	K	KH	N	LGT	Written/ Viva voce	
AN2.3	Describe special features of a sesamoid bone	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN2.4	Describe various types of cartilage with its structure & distribution in body	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN2.5	Describe & demonstrate various joints with possible movements, subtypes and examples	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce/skills assessment	
AN2.6	Explain the concept of nerve supply of joints & Hilton's law	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
	Topic 3: General features of Muscle	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN3.1	Classify & describe muscle tissue according to structure, size, shape, region & action	K	KH	Y	LGT, Demonstration	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN3.2	Describe parts of skeletal muscle and differentiate between tendons and aponeuroses with examples	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN3.3	Explain Shunt and spurt muscles with examples and role in joint movement	K	KH	N	LGT, Demonstration	Written/ Viva voce	
	Topic 4: General features of skin and fascia	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN4.1	Describe different types of skin & dermatomes in body	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN4.2	Describe & demonstrate structure of skin with its appendages along with clinical anatomy	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce	
AN4.3	Describe structure, contents and identify modifications of superficial fascia along with fat distribution in body	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce	
AN4.4	Describe & demonstrate modifications of deep fascia with its location, function & examples	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce	
AN4.5	Explain principles of skin incisions and their surgical importance	K	KH	N	LGT, Demonstration	Written	
	Topic 5: General features of the cardiovascular system	**Number of Competencies (8)**			**Number of competencies for certification: (NIL)**		
AN5.1	Differentiate between blood vascular and lymphatic system	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.2	Differentiate between pulmonary and systemic circulation	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.3	Describegeneral differences between arteries, veins and sinuses	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.4	Explain functional and gross structural differences between elastic, muscular arteries and arterioles	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.5	Describe portal system giving examples	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.6	Describe the concept of anastomoses and collateral circulation, its different sites & significance of end arteries	K	KH	Y	LGT, Demonstration	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN5.7	Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN5.8	Describe thrombosis, infarction & aneurysm	K	KH	N	LGT, Demonstration	Written/ Viva voce	
	Topic 6: General Features of lymphatic system	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN6.1	Describe the components and functions of the lymphatic system	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN6.2	Describe structure of lymph capillaries & mechanism of lymph circulation	K	KH	N	LGT, Demonstration	Written	
AN6.3	Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system	K	KH	N	LGT, Demonstration	Written/ Viva voce	
	Topic 7: Introduction to the nervous system	**Number of Competencies (8)**			**Number of competencies for certification: (NIL)**		
AN7.1	Describe general plan of nervous system with components of central, peripheral & autonomic nervous systems	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.2	List components of nervous tissue and their functions	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.3	Describe parts of a neuron and classify them based on number of neurites, size & function	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.4	Describe structure of a typical spinal nerve	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	LGT, Demonstration	Written	
AN7.6	Describe concept of loss of innervation of a muscle with its applied anatomy	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.7	Describe various types of synapse	K	KH	N	LGT, Demonstration	Written	
AN7.8	Describe differences between sympathetic and spinal ganglia	K	KH	N	LGT, Demonstration	Written	
	Topic 8: Features of individual bones (Upper Limb)	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN8.1	Identify the given bone, its side, anatomical position, joint formation, important features and clinical anatomy (clavicle, scapula, humerus, radius , ulna, carpal bones)	K,S	SH	Y	Demonstration	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN8.2	Demonstrate important muscle attachments on the given bone	K,S	SH	Y	Demonstration	Written/ Viva voce/ skill assessment	
AN8.3	Identify and name various bones in articulated hand, Specify the parts of metacarpals and phalanges and enumerate the peculiarities of pisiform	K,S	SH	Y	Demonstration	Viva voce Practicals	
AN8.4	Describe scaphoid fracture and explain the anatomical basis of avascular necrosis	K	KH	N	LGT, Demonstration	Viva voce	
	Topic 9: Pectoral region	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN9.1	Describe attachment, nerve supply & action of pectoralis major and pectoralis minor and describe clavipectoral fascia	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce	
AN9.2	Describe the location, extent, deep relations, structure, blood supply, lymphatic drainage, microanatomy and applied anatomy of breast	K	KH	Y	LGT,	Written/ Viva voce	
AN9.3	Describe development of breast, associated age changes and congenital anomalies	K	KH	N	LGT, Demonstration	Written/ Viva voce	
	Topic 10: Axilla, Shoulder and Scapular region	**Number of Competencies (13)**			**Number of competencies for certification: (NIL)**		
AN10.1	Identify & describe boundaries and contents of axilla	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.2	Identify, describe and demonstrate the origin, extent, course, parts, relations and branches of axillary artery & tributaries of axillary vein	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.3	Describe, identify and demonstrate formation, branches, relations, area of supply of branches, course and relations of terminal branches of brachial plexus	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN10.4	Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.5	Explain variations in formation of brachial plexus	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce	
AN10.6	Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN10.7	Describe axillary lymph nodes, areas of drainage and anatomical basis of their enlargement	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written	
AN10.8	Describe, identify and demonstrate the position, attachment, nerve supply and actions of trapezius and latissimus dorsi	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.9	Describe the arterial anastomosis around the scapula and mention the boundaries of triangle of auscultation	K	KH	N	LGT, Practical, Demonstration, Dissection	Written	
AN10.10	Describe and identify the deltoid and rotator cuff muscles along with their nerve supply and clinical anatomy	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.11	Describe & demonstrate attachment, action and clinical anatomy of serratus anterior muscle	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.12	Describe and demonstrate shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN10.13	Explain anatomical basis of Injury to axillary nerve during intramuscular injections	K	KH	Y	LGT	Viva voce	
	Topic 11: Arm & Cubital fossa	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN11.1	Describe and demonstrate muscle groups of upper arm with emphasis on biceps and triceps brachii	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN11.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels in arm	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN11.3	Describe the anatomical basis of Venipuncture of cubital veins	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN11.4	Describe the anatomical basis of Saturday night paralysis	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN11.5	Identify & describe boundaries and contents of cubital fossa	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN11.6	Describe the anastomosis around the elbow joint	K	KH	N	LGT	Written	
	Topic 12: Forearm & hand	**Number of Competencies (15)**			**Number of competencies for certification: (NIL)**		
AN12.1	Describe and demonstrate important muscle groups of ventral forearm with attachments, nerve supply and actions	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of forearm	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN12.3	Identify & describe flexor retinaculum with its attachments	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.4	Explain anatomical basis of carpal tunnel syndrome	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN12.5	Identify & describe small muscles of hand. Also describe movements of thumb and muscles involved	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.6	Describe & demonstrate movements of thumb and muscles involved	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN12.7	Identify & describe course and branches of important blood vessels and nerves in hand	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.8	Describe anatomical basis of Claw hand	K	KH	Y	LGT, Demonstration, Practical	Written/ Viva voce	
AN12.9	Identify & describe fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce	
AN12.10	Explain infection of fascial spaces of palm	K	KH	N	LGT	Written	
AN12.11	Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.12	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN12.13	Describe the anatomical basis of Wrist drop	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN12.14	Identify & describe compartments deep to extensor retinaculum and describe the boundaries and contents of anatomical snuff box.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.15	Identify & describe extensor expansion formation	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
Topic 13: General Features, Joints, radiographs & surface marking		**Number of competencies: (8)**			**Number of competencies for certification: (NIL)**		
AN13.1	Describe and explain Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage	K	KH	Y	LGT, demonstration	Written/ Viva voce	
AN13.2	Describe dermatomes of upper limb	K	KH	N	LGT	Written/ Viva voce	
AN13.3	Identify & describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints, wrist joint & first carpometacarpal joint	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN13.4	Describe Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangealjoint	K	KH	N	LGT, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN13.5	Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand	K,S	SH	Y	LGT, Practical, Demonstration	Viva voce/ skill assessment	
AN13.6	Identify & demonstrate important bony landmarks of upper limb: Jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end and Inferior angle of the scapula	K,S	SH	Y	Practical, Demonstration	Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN13.7	Identify & demonstrate surface projection of: Cephalic and basilic vein, Palpation of Brachial artery, Radial artery, Testing of muscles: Trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, Brachioradialis	K,S	SH	Y	Practical, Demonstration	Viva voce/ skill assessment	
AN13.8	Describe development of upper limb	K	KH	N	LGT	Written	
	Topic 14: Features of individual bones (Lower Limb)	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN14.1	Identify the given bone, its side, anatomical position, joint formation, important features and clinical anatomy (hip bone, femur, tibia fibula, tarsal bones)	K,S	SH	Y	Demonstration	Viva voce	
AN14.2	Identify & describe joints formed by the given bone	K,S	SH	Y	LGT, Demonstration	Viva voce	
AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia, and explain violation of law of ossification in fibula	K	KH	Y	LGT, Demonstration	Viva voce	
AN14.4	Identify and name various bones in the articulated foot with individual muscle attachment	K,S	SH	N	LGT, Demonstration	Viva voce	
	Topic 15: Front & Medial side of thigh	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN15.1	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN15.2	Describe and demonstrate major muscles with their attachment, nerve supply and actions	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN15.3	Describe and demonstrate boundaries, floor, roof and contents of femoral triangle	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN15.4	Explain anatomical basis of Psoas abscess & Femoral hernia	K	KH	N	LGT, Demonstration	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN15.5	Describe and demonstrate adductor canal with its contents	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skill assessment	
	Topic 16: Gluteal region & back of thigh	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN16.1	Describe and demonstrate major muscles with their attachment, nerve supply and actions.	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN16.2	Describeanddemonstrate structures under thecover of gluteus maximus. Also explain the anatomical basis of sciatic nerve injury during gluteal intramuscular injections	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN16.3	Explain the anatomical basis of Trendelenburg sign	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN16.4	Describe and demonstrate the hamstrings group of muscles with their attachment, nerve supply and actions	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN16.5	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN16.6	Describe and demonstrate the boundaries, roof, floor, contents and relations of popliteal fossa with its clinical anatomy	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
	Topic 17: Hip Joint	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN17.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN17.2	Describe anatomical basis of complications of fracture neck of femur	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN17.3	Describe dislocation of hip joint and surgical hip replacement	K	KH	N	LGT, Demonstration	Written/ Viva voce	
Topic 18: Knee joint, Anterior compartment of leg & dorsum of foot		**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN18.1	Describe and demonstrate major muscles of anterior compartment of leg with their attachment, nerve supply and actions	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN18.2	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN18.3	Explain the anatomical basis of foot drop	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN18.4	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, nerve supply, bursae around the knee joint along with anastomosis around the knee joint	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN18.5	Explain the anatomical basis of locking and unlocking of the knee joint	K	KH	Y	LGT, Demonstration, Practical	Written/ Viva voce	
AN18.6	Describe knee joint injuries with its applied anatomy	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN18.7	Explain anatomical basis of Osteoarthritis	K	KH	N	LGT	Written/ Viva voce	
Topic 19: Back of Leg & Sole		**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN19.1	Describe and demonstrate the major muscles of back of leg with their attachment, nerve supply and actions	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN19.2	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN19.3	Explain the concept of "Peripheral heart"	K	KH	Y	LGT	Written/ Viva voce	
AN19.4	Explain the anatomical basis of rupture of calcaneal tendon	K	KH	N	LGT	Written/ Viva voce	
AN19.5	Describe factors maintaining importance arches of the foot with its importance	K	KH	Y	LGT	Written/ Viva voce	
AN19.6	Explain the anatomical basis of Flat foot & Club foot	K	KH	N	LGT	Written/ Viva voce	
AN19.7	Explain the anatomical basis of Metatarsalgia & Plantar fasciitis	K	KH	N	LGT	Written/ Viva voce	
	Topic 20: General Features, Joints, radiographs & surface marking	Number of Competencies (10)			Number of competencies for certification: (NIL)		
AN20.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint	K,S	SH	Y	Dissection, LGT, SGT, Demonstration, Practical	Written/ Viva voce/ skill assessment	
AN20.2	Describe the subtalar and transverse tarsal joints	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN20.3	Describe and demonstrate Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN20.4	Explain anatomical basis of enlarged inguinal lymph nodes	K	KH	N	LGT	Written/ Viva voce	
AN20.5	Explain anatomical basis of varicose veins and deep vein thrombosis	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN20.6	Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb	K/S	SH	Y	LGT, SGT, Demonstration	Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN20.7	Identify & demonstrate important bony landmarks of lower limb: -Vertebral levels of highest point of iliac crest, posterior superior iliac spines, iliac tubercle, pubic tubercle, ischial tuberosity, adductor tubercle, -Tibial tuberosity, head of fibula, -Medial and lateral malleoli, Condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal, tuberosity of the navicular	K,S	SH	Y	Practical, LGT, SGT, Demonstration	Viva voce/ skill assessment	
AN20.8	Identify & demonstrate palpation of femoral, popliteal, posterior tibial, anterior tibial & dorsalis pedis arteries in a simulated environment	K,S	SH	Y	Practical, LGT, SGT, Demonstration	Viva voce/ skill assessment	
AN20.9	Demonstrate surface projection of: femoral, popliteal, dorsalis pedis, post tibial arteries, Mid inguinal point, femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, Great and small saphenous veins	K,S	SH	Y	Practical, LGT, SGT, Demonstration	Viva voce/ skill assessment	
AN20.10	Describe basic concept of development of lower limb	K	KH	N	LGT	Viva voce	
	Topic 21: Thoracic cage	**Number of Competencies (11)**			**Number of competencies for certification: (NIL)**		
AN21.1	Identify and describe the salient features of sternum, typical rib and typical thoracic vertebra.	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Viva voce/ skill assessment	
AN21.2	Identify & describe the features of atypical ribs and atypical thoracic vertebrae.	K,S	SH	N	LGT, Dissection, Practical, Demonstration	Viva voce/ skill assessment	
AN21.3	Describe & demonstrate the boundaries of thoracic inlet, cavity and outlet along with its applied aspect.(Thoracic inlet Syndrome)	K/S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN21.4	Describe & demonstrate extent, attachments, direction of fibres, nerve supply and actions of intercostal muscles	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN21.5	Describe & demonstrate origin, course, relations and branches of a typical intercostal nerve	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN21.6	Mention origin, course and branches/ tributaries of: 1) anterior & posterior intercostal vessels 2) internal thoracic vessels	K	KH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce	
AN21.7	Mention the origin, course, relations and branches of 1) atypical intercostal nerve 2) superior intercostal artery, subcostal artery	K	KH	N	LGT, Dissection, Practical, Demonstration	Written	
AN21.8	Describe & demonstrate type, articular surfaces & movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints	K,S	SH	N	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN21.9	Describe & demonstrate mechanics and types of respiration	K,S	SH	Y	Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN21.10	Describe costochondral and interchondral joints	K	KH	N	LGT, Demonstration, Dissection, Practical	Written/ Viva voce	
AN21.11	Mention boundaries and contents of the superior, anterior, middle and posterior mediastinum	K	KH	Y	LGT, Demonstration, Dissection	Written/ Viva voce	
	Topic 22: Heart & Pericardium	**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN22.1	Describe & demonstrate subdivisions, sinuses in pericardium, blood supply and nerve supply of pericardium	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN22.2	Describe & demonstrate external and internal features of each chamber of heart	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN22.3	Describe & demonstrate origin, course and branches of coronary arteries	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN22.5	Describe & demonstrate the formation, course, tributaries and termination of coronary sinus	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skill assessment	
AN22.6	Describe the fibrous skeleton of heart	K	KH	Y	LGT	Written	
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	LGT	Written/ Viva voce	
Topic 23: Mediastinum		**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN23.1	Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skill assessment	
AN23.2	Describe & demonstrate the extent, relations and tributaries of thoracic duct and enumerate its applied anatomy.	K,S	SH	Y	LGT	Written/ Viva voce/ skill assessment	
AN23.3	Describe & demonstrate origin, course, relations, tributaries and termination of superior vena cava, azygos, hemiazygos andaccessory hemiazygos veins	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN23.4	Mention the extent, branches and relations of arch of aorta & descending thoracic aorta	K	KH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN23.5	Identify & Mention the location and extent of thoracic sympathetic chain	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN23.6	Describe the splanchnic nerves	K	KH	N	LGT	Written	
	Topic 24: Lungs & Trachea	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce	
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN24.3	Describe a bronchopulmonary segment with its clinical anatomy	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN24.4	Identify phrenic nerve & describe its formation & distribution	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce	
AN24.5	Mention the blood supply, lymphatic drainage and nerve supply of lungs	K	KH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce	
AN24.6	Describethe extent, length, relations, bloodsupply, lymphatic drainageand nerve supply of trachea	K	KH	N	LGT, Demonstration	Written	
	Topic 25: Thorax	**Number of Competencies (9)**			**Number of competencies for certification: (NIL)**		
AN25.1	Identify, draw and label a slide of trachea and lung	K,S	SH	Y	LGT, Demonstration, Practical	Written/ skill assessment	
AN25.2	Describe development of pleura, lung & heart	K	KH	Y	LGT	Written	
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	LGT, Demonstration	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy & 4) tracheoesophageal fistula	K	KH	Y	LGT	Written/ Viva voce	
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	LGT	Written/ Viva voce	
AN25.6	Mention development of aortic arch arteries, SVC, IVC and coronary sinus	K	KH	N	LGT	Written/ Viva voce	
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K,S	SH	Y	LGT, Demonstration, Practical	Written/ Viva voce	
AN25.8	Identify and describe in brief a barium swallow	K,S	SH	N	LGT, Demonstration, Practical	Written/ Viva voce	
AN25.9	Demonstrate surface marking of lines of pleural reflection, lung borders and fissures, trachea, heart borders, apex beat & surface projection of valves of heart	K,S	SH	Y	Demonstration, Practical	Viva voce/ skill assessment	
Topic 26: Skull osteology		**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN26.1	Describe & demonstrate anatomical position of skull, Identify and locate individual skull bones in skull	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.2	Describe & demonstrate the features of norma frontalis, verticalis, occipitalis, lateralis and basalis	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.3	Describe & demonstrate cranial cavity, its subdivisions, foramina and structures passing through them	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.4	Describe & demonstrate morphological features of mandible	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.5	Describe & demonstrate features of typical and atypical cervical vertebrae (atlas and axis)	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.6	Explain the concept of bones that ossify in membrane	K	KH	N	LGT	Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN26.7	Describe & demonstrate the features of the 7th cervical vertebra	K,S	SH	N	LGT, Demonstration	Viva voce	
Topic 27: Scalp		**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN27.1	Describe & demonstrate the layers of scalp, its blood supply, nerve supply and surgical importance.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN27.2	Describe emissary veins with its role in the spread of infection from extracranial route to intracranial venous sinuses	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written	
Topic 28: Face & parotid region		**Number of Competencies (10)**			**Number of competencies for certification: (NIL)**		
AN28.1	Describe & demonstrate muscles of facial expression and their nerve supply	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN28.2	Describe sensory innervation of face	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN28.3	Describe & demonstrate origin /formation, course, branches /tributaries of facial vessels	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN28.4	Describe & demonstrate branches of facial nerve with distribution	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN28.5	Describe cervical lymph nodes and lymphatic drainage of head, face and neck	K	KH	Y	LGT	Written/ Viva voce	
AN28.6	Identify superficial muscles of face, their nerve supply and actions	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN28.7	Explain the anatomical basis of facial nerve palsy	K	KH	Y	LGT	Written	
AN28.8	Explain surgical importance of deep facial vein	K	KH	Y	LGT	Written	
AN28.9	Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN28.10	Explain the anatomical basis of Frey's syndrome	K	KH	N	LGT	Written	
	Topic 29: Posterior triangle of neck	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN29.1	Describe and demonstrate the boundaries, subdivisions and contents of posterior triangle of neck	K, S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN29.2	Describe & demonstrate attachments, nerve supply, relations and actions of sternocleidomastoid	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN29.3	Explain anatomical basis of Erb's & Klumpke's palsy	K	KH	Y	LGT, Demonstration	Written	
AN29.4	Explain anatomical basis of wry neck	K	KH	N	LGT, Demonstration	Written	
AN29.5	Describe & demonstrate attachments of 1) inferior belly of omohyoid, 2)scalenus anterior, 3) scalenus medius & 4) levator scapulae	K,S	SH	N	LGT, Practical, Demonstration, Dissection	Written/ Viva voce	
	Topic: 30 Cranial cavity	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN30.1	Describe the cranial fossae & identify related structures	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN30.2	Describe & identify major foramina with structures passing through them	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN30.3	Describe & identify dural folds & dural venous sinuses	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN30.4	Describe clinical importance of dural venous sinuses	K	KH	Y	LGT	Written	
AN30.5	Explain effect of pituitary tumours on visual pathway	K	KH	N	LGT	Written	
Topic 31: Orbit		**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN31.1	Describe & identify extra ocular muscles of eyeball, along with a note on its attachment, action and clinical anatomy	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN31.2	Describe & demonstrate nerves and vessels in the orbit	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN31.3	Describe anatomical basis of Horner's syndrome	K	KH	N	LGT	Written	
AN31.4	Describe the components of lacrimal apparatus	K	KH	Y	LGT	Written	
AN31.5	Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus	K	KH	Y	LGT	Written	
Topic 32: Anterior Triangle		**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN32.1	Describe boundaries and subdivisions of anterior triangle	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN32.2	Describe & demonstrate boundaries and contents of muscular, carotid, digastric and submental triangles	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
	Topic 33: Temporal and Infratemporal regions	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN33.1	Describe & demonstrate extent, boundaries and contents of temporal and infratemporal fossae	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN33.2	Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN33.3	Describe & demonstrate articulating surface, type & movements of temporomandibular joint	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN33.4	Explain the clinical significance of pterygoid venous plexus	K	KH	Y	LGT	Written	
AN33.5	Describe the features of dislocation of temporomandibular joint	K	KH	N	LGT	Written	
	Topic 34: Submandibular region	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN34.1	Describe and demonstrate the superficial and deep structures, muscles, nerves, vessels, and glands in the submandibular region	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/Viva/ Skill Assessment	
AN34.2	Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibularganglion	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN34.3	Describe the basis of formation of submandibular stones	K	KH	N	LGT	Written	
	Topic 35: Deep structures in the neck	**Number of Competencies (10)**			**Number of competencies for certification: (NIL)**		
AN35.1	Describe the parts, extent, attachments, modifications of deep cervical fascia	K	KH	Y	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN35.2	Describe & demonstrate location, parts, borders, surfaces, relations, blood supply & applied anatomy of thyroid gland. Also describe the parathyroid glands in brief.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.3	Demonstrate & describe the origin, parts, course & branches subclavian artery	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.4	Describe & demonstrate origin, course, relations, tributaries and termination of internal jugular & brachiocephalic veins	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.5	Describe and demonstrate extent, drainage & applied anatomy of cervical lymph nodes	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.6	Describe and demonstrate the extent, formation, relation & branches of cervical sympathetic chain	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.7	Describe the course and branches of IX, X, XI & XII nerve in the neck	K	KH	Y	LGT	Written	
AN35.8	Describe the anatomically relevant clinical features of Thyroid swellings	K	KH	N	LGT, Demonstration	Written	
AN35.9	Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib	K	KH	N	LGT	Written	
AN35.10	Describe the fascial spaces of neck	K	KH	N	LGT	Written	
Topic 36: Mouth, Pharynx & Palate		**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN36.1	Describe and demonstrate the structures of the vestibule of the mouth and oral cavity proper.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN36.2	Describe the 1) morphology, relations, blood supply andapplied anatomy of palatine tonsil 2) composition of soft palate	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written	
AN36.3	Describe and demonstrate the muscles, nerve supply, blood supply and lymphatic drainage of the pharynx	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN36.4	Describe the components and functions of Waldeyer's lymphatic ring	K	KH	Y	LGT	Written	
AN36.5	Describe the pharyngeal spaces. Also describe the boundaries and clinical significance of pyriform fossa	K	KH	N	LGT	Written	
AN36.6	Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess	K	KH	N	LGT	Written	
AN36.7	Describe the clinical significance of Killian's dehiscence	K	KH	N	LGT	Written	
	Topic 37: Cavity of Nose	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN37.1	Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN37.2	Describe location and functional anatomy of paranasal sinuses	K	KH	Y	LGT, Practical, Demonstration	Written	
AN37.3	Describe anatomical basis of sinusitis & maxillary sinus tumours	K	KH	N	LGT	Written	
	Topic 38: Larynx	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN38.1	Describe & demonstrate the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN38.2	Describe the anatomical aspects of laryngitis	K	KH	N	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN38.3	Describe anatomical basis of recurrent laryngeal nerve injury	K	KH	N	LGT	Written	
	Topic 39: Tongue	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN39.1	Describe & demonstrate the morphology, nerve supply, embryological basis of nerve supply, blood supply, lymphatic drainage and actions of extrinsic and intrinsic muscles of tongue	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN39.2	Explain the anatomical basis of hypoglossal nerve palsy	K	KH	N	LGT	Written	
	Topic 40: Organs of hearing and equilibrium	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN40.1	Describe & identify the parts, blood supply and nerve supply of external ear	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN40.2	Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN40.3	Describe the features of internal ear	K	KH	N	LGT	Written	
AN40.4	Explain anatomical basis of otitis externa and otitis media	K	KH	N	LGT	Written	
AN40.5	Explain anatomical basis of myringotomy	K	KH	N	LGT	Written	
	Topic 41: Eyeball	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN41.1	Describe & demonstrate parts and layers of eyeball	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN41.2	Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion	K	KH	N	LGT	Written	
AN41.3	Describe the position, nerve supply and actions of intraocular muscles	K	KH	N	LGT, Practical, Demonstration	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
	Topic 42: Back Region	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN42.1	Describe and demonstrate the contents of the vertebral canal	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN42.2	Describe & demonstrate the boundaries and contents of Suboccipital triangle	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN42.3	Describe the position, direction of fibres, relations, nerve supply, actions of semispinalis capitis and splenius capitis	K	KH	N	LGT	Written	
	Topic 43: Head & neck Joints, Histology, Development, Radiography & Surface marking	**Number of Competencies (9)**			**Number of competencies for certification: (NIL)**		
AN43.1	Describe & demonstrate the movements with muscles producing the movements of atlantooccipital joint & atlantoaxial joint	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN43.2	Identify, describe and draw the microanatomy of pituitary gland, thyroid, parathyroid gland, tongue, salivary glands, tonsil, epiglottis, cornea, retina	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN43.3	Identify, describe and draw microanatomy of olfactory epithelium, eyelid, lip, sclero-corneal junction, optic nerve, cochlea- organ of corti, pineal gland	K,S	SH	N	LGT, Practical	Written/ skill assessment	
AN43.4	Describe the development and developmental basis of congenital anomalies of face, palate, tongue, branchial apparatus, pituitary gland, thyroid gland & eye	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN43.5	Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels	K,S	SH	Y	Practical, Demonstration	Viva voce/ skill assessment	
AN43.6	Demonstrate surface projection of- Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & accessory nerve	K,S	SH	N	Practical, Demonstration	Viva voce/ skill assessment	
AN43.7	Identify the anatomical structures in 1) Plain x-ray skull, 2) AP view and lateral view 3) Plain x-ray cervical spine-AP and lateral view 4) Plain x- ray of paranasal sinuses	K,S	SH	Y	Practical, Demonstration	Viva voce/ skill assessment	
AN43.8	Describe the anatomical route used for carotid angiogram and vertebral angiogram	K	KH	N	LGT	Viva voce/ skill assessment	
AN43.9	Identify anatomical structures in carotid angiogram and vertebral angiogram	K,S	SH	N	Practical, Demonstration	Viva voce/ skill assessment	
Topic 44: Anterior abdominal wall		**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN44.1	Describe & demonstrate the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN44.2	Describe & identify the Fascia, nerves & blood vessels of anterior abdominal wall	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN44.3	Describe the formation of rectus sheath and its contents	K	KH	Y	LGT, Practical, Demonstration,	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN44.4	Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN44.5	Explain the anatomical basis of inguinal hernia.	K	KH	Y	LGT	Written/ Viva voce	
AN44.6	Describe & demonstrate attachments of muscles of anterior abdominal wall	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN44.7	Describe common abdominal incisions with example and their clinical importance	K	KH	N	LGT	Written	
	Topic 45: Posterior abdominal wall	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN45.1	Describe Thoracolumbar fascia, its different layers, their attachments and extents	K	KH	Y	LGT	Written	
AN45.2	Describe & demonstrate Lumbar plexus, its root value, formation, branches and clinical anatomy (compression/ injury to the rootlets of lumber plexus)	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN45.3	Describe and demonstrate back muscles, nerve supply and action	K	KH	N	LGT	Written	
	Topic 46: Male external genitalia	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN46.1	Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN46.2	Describe parts of Epididymis	K	KH	Y	LGT, Dissection	Written/ Viva voce	
AN46.3	Describe Penis under following headings: (parts, components, blood supply and lymphatic drainage)	K	KH	Y	LGT, Dissection	Written/ Viva voce	
AN46.4	Explain the anatomical basis of Varicocele	K	KH	N	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN46.5	Explain the anatomical basis of Phimosis & Circumcision	K	KH	N	LGT	Written	
	Topic 47: Abdominal cavity	**Number of Competencies (14)**			**Number of competencies for certification: (NIL)(NIL)**		
AN47.1	Describe & demonstrate horizontal and vertical tracing of peritoneum. Also describe boundaries and recesses of Lesser & Greater sac.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN47.2	Name & identify various peritoneal folds & pouches with its explanation .	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN47.3	Explain anatomical basis of Ascites & Peritonitis	K	KH	N	LGT	Written	
AN47.4	Explain anatomical basis of Subphrenic abscess	K	KH	N	LGT	Written	
AN47.5	Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects)	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN47.6	Explain the anatomical basis of Splenic notch, Accessory spleens, Kehr's sign, Different types of vagotomy, Liver biopsy (site of needle puncture), Referred pain in cholecystitis, Obstructive jaundice, Referred pain around umbilicus, Radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach	K	KH	N	LGT	Written	
AN47.7	Demonstrate boundaries of Calot's triangle and mention its clinical importance	K	KH	N	LGT	Written	
AN47.8	Describe & identify the formation, course relations and tributaries of Portal vein, Inferior vena cava & Renal vein	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN47.9	Describe & identify the origin, course, important relations and branches of Abdominal aorta, Coeliac trunk, Superior mesenteric, Inferior mesenteric & Common iliac artery	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN47.10	Describe sites of portosystemic anastomosis, describe its applied anatomy andanatomical correlations	K	KH	Y	LGT	Written	
AN47.11	Explain the anatomic basis of hematemesis& caput medusae in portal hypertension	K	KH	Y	LGT,	Written/ Viva voce	
AN47.12	Describe important nerve plexuses of posterior abdominal wall	K	KH	N	LGT	Written	
AN47.13	Describe & demonstrate the attachments, openings, nerve supply & action of the thoracoabdominal diaphragm	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN47.14	Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia	K	KH	N	LGT	Written	
	Topic 48: Pelvic wall and viscera	**Number of Competencies (8)**			**Number of competencies for certification: (NIL)**		
AN48.1	Describe & demonstrate the position, features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and clinical aspects of important male & female pelvic viscera.	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN48.2	Describe & identify the muscles of Pelvic diaphragm.	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN48.3	Describe & demonstrate the origin, course, important relations and branches of internal iliac artery	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN48.4	Describe the branches of sacral plexus	K	KH	Y	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN48.5	Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation	K	KH	N	LGT	Written	
AN48.6	Describe the neurological basis of Automatic bladder	K	KH	Y	LGT	Written	
AN48.7	Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer	K	KH	N	LGT	Written	
AN48.8	Mention the structures palpable during vaginal & rectal examination	K	KH	N	LGT	Written	
	Topic 49: Perineum	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN49.1	Describe& demonstrate the superficial & deep perineal pouch (boundaries and contents)	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill	
AN49.2	Describe & identify Perineal body	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN49.3	Describe & demonstrate Perineal membrane in male & female	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN49.4	Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN49.5	Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure	K	KH	N	LGT	Written	
	Topic 50: Vertebral column	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN50.1	Describe the curvatures of the vertebral column	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN50.2	Describe & demonstrate the type, articular ends, ligaments and movements of Intervertebral joints, Sacroiliac joints & Pubic symphysis	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN50.3	Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture)	K	KH	Y	LGT	Written/ Viva voce	
AN50.4	Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida	K	KH	N	LGT	Written	
	Topic 51: Sectional Anatomy	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN51.1	Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN51.2	Describe & identify the midsagittal section of male and female pelvis	K	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
	Topic 52: Histology & Embryology	**Number of Competencies (8)**			**Number of competencies for certification: (NIL)**		
AN52.1	Describe & identify the microanatomical features of Gastro-intestinal system: Oesophagus, Fundus of stomach, Pylorus of stomach, Duodenum, Jejunum, Ileum, Large intestine, Appendix, Liver, Gall bladder, Pancreas & Suprarenal gland	K,S	SH	Y	LGT, Demonstration, Practical	Written/ skill assessment	
AN52.2	Describe & identify the microanatomical features of: Urinary system: Kidney, Ureter & Urinary bladder Male Reproductive System: Testis, Epididymis, Vas deferens, Prostate & penis Female reproductive system: Ovary, Uterus, Uterine tube, Cervix, Placenta & Umbilical cord	K,S	SH	Y	LGT, Demonstration, Practical	Written/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN52.3	Describe & identify the microanatomical features of Cardiooesophageal junction, Corpus luteum	K,S	SH	N	LGT, Demonstration, Practical	Written/ skill assessment	
AN52.4	Describe the development of anterior abdominal wall	K	KH	N	LGT	Written/ Viva voce	
AN52.5	Describe the development and congenital anomalies of Diaphragm	K	KH	Y	LGT	Written/ Viva voce	
AN52.6	Describe the development and congenital anomalies of: Foregut, Midgut & Hindgut	K	KH	Y	LGT	Written/ Viva voce	
AN52.7	Describe the development of Urinary system	K	KH	Y	LGT	Written/ Viva voce	
AN52.8	Describe the development of male & female reproductive system	K	KH	Y	LGT	Written/ Viva voce	
	Topic 53: Osteology	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN53.1	Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups	K,S	SH	Y	LGT, Demonstration, Practical	Viva voce/ skill assessment	
AN53.2	Demonstrate the anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet	K,S	SH	Y	LGT, DOAP	Viva voce/ skill assessment	
AN53.3	Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis	K,S	SH	Y	LGT, DOAP	Viva voce/ skill assessment	
AN53.4	Explain and demonstrate clinical importance of bones of abdominopelvic region (sacralization of lumbar vertebra, Lumbarization of 1st sacral vertebra, types of bony pelvis & Coccyx)	K,S	SH	N	LGT, DOAP	Viva voce/ skill assessment	
	Topic 54: Radiodiagnosis	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN54.1	Describe the principles of Plain and contrast radiography, Computed Tomography, Magnetic Resonance Imaging, Positron Emission Tomography scan and Digital subtraction angiography	K	KH	Y	LGT	Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN54.2	Describe & identify features of plain X ray abdomen	K,S	SH	Y	LGT, DOAP	Viva voce/ skill assessment	
AN54.3	Describe & identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography & Hysterosalpingography)	K,S	SH	Y	LGT, DOAP	Viva voce/ skill assessment	
AN54.4	Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen	K	KH	N	LGT	Viva voce	
Topic 55: Surface marking		**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN55.1	Demonstrate the surface marking of Regions and planes of abdomen, Superficial inguinal ring, Deep inguinal ring, McBurney's point, Renal Angle & Murphy's point	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Viva voce/ skill assessment	
AN55.2	Demonstrate the surface projections of: Stomach, Liver, Fundus of gall bladder, Spleen, Duodenum, Pancreas, Ileocaecal junction, Kidneys & Root of mesentery	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Viva voce/ skill assessment	
Topic 56: Meninges & CSF		**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN56.1	Describe & identify various layers of meninges with its extent & modifications	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN56.2	Describe formation, circulation and absorption of CSF with its applied anatomy.	K	KH	Y	LGT	Written/ Viva voce	
Topic 57 : Spinal Cord		**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN57.1	Identify external features of spinal cord	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN57.2	Describe extent of spinal cord in child & adult with its clinical implication	K	KH	Y	LGT, Demonstration	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN57.3	Draw & label transverse section of spinal cord at mid-cervical & mid-thoracic level	K	KH	Y	LGT	Written/ Viva voce	
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	LGT	Written/ Viva voce	
AN57.5	Describe the anatomical basis of clinical conditions affecting the grey and white matter of spinal cord (Brown-Sequard Syndrome, Poliomyelitis, Amyotrophic lateral sclerosis or motor neuron disease, Syringomyelia, Hereditary sensory neuropathy, Subacute Combined degeneration, Transversemyelitis, paraplegia)	K	KH	Y	LGT	Written/ Viva voce	
	Topic 58 : Medulla Oblongata	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN58.1	Identify external features of medulla oblongata	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN58.2	Describe transverse section of medulla oblongata at the level of 1) pyramidal decussation, 2) sensory decussation 3) Inferior Olivary Nucleus	K	KH	Y	LGT	Written/ Viva voce	
AN58.3	Describe cranial nerve nuclei in medulla oblongata with their functional group	K	KH	Y	LGT	Written/ Viva voce	
AN58.4	Describe the anatomical basis of clinical conditions affecting the medulla oblongata (Medial and lateral medullary syndromes, Crossed Diplegia)	K	KH	Y	LGT	Written/ Viva voce	
	Topic 59: Pons	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN59.1	Identify external features of pons	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN59.2	Draw & label transverse section of pons at the upper and lower level	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN59.3	Describe cranial nerve nuclei in pons with their functional group	K	KH	Y	LGT	Written/ Viva voce	
AN59.4	Describe the anatomical basis of clinical conditions affecting the pons (Locked-in syndrome, Pontine haemorrhage, Foville syndrome, Raymond syndrome, Millard-Gubler syndrome)	K	KH	Y	LGT	Written/ Viva voce	
Topic 60: Cerebellum		**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN60.1	Describe & demonstrate external & internal features of cerebellum	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN60.2	Describe connections of cerebellar cortex and intracerebellar nuclei	K	KH	Y	LGT	Written/ Viva voce	
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	LGT	Written	
Topic 61: Midbrain		**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN61.1	Identify external & internal features of midbrain	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN61.2	Describe internal features of midbrain at the level of superior & inferior colliculus	K	KH	Y	LGT	Written/ Viva voce	
AN61.3	Describe the anatomical basis of clinical conditions affecting the midbrain (Weber syndrome, Benedikt syndrome, Parinaud syndrome)	K	KH	Y	LGT	Written/ Viva voce	
Topic 62: Cranial nerve nuclei & Cerebral hemispheres		**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN62.1	Describe the cranial nerve nuclei with its functional components	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere. Also describe the effects of damage to various functional areas of cerebral cortex	K,S	SH	Y	LGT, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN62.3	Describe the white matter of cerebrum. Also describe the effects of damage to corpus callosum and different parts of internal capsule	K	KH	Y	LGT	Written/ Viva voce	
AN62.4	Describe the parts & major connections of basal ganglia & limbic lobe. Also explain the anatomical basis of Parkinson's disease, chorea, athetosis and ballismus	K	KH	Y	LGT	Written/ Viva voce	
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	LGT	Written/ Viva voce	
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	LGT, Practical, Demonstration	Written/ Viva voce/ skill assessment	
	Topic 63: Ventricular System & Special sensory pathways	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN63.1	Describe & demonstrate parts, boundaries & features of 3rd, 4th & lateral ventricle	K,S	SH	Y	LGT, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	LGT	Written	
AN63.3	Describe the olfactory, visual, auditory and gustatory pathways	K	KH	Y	LGT	Written/ Viva voce	
	Topic 64: Histology & Embryology	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN64.1	Describe & identify the microanatomical features of Spinal cord, Cerebellum & Cerebrum	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN64.2	Describe the development of neural tube, spinal cord, medulla oblongata, pons, midbrain, cerebral hemisphere & cerebellum	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	LGT	Written/ Viva voce	
Topic 65: Epithelium histology		**Number of Competencies (2)**			**Number of competencies for certification: (01)**		
AN65.1	Identify epithelium under the microscope & describe the various types that correlate to its function	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN65.2	Describe the ultrastructure of epithelium	K	KH	N	LGT, Practical	Written	
Topic 66: Connective tissue histology		**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN66.1	Describe & identify various types of connective tissue with functional correlation	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN66.2	Describe the ultrastructure of connective tissue	K	KH	N	LGT, Practical	Written	
Topic 67: Muscle histology		**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN67.1	Describe & identify various types of muscle under the microscope	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN67.2	Classify muscleand describe the structure-function correlation of the same	K	KH	Y	LGT	Written	
AN67.3	Describe the ultrastructure of muscular tissue	K	KH	N	LGT	Written	
Topic 68: Nervous tissue histology		**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN68.1	Describe & Identify multipolar & unipolar neuron, ganglia, peripheral nerve under the microscope	K/S	SH	Y	LGT, Practical	Written/ skill assessment	
AN68.2	Describe the structure-function correlation of neuron	K	KH	Y	LGT	Written	
AN68.3	Describe the ultrastructure of nervous tissue	K	KH	N	LGT	Written	
Topic 69: Blood Vessels		**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN69.1	Identify elastic & muscular blood vessels, capillaries under the microscope	K,S	SH	Y	LGT, Practical	Skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN69.2	Describe the various types and structure-function correlation of blood vessel	K	KH	Y	LGT	Written	
AN69.3	Describe the ultrastructure of blood vessels	K	KH	Y	LGT	Written	
	Topic 70: Glands & Lymphoid tissue	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN70.1	Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN70.2	Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node, spleen, thymus, tonsil andcorrelatethe structure with function	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
	Topic: Bone & Cartilage - Number of Competencies (2)						
AN71.1	Identify bone under the microscope; classify various types and describe the structure-function correlation of the same	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN71.2	Identify cartilage under the microscope & describe various types and structure- function correlation of the same	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
	Topic 72: Integumentary System	**Number of Competencies (1)**			**Number of competencies for certification: (NIL)**		
AN72.1	Identify the skin and its appendages under the microscope and correlate the structure with function	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
	Topic: 73 Chromosomes	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN73.1	Describe the structure of chromosomes with classification	K	KH	Y	LGT, Practical	Written	
AN73.2	Describe technique of karyotyping with its applications	K	KH	Y	LGT, Practical	Written	
AN73.3	Describe the Lyon's hypothesis	K	KH	Y	LGT, Practical	Written	
	Topic 74: Patterns of Inheritance	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN74.1	Describemendelian and non-mendelian inheritance. Explain various modes of inheritance with examples.	K	KH	Y	LGT, Practical	Written	
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	LGT, Practical	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN74.3	Describemultifactorial inheritance with examples	K	KH	Y	LGT, Practical	Written	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant	K	KH	N	LGT, Practical	Written	
Topic 75: Principles of Genetics, Chromosomal Aberrations & Clinical Genetics		**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN75.1	Describe the structural and numerical chromosomal aberrations	K	KH	Y	LGT, Practical	Written	
AN75.2	Explain the terms mosaics and chimeras with example	K	KH	N	LGT	Written	
AN75.3	Describe the genetic basis & clinical features of: Prader Willi syndrome, Edward syndrome, Patau syndrome, Down syndrome, Turner Syndrome & Klinefelter syndrome	K	KH	N	LGT	Written	
AN75.4	Describe genetic basis of variation: polymorphism and mutation	K	KH	Y	LGT	Written	
AN75.5	Describe in brief: genetic counseling, karyotyping, FISH, PCR and genetic sequencing	K	KH	Y	LGT	Written	
Topic 76: Introduction to embryology		**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN76.1	Describe the stages of human life	K	KH	Y	LGT	Written	
AN76.2	Explain the terms- phylogeny, ontogeny, trimester, viability	K	KH	Y	LGT	written	
Topic 77: Gametogenesis and fertilization		**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN77.1	Describe the uterine changes occurring during the menstrual cycle	K	KH	Y	LGT	Written	
AN77.2	Describe the synchrony between the ovarian and menstrual cycles	K	KH	Y	LGT	Written	
AN77.3	Describe spermatogenesis and oogenesis along with diagrams	K	KH	Y	LGT	Written	
AN77.4	Describe the stages and consequences of fertilisation	K	KH	Y	LGT	Written	
AN77.5	Describe the anatomical principles underlying contraception	K	KH	Y	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN77.6	Describe teratogenic influences: fertility and sterility, surrogate motherhood, social significance of “sex- ratio”.	K	KH	N	LGT	Written	
	Topic 78 : Second week of development	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN78.1	Describe cleavage and formation of blastocyst	K	KH	Y	LGT	Written	
AN78.2	Describe the development of trophoblast	K	KH	Y	LGT	Written	
AN78.3	Describe the process of implantation & common abnormal sites of implantation	K	KH	Y	LGT	Written	
AN78.4	Describe the formation of extra-embryonic mesoderm and coelom, bilaminar disc and prochordal plate	K	KH	Y	LGT	Written	
AN78.5	Describe abortion, decidual reaction, pregnancy test	K	KH	Y	LGT	Written	
	Topic 79: 3rd to 8th week of development	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN79.1	Describe the formation & fate of the primitive streak	K	KH	Y	LGT	Written	
AN79.2	Describe formation & fate of notochord	K	KH	Y	LGT	Written	
AN79.3	Describe the process of neurulation	K	KH	Y	LGT	Written	
AN79.4	Describe the development of somites and intra-embryonic coelom	K	KH	Y	LGT	Written	
AN79.5	Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects	K	KH	N	LGT	Written	
AN79.6	Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein	K	KH	N	LGT	Written	
	Topic 80: Fetal membranes	**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN80.1	Describe formation, functions & fate of chorion, amnion, yolk sac, allantois & decidua	K	KH	Y	LGT	Written	
AN80.2	Describe formation & structure of umbilical cord	K	KH	Y	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN80.3	Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier	K	KH	Y	LGT	Written	
AN80.4	Describe embryological basis of twinning in monozygotic & dizygotic twins	K	KH	Y	LGT	Written	
AN80.5	Describe role of placental hormones in uterine growth & parturition	K	KH	Y	LGT	Written	
AN80.6	Explain embryological basis of estimation of fetal age.	K	KH	N	LGT	Written	
AN80.7	Describe various types of umbilical cord attachments	K	KH	N	LGT	Written	
Topic 81: Prenatal Diagnosis		**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN81.1	Describe various invasive & non-invasive methods of prenatal diagnosis	K	KH	Y	LGT	Written	
AN81.2	Describe indications, process and disadvantages of amniocentesis	K	KH	Y	LGT	Written	
AN81.3	Describe indications, process and disadvantages of chorion villus biopsy	K	KH	Y	LGT	Written	
Topic 82: Ethics in Anatomy		**Number of Competencies (1)**			**Number of competencies for certification: (NIL)**		
AN 82.1	Demonstrate respect, and follow the correct procedure when handling cadavers and other biologic tissue	A	SH	Y	SGT	NIL	

PHYSIOLOGY (CODE: PY)

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PHYSIOLOGY (Topics = 12, Competencies = 136)							
	Topic 1: General Physiology	**Number of competencies: (7)**			**Number of competencies that require certification : (NIL)**		
PY1.1	Describe the structure and functions of a cell, intercellular communication and their applications in Clinical care and research	K	KH	Y	LGT	Written/Viva voce	
PY1.2	Discuss the principles of homeostasis and feedback mechanism	K	KH	Y	LGT	Written/Viva voce	
PY1.3	Describe apoptosis (programmed cell death) , explain its mechanism of action and physiological significance.	K	KH	Y	LGT SGT	Written/Viva voce	
PY1.4	Describe and discuss various transport mechanisms across cell membranes	K	KH	Y	LGT Student Seminar	Written/Viva voce/Assignments	
PY1.5	Describe the fluid compartments of the body, its ionic composition & measurement methods	K	KH	Y	LGT	Written/Viva voce	
PY1.6	Describe the concept of pH & Buffer systems in the body	K	KH	Y	LGT SGT	Written/Viva voce	
PY1.7	Describe the molecular basis of resting membrane potential (RMP) and generation of action potential in a nerve fibre	K	KH	Y	LGT SGT/Tutorial	Written/Viva voce	
	Topic 2: Haematology	**Number of competencies: (13)**			**Number of competencies that require certification : (01)**		
PY2.1	Describe the composition and functions of blood and its components	K	KH	Y	LGT SGT	Written/Viva voce	
PY2.2	Discuss the origin, forms, variations and functions of plasma proteins and its clinical implications	K	KH	Y	LGT SGT	Written/Viva voce	
PY2.3	Describe the physiological structure, synthesis , functions and breakdown of Hemoglobin. Discuss its variants and clinical significance.	K	KH	Y	LGT SGT	Written/Viva voce	
PY2.4	Describe Erythropoiesis & discuss its regulation in physiological and pathological situations	K	KH	Y	LGT SGT	Written/Viva voce	
PY2.5	Describe anaemias, polycythemia & jaundice and discuss its physiological principles of management	K	KH	Y	LGT SGT, Student Seminar, ECE	Written/Viva voce	
PY2.6	Describe the formation of WBC (Leucopoiesis), structure and function of various WBC types and their regulatory mechanisms	K	KH	Y	LGT SGT	Written/Viva voce	

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY2.7	Discuss 'Immunity' in terms of its types, development, regulation and physiological significance	K	KH	Y	LGT SGT/Tutorials	Written/Viva voce	
PY2.8	Describe the formation of platelets (thrombopoiesis), structure, functions and variations.	K	KH	Y	LGT SGT	Written/Viva voce	
PY2.9	Describe hemostasis, coagulation pathways, mechanism of action of anticoagulants and briefly discuss pathophysiological aspects of bleeding & clotting disorders (e.g. hemophilia, purpura)	K	KH	Y	LGT SGT, ECE- Visit to blood bank Flipped Classroom	Written/Viva voce	
PY2.10	Discuss types of blood groups, clinical importance of blood grouping, blood banking and transfusion	K	KH	Y	LGT SGT,ECE- Visit to blood bank	Written/Viva voce	
PY2.11	Estimate Hb, RBC, TLC, DLC, Blood groups, BT/CT, RBC indices	S	SH	Y	DOAPs	Practical/OSPE/Viva voce	01 EACH
PY2.12	Describe the test to measure Erythrocyte Sedimentation Rate (ESR), Osmotic fragility, Hematocrit, and interpret its findings	K	KH	Y	Demonstration	Written /Viva voce/OSPE (Question station)	
PY2.13	Describe steps for reticulocyte and platelet count	K	KH	Y	Demonstration	Written /Viva voce	
	Topic 3: Nerve and Muscle Physiology	**Number of competencies: (12)**			**Number of competencies that require certification : (01)**		
PY3.1	Describe the structure and functions of a neuron and neuroglia; Discuss nerve growth factors	K	KH	Y	LGT	Written/Viva voce	
PY3.2	Describe the types, functions, properties of nerve fibers including strength duration curve, chronaxie and rheobase	K	KH	Y	LGT	Written/Viva voce	
PY3.3	Classify nerve injury and discuss the mechanism of degeneration and regeneration in peripheral nerves	K	KH	Y	LGT	Written/Viva voce	
PY3.4	Describe the microscopic structure of neuro-muscular junction (NMJ) and mechanism of neuromuscular transmission	K	KH	Y	LGT SGT	Written/Viva voce	
PY3.5	Discuss the applied aspects of neuromuscular junction : myasthenia gravis, Lambert Eaton syndrome and neuromuscular blocking agents.	K	KH	Y	LGT SGT, ECE (classroom / hospital setting)	Written/Viva voce	
PY3.6	Describe the different types of muscle fibres, their structure and physiological basis of action potential	K	KH	Y	LGT	Written/Viva voce	

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY3.7	Describe properties, action potential and molecular basis of muscle contraction in skeletal muscle	K	KH	Y	LGT SGT Flipped Classroom	Written/Viva voce	
PY3.8	Describe properties, action potential and molecular basis of muscle contraction in smooth muscle	K	KH	Y	LGT SGT	Written/Viva voce	
PY3.9	Describe the mode of muscle contraction (isometric and isotonic), energy source, muscle metabolism and gradation of muscular activity	K	KH	Y	LGT	Written/Viva voce	
PY3.10	Enumerate and briefly discuss myopathies	K	KH	Y	LGT SGT	Written/Viva voce	
PY3.11	Perform Ergography and calculate the work done by a skeletal muscle	S	SH	Y	DOAPs	Practical/OSPE/Viva voce	01 EACH
PY3.12	Observe with Computer assisted learning (i) Amphibian nerve -muscle experiments (ii) Amphibian cardiac experiments	S	SH	Y	DOAPs	Practical/OSPE/Viva voce	
	Topic 4: Gastro-intestinal Physiology	**Number of competencies: (12)**			**Number of competencies that require certification : (01)**		
PY4.1	Describe the functional anatomy of digestive system	K	KH	Y	LGT SGT	Written/Viva voce	
PY4.2	Enumerate various Gastrointestinal hormones (GI) hormones, discuss their functions and regulation	K	KH	Y	LGT SGT	Written/Viva voce	
PY4.3	Describe the composition, mechanism of secretion, functions, and regulation of saliva	K	KH	Y	LGT SGT	Written/Viva voce	
PY4.4	Describe the composition, mechanism of secretion, functions, and regulation of gastric juice. Discuss various gastric function tests	K	KH	Y	LGT	Written/Viva voce	
PY4.5	Describe the composition, mechanism of secretion, functions, and regulation of pancreatic juice including various pancreatic exocrine function tests	K	KH	Y	LGT	Written/Viva voce	
PY4.6	Describe the composition, mechanism of secretion, functions, and regulation of intestinal juices	K	KH	Y	LGT	Written/Viva voce	
PY4.7	Describe the physiology of digestion and absorption of nutrients	K	KH	Y	LGT SGT	Written/Viva voce	
PY4.8	Describe GIT movements, its regulation and physiological significance including defecation reflex and the role of dietary fibres	K	KH	Y	LGT SGT Flipped Classroom	Written/Viva voce	

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY4.9	Describe the structure , functions and secretion of liver and gallbladder with elaboration of various liver function tests	K	KH	Y	LGT SGT	Written/Viva voce	
PY4.10	Describe the Gut-Brain Axis and its physiological significance	K	KH	Y	LGT SGT,	Written/Viva voce	
PY4.11	Discuss (in brief) the applied physiology of GIT viz. Peptic ulcer, gastroesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	K	KH	Y	LGT SGT, ECE, SDL	Written/Viva voce	
PY4.12	Obtain relevant history and conduct correct General and Clinical examination of the abdomen in a normal volunteer or simulated environment	S,A,C	SH	Y	DOAP (Simulation or real life setting)	Skill assessment/ Viva voce/OSCE	1
Topic 5: Cardiovascular Physiology		**Number of competencies: (16)**			**Number of competencies that require certification : (03)**		
PY5.1	Describe the functional anatomy of heart including chambers and coronary circulation	K	KH	Y	LGT	Written/Viva voce	
PY5.2	Describe the properties of cardiac muscle including its morphology, electrical, mechanical and metabolic functions	K	KH	Y	LGT SGT	Written/Viva voce	
PY5.3	Describe generation and conduction of cardiac impulse along with the conduction pathway (including pacemaker potential).	K	KH	Y	LGT SGT	Written/Viva voce	
PY5.4	Discuss the physiological events occurring during the cardiac cycle, concurrent pressure volume changes, generation of heart sounds and murmur	K	KH	Y	LGT SGT Flipped Classroom	Written/Viva voce	
PY5.5	Describe the physiology of electrocardiogram (E.C.G), the cardiac axis and its applications	K	KH	Y	LGT SGT, ECE	Written/Viva voce/OSCE (Question station)	
PY5.6	Discuss physiological variations in ECG waveforms, abnormal waveforms and intervals , arrhythmias, heart blocks and myocardial Infarction	K	KH	Y	LGT SGT/Student seminars/ECE	Written/Viva voce	
PY5.7	Discuss haemodynamics of circulatory system	K	KH	Y	LGT SGT/Tutorials	Written/Viva voce	
PY5.8	Describe and discuss local and systemic cardiovascular regulatory mechanisms	K	KH	Y	LGT SGT	Written/Viva voce	
PY5.9	Describe heart rate, factors affecting heart rate, and its regulation	K	KH	Y	LGT SGT	Written/Viva voce	

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY5.10	Describe cardiac output, factors affecting cardiac output and its regulation.	K	KH	Y	LGT SGT	Written/Viva voce	
PY5.11	Describe blood pressure, factors affecting blood pressure and its regulation	K	KH	Y	LGT SGT/Student seminars	Written/Viva voce	
PY5.12	Describe & discuss regional circulation including microcirculation, lymphatic circulation, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation	K	KH	Y	LGT SGT	Written/Viva voce	
PY5.13	Describe the patho-physiology of shock, syncope heart failure with physiological basis of its management	K	KH	Y	LGT SGT / Student seminars	Written/Viva voce	
PY5.14	Record blood pressure & pulse at rest and in different grades of exercise and postures in a volunteer or simulated environment	S	SH	Y	DOAPs (Simulation or real life setting)	Practical/OSPE/ Viva voce	3
PY5.15	Record and interpret normal ECG in a volunteer or simulated environment	S	SH	Y	DOAPs (Simulation or real life setting)	Practical/OSPE/ Viva voce	1
PY5.16	Obtain relevant history and conduct General and Clinical examination of the cardiovascular system in a normal volunteer or simulated environment	S,A,C	SH	Y	DOAPs	Skill assessment/ Viva voce/OSCE	1
Topic 6: Respiratory Physiology		**Number of competencies: (13)**			**Number of competencies that require certification : (02)**		
PY6.1	Describe the functional anatomy of respiratory tract and non-respiratory functions of lungs	K	KH	Y	LGT SGT	Written/Viva voce	
PY6.2	Describe the mechanics of normal respiration, pressure changes during ventilation, lung volume and capacities (Static and Dynamic)	K	KH	Y	LGT SGT	Written/Viva voce	
PY6.3	Describe the alveolar surface tension, compliance, airway resistance, ventilation, V/P ratio, diffusion capacity of lungs	K	KH	Y	LGT SGT	Written/Viva voce	
PY6.4	Discuss the transport of respiratory gases viz Oxygen and Carbon dioxide across lungs and whole body	K	KH	Y	LGT	Written/Viva voce	
PY6.5	Describe the chemoreceptors (peripheral and central) and neural centres of respiration including chemical and neural regulation of respiration	K	KH	Y	LGT	Written/Viva voce	

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY6.6	Describe and discuss the pathophysiology of dyspnoea, hypoxia, cyanosis, asphyxia, drowning, periodic breathing and oxygen therapy	K	KH	Y	LGT SGT	Written/Viva voce	
PY6.7	Discuss various lung function tests and their clinical significance in obstructive and restrictive lung diseases	K	KH	Y	LGT SGT, Tutorials Flipped Classroom	Written/Viva voce	
PY6.8	Discuss the physiology of high altitude and acclimatization	K	KH	Y	LGT	Written/Viva voce	
PY6.9	Discuss the physiology of deep sea diving and decompression sickness	K	KH	Y	LGT	Written/Viva voce	
PY6.10	Perform Spirometry and interpret the findings (Digital / Manual)	S	P	Y	DOAPs	Skill assessment/ Viva voce/OSCE	1
PY6.11	Describe principles and methods of artificial respiration	S	SH	Y	DOAPs	Practical/OSPE/ Viva voce	
PY6.12	Obtain relevant history and conduct correct General and Clinical examination of the respiratory system in a normal volunteer or simulated environment	S,A,C	SH	Y	DOAPs	Practical/OSPE/ Viva voce	1
PY6.13	Demonstrate the correct technique to perform measurement of peak expiratory flow rate in a normal volunteer or simulated environment	S	SH	Y	DOAPs	Practical/OSPE/ Viva voce	
Topic 7: Renal Physiology		**Number of competencies: (9)**			**Number of competencies that require certification : (NIL)**		
PY7.1	Describe the functional anatomy of kidney and non-excretory functions of kidney	K	KH	Y	LGT SGT	Written/Viva voce	
PY7.2	Describe the structure and functions of juxta glomerular apparatus and role of renin-angiotensin system	K	KH	Y	LGT	Written/Viva voce	
PY7.3	Describe the mechanism of urine formation involving processes of filtration (Glomerular filtration), tubular reabsorption & secretion.	K	KH	Y	LGT SGT, Student Seminar	Written/Viva voce	
PY7.4	Describe the mechanism of urine concentration and dilution (Counter current Multiplier & Exchanger)	K	KH	Y	LGT SGT Flipped Classroom	Written/Viva voce	
PY7.5	Describe the renal regulation of fluid and electrolytes & acid-base balance	K	KH	Y	LGT SGT	Written/Viva voce	
PY7.6	Describe the innervations of urinary bladder, physiology of micturition and its abnormalities	K	KH	Y	LGT SGT	Written/Viva voce	

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY7.7	Describe cystometry and discuss the normal cystometrogram	K	KH	Y	LGT SGT	Written/Viva voce	
PY7.8	Discuss various Renal Function Tests with its physiological significance and clinical implication of Renal clearance	K	KH	Y	LGT SGT, ECE (classroom / hospital setting)	Written/Viva voce	
PY7.9	Discuss the role of artificial kidneys, dialysis and indications of renal transplant	K	KH	Y	LGT	Viva voce	
Topic 8: Endocrine Physiology		**Number of competencies: (7)**			**Number of competencies that require certification : (NIL)**		
PY8.1	Describe the functional anatomy of endocrine glands, mechanism of hormonal action (steroid and peptide) and hypothalamus pituitary axis {HPA}	K	KH	Y	LGT Flipped Classroom	Written/Viva voce	
PY8.2	Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of pituitary gland	K	KH	Y	LGT SGT	Written/Viva voce	
PY8.3	Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of thyroid gland including thyroid function tests	K	KH	Y	LGT SGT, ECE	Written/Viva voce	
PY8.4	Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of adrenal gland and its function tests	K	KH	Y	LGT SGT	Written/Viva voce	
PY8.5	Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of parathyroid gland with emphasis of physiology of bone and calcium metabolism	K	KH	Y	LGT SGT/Tutorials	Written/Viva voce	
PY8.6	Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of pancreatic gland including pancreatic function tests	K	KH	Y	LGT SGT	Written/Viva voce	
PY8.7	Describe the physiology of Thymus & Pineal Gland	K	KH	Y	LGT	Written/Viva voce	
Topic 9: Reproductive Physiology		**Number of competencies: (10)**			**Number of competencies that require certification : (NIL)**		

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY9.1	Explain sex determination, sex differentiation and their abnormalities and discuss the effects of removal of gonads on physiological functions	K	KH	Y	LGT SGT	Written/Viva voce	
PY9.2	Describe and discuss puberty: onset, progression, stages; early and delayed puberty.	K	KH	Y	LGT SGT	Written/Viva voce	
PY9.3	Describe the functional anatomy of male reproductive system, functions of testis, spermatogenesis and discuss the functions and regulations of testosterone hormone	K	KH	Y	LGT SGT	OSPE/Viva voce	
PY9.4	Describe the functional anatomy of female reproductive system: functions of ovary and its hormones (estrogen and progesterone) ; hormonal regulation by hypothalamic pituitary gonadal (HPG axis)	K	KH	Y	LGT SGT , Student Seminar	Written/Viva voce	
PY9.5	Discuss the menstrual cycle, uterine and ovarian changes, hormonal regulation and its implications in reproductive physiology	K	KH	Y	LGT SGT, ECE	Written/Viva voce	
PY9.6	Enumerate male and female contraceptive methods, rationale of its prescription, side effects and its advantages & disadvantages	K	KH	Y	LGT SGT, ECE,SDL	Written/Viva voce	
PY9.7	Discuss the physiology of pregnancy, parturition & lactation.	K	KH	Y	LGT SGT, Flipped Classroom	Written/Viva voce	
PY9.8	Discuss the physiological basis of various pregnancy tests	K	KH	Y	LGT SGT	Written/Viva voce	
PY9.9	Discuss the hormonal changes and their effects during perimenopause and menopause	K	KH	Y	LGT SGT	Written/Viva voce	
PY9.10	Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility	K	KH	Y	LGT SGT, visit to IVF lab	Written/Viva voce	
	Topic 10: Central Nervous System Physiology	**Number of competencies: (20)**			**Number of competencies that require certification : (02)**		
PY10.1	Describe and discuss the functional organization of central nervous system (brain and spinal cord)	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.2	Describe the functional anatomy of peripheral nervous system (including autonomic nervous system)	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.3	Classify the neurotransmitters and discuss the chemical transmission in the nervous system.	K	KH	Y	LGT SGT	Written/Viva voce	

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY10.4	Discuss the classification, functions and properties of synapse	K	KH	Y	LGT SGT ,Student Seminar	Written/Viva voce	
PY10.5	Discuss the classification, functions and properties of reflex	K	KH	Y	LGT SGT, Student Seminar	Written/Viva voce	
PY10.6	Discuss the classification, functions and properties of receptors	K	KH	Y	LGT SGT , Student Seminar	Written/Viva voce	
PY10.7	Discuss somatic sensations, ascending tracts, (sensory tracts) and applied aspects of sensory system	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.8	Discuss Physiology of pain including pain pathways and its modulation with special emphasis on gate control theory of pain	K	KH	Y	LGT SGT, visit to pain clinic	Written/Viva voce	
PY10.9	Describe the course of descending tracts (pyramidal and extra pyramidal), its clinical implications including difference in Upper motor neuron (UMN)and lower motor neuron (LMN) lesions	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.10	Discuss types and clinical features of spinal cord lesions (complete, incomplete transection and hemisection - Brown Sequard syndrome)	K	KH	Y	LGT SGT, Tutorials, ECE	Written/Viva voce	
PY10.11	Describe functional anatomy of cerebellum, its connections, functions and clinical abnormalities .	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.12	Discuss functional anatomy of basal ganglia , its connections, functions and Clinical abnormalities .	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.13	Discuss the mechanism of maintenance of tone, posture and control of body movements	K	KH	Y	LGT SGT Flipped Classroom	Written/Viva voce	
PY10.14	Discuss functional anatomy of thalamus , its connections, functions and clinical abnormalities .	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.15	Discuss functional anatomy of hypothalamus and limbic system , its connections, functions and clinical abnormalities .	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.16	Discuss functional anatomy of cerebral cortex, its connections, functions and Clinical abnormalities	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.17	Discuss the structure and functions of reticular activating system, sleep physiology and EEG waveforms during sleep wake cycle	K	KH	Y	LGT SGT, visit to sleep lab	Written/Viva voce	

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY10.18	Discuss the physiological basis of memory, learning and speech and clinical alterations in speech	K	KH	Y	LGT SGT	Written/Viva voce	
PY10.19	Obtain relevant history and conduct correct General and Clinical examination of the nervous system: Higher functions, sensory system, motor system, reflexes in a normal volunteer or simulated environment	S	SH	Y	DOAPs	Skill assessment/ Viva voce/OSCE	4 (each)
PY10.20	Obtain relevant history and conduct correct General and Clinical examination of the cranial nerves in a normal volunteer or simulated environment	S	P	Y	DOAPs	OSCE/Viva voce	1 (each)
	Topic 11: Special Senses	**Number of competencies: (7)**			**Number of competencies that require certification : (NIL)**		
PY11.1	Describe and discuss physiology of smell and its applied aspects	K	KH	Y	LGT SGT	Written/Viva voce	
PY11.2	Describe and discuss physiology of taste sensation and applied aspects	K	KH	Y	LGT SGT	Written/Viva voce	
PY11.3	Describe and discuss functional anatomy of ear and auditory pathways, vestibular apparatus and equilibrium	K	KH	Y	LGT SGT	Written/Viva voce	
PY11.4	Discuss physiology of hearing, pathophysiology of deafness and hearing tests	K	KH	Y	LGT SGT	Written/Viva voce	
PY11.5	Discuss functional anatomy of eye, visual pathway, light and pupillary reflex and clinical implication of lesions in visual pathway	K	KH	Y	LGT SGT	Written/Viva voce	
PY11.6	Discuss physiology of image formation, refractive errors and physiological principles of its management	K S	P	Y	LGT SGT ECE	Written/Viva voce	
PY11.7	Discuss physiology of vision including colour vision and colour blindness	K	KH	Y	LGT SGT Flipped Classroom	Written/Viva voce	
	Topic 12: Integrated Physiology	**Number of competencies: (10)**			**Number of competencies that require certification : (NIL)**		
PY12.1	Describe physiological mechanism of temperature regulation	K	KH	Y	LGT SGT	Written/Viva voce	
PY12.2	Discuss adaptation to altered temperature (heat and cold) and mechanism of fever, cold injuries and heat stroke	K	KH	Y	LGT SGT	Written/Viva voce	
PY12.3	Discuss cardio-respiratory and metabolic adjustments during exercise (isometric and isotonic), effects of physical training under different environmental conditions (heat and cold)	K	KH	Y	LGT SGT	Written/Viva voce	

Number	COMPETENCY The student should be able to:	Predominant Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PY12.4	Discuss physiological consequences of sedentary lifestyle; metabolic and endocrinal consequences of obesity & metabolic syndrome.	K	KH	Y	LGT SGT	Written/Viva voce	
PY12.5	Describe physiology of Infancy, Interpret growth charts and anthropometric assessment of infants	K	KH	Y	LGT SGT, ECE	Written/Viva voce	
PY12.6	Describe and discuss physiology of aging, role of free radicals and antioxidants	K	KH	Y	LGT SGT	Written/Viva voce	
PY12.7	Discuss the concept, criteria for diagnosis of Brain death and its implications	K	KH	Y	Small group teaching	Practical/OSPE/ Viva voce	
PY12.8	Discuss the physiology of yoga and meditation	K	KH	Y	Small group teaching	Practical/OSPE/ Viva voce	
PY12.9	Obtain history and perform general examination in the volunteer / simulated environment	S	SH	Y	DOAPs	Skill assessment/ Viva voce/OSCE	
PY12.10	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAPs, Simulation lab (Simulation or real life setting)	Skill assessment/ Viva voce/OSCE	

BIOCHEMISTRY (CODE: BC)

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Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
BIOCHEMISTRY (Topics = 14, Competencies = 84)							
	Topic 1: Basic Biochemistry	**Number of competencies:(01)**			**Number of competencies that require certification:(NIL)**		
BC1.1	Describe the molecular and functional organization of a cell and its sub-cellular components and composition and functions of Biological membranes.	K	KH	Y	LGT, SGT / **SDL**	Written assessment/ Viva voce	
	Topic 2: Enzyme	**Number of competencies:(05)**			**Number of competencies that require certification:(NIL)**		
BC2.1	Explain fundamental concepts of enzyme, isoenzyme and coenzyme. Enumerate the main classes of IUBMB nomenclature.	K	KH	Y	LGT, **SGT**	Written assessment / Viva voce	
BC2.2	Describe and explain the basic principles of enzyme activity	K	KH	Y	LGT, **SGT**	Written assessment / Viva voce	
BC2.3	Describe and discuss enzyme Inhibition and role of enzymes or drugs as Inhibitors, and enzymes as therapeutic agents.	K	KH	Y	LGT, Casediscussion SGT	Written assessment / Viva voce	
BC2.4	Describe and discuss the clinical utility of various serum enzymes in laboratory and their use as markers of various pathological conditions.	K	KH	Y	LGT, SGT, Flipped class room	Written assessment / Viva voce	
BC2.5	Interpret laboratory results of enzymes in various disorders.	K	KH	Y	SGT, DOAPs, Case Studies	Written assessment/ Viva voce/ Case studies, OSPE	
	Topic 3: Chemistry and Metabolism of Carbohydrates	**Number of competencies:(06)**			**Number of competencies that require certification:(NIL)**		

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
BC3.1	Discuss and differentiate monosaccharides, di-saccharides and polysaccharides with examples, their importance as energy fuel, structural element, and storage molecule in human body.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC3.2	Describe the digestion, absorption and transport of carbohydrates from food along with its disorders.	K	KH	Y	LGT, SGT, SDL	Written/Viva-voce	
BC3.3	Define and briefly describe the pathways of carbohydrate metabolism and their regulation (glycolysis, gluconeogenesis, TCA, and significance of glycogen metabolism and HMP shunt), with associated disorders.	K	KH	Y	LGT, SGT, Flipped class room	Written/Viva voce	
BC3.4	Describe and discuss the regulation, functions and integration of minor Carbohydrate Metabolism pathway briefly along with associated diseases /disorders.	K	KH	Y	LGT, SGT	Written/Viva-voce	
BC3.5	Discuss the mechanism and significance of blood glucose regulation (Glucose homeostasis) in health and disease. Describe the types, Biochemical changes, complications and laboratory investigations related to diabetes & other carbohydrate metal disorders.	K	KH	Y	LGT, SGT, Flipped class room	Written/Viva voce	
BC3.6	Interpret the results of analytes associated with metabolism of carbohydrates and other laboratory investigations related to disorders of carbohydrate metabolism.	K	KH	Y	LGT, SGT Case Studies / SDL, Flipped class room	Written/ Viva voce/ Case Studies /OSPE	
Topic 4 : Chemistry and Metabolism of Lipids		**Number of competencies: (08)**			**Number of competencies that require certification:(NIL)**		
BC4.1	Describe and discuss main classes of lipids and their functions.	K	KH	Y	LGT, SGT /SDL	Written/Viva voce	
BC4.2	Describe the digestion and absorption of dietary lipids and its (associated disorders.	K	KH	Y	LGT, SGT /SDL	Written /Viva voce	
BC4.3	Describe and discuss the fatty acid oxidation, metabolism of ketone bodies along with their clinical significance.	K	KH	Y	LGT, SGT	Written /Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
BC4.4	Describe metabolism of Triglycerides and cholesterol metabolism along with its regulation and clinical significance.	K	KH	Y	LGT, SGT	Written /Viva voce	
BC4.5	Describe the metabolism of lipoproteins with brief overview of lipoprotein structure, their interrelations & relations with atherosclerosis.	K	KH	Y	LGT, SGT	Written /Viva voce	
BC4.6	Discuss Biological role and therapeutic applications of Eicosanoids and their Inhibitors.	K	KH	Y	LGT, SGT, Flipped class room	Written /Viva voce	
BC4.7	Describe Fatty liver, cholelithiasis and obesity.	K	KH	Y	LGT, SGT, Case Studies/Scenarios/SDL	Written /Viva voce	
BC4.8	Interpret laboratory results of analytes associated with metabolism of lipids	K	KH	Y	LGT, SGT, case studies, Flipped class room	Written/Viva voce/ case studies/OSPE	
Topic 5: Chemistry & Metabolism of Proteins and Immunology		**Number of competencies:(09)**			**Number of competencies that require certification:(NIL)**		
BC5.1	Discuss briefly structure of amino acids and classify amino acids on the basis of Nutritional and Metabolic significance.	K	KH	Y	LGT, SGT/SDL	Written / Viva voce	
BC5.2	Discuss classification of proteins, structural organization, functions and clinical aspects.	K	KH	Y	LGT, SGT	Written / Viva voce	
BC 5.3	Describe the digestion and absorption of dietary proteins	K	KH	Y	LGT, SGT / SDL	Written / Viva voce	
BC 5.4	Describe plasma proteins and their functions and brief overview of normal and abnormal electrophoretic pattern of serum proteins, acute phase proteins.	K	KH	Y	LGT, SGT	Written / Viva voce	
BC 5.5	Describe the structure, functions and disorders of Immunoglobulins with brief description of cellular and humoral Immunity.	K	KH	Y	LGT, SGT	Written / Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
BC 5.6	Describe the formation, transport, detoxification of Ammonia, Ammonia toxicity and its clinical significance.	K	KH	Y	LGT, SGT	Written / Viva voce	
BC 5.7	Describe the specialized products formed from the amino acids Glycine, Phenylalanine, Tyrosine, Tryptophan, and Methionine, branched chain amino acids and Arginine and the inborn errors associated with them. Discuss new-born screening.	K/S	KH/SH	Y	LGT, SGT	Written / Viva voce	
BC5.8	Describe the structure and functions of haem in the body and describe the processes involved in its metabolism with emphasis on jaundice and describe porphyrin metabolism.	K	KH	Y	LGT, SGT	Written / Viva voce	
BC5.9	Describe the major types of Hemoglobin and its types, derivatives & variants found in the body and their physiological / pathological relevance	K	KH	Y	LGT, SGT	Written / Viva voce	
Topic 6: Extracellular Matrix		**Number of competencies: (03)**			**Number of competencies that require certification: (NIL)**		
BC6.1	Enumerate the functions and components of the extracellular matrix (ECM).	K	KH	Y	LGT, SGT	Written/Viva voce	
BC6.2	Discuss the involvement of ECM components in health and disease.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC6.3	Describe protein targeting & sorting along with its associated disorders.	K	KH	N	LGT, SGT	Written/Viva voce	
Topic 7: **Integration of Metabolism and Biological Oxidation**		**Number of competencies: (02)**			**Number of competencies that require certification: (NIL)**		
BC7.1	Describe the integration of various metabolic processes in the body (Carbohydrate, Lipid, and Protein).	K	KH	Y	LGT, SGT	Written/viva voce	
BC7.2	Describe the Biochemical processes involved in generation of energy in cells.	K	KH	Y	LGT, SGT	Written/Viva voce	
Topic 8: Vitamins and Nutrition		**Number of competencies: (06)**			**Number of competencies that require certification: (NIL)**		

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
BC8.1	Describe the Biochemical role of vitamins in the body and explain the manifestations of their deficiency	K	KH	Y	LGT, SGT	Written/Viva voce	
BC8.2	Discuss the importance of various dietary components and explain importance of dietary fibre.	K	KH	Y	LGT, SGT, SDL	Written/Viva voce	
BC8.3	Describe the types and causes of protein energy malnutrition and its effects.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC8.4	Provide dietary advice for optimal health in childhood and adult in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy.	K/S/C	KH	Y	LGT, SGT / role play	Written/Viva voce	
BC8.5	Describe the causes (including dietary habits), effects and health risks associated with being overweight/ obese / metabolic syndrome	K	KH	Y	LGT, SGT	Written/Viva voce	
BC8.6	Summarize the nutritional importance of commonly used items of food including fruits and vegetables (macro-molecules & its importance).	K	KH	Y	LGT, SGT, Home assignment	Written/Viva voce	
Topic 9: Minerals, electrolytes, Water and Acid base balance		**Number of competencies: (03)**			**Number of competencies that require certification: (NIL)**		
BC9.1	Describe the dietary sources, absorption, transport, and metabolism, Biochemical functions of Iron, Calcium and copper with its associated clinical disorders.	K	KH	Y	LGT, SGT, Home Assignment, Flipped class room	Written/Viva voce	
BC9.2	Discuss Magnesium, Zinc and Phosphorus along with its clinical significance and discuss the functions of trace elements	K	KH	Y	LGT, SGT, Home Assignment. / SDL	Written/Viva voce	
BC9.3	Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with them	K	KH	Y	LGT, SGT / SDL	Written/Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
Topic 10: Molecular Biology		**Number of competencies:(07)**			**Number of competencies that require certification:(NIL)**		
BC10.1	Describe nucleotides and nucleic acids and their clinical significance.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC10.2	Describe briefly synthesis of purines in the body with special stress on salvage pathway.	K	KH	N	LGT, SGT /SDL	Written/Viva voce	
BC10.3	Describe the degradation of purines and its significance with associated disorders.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC10.4	Describe in brief the major steps involved in Replication, Transcription, and translation.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC 10.5	Describe the types of DNA repair, gene mutations and associated disorders.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC10.6	Describe basic mechanism of regulation of gene expression	K	KH	Y	LGT, SGT /SDL	Written/Viva voce	
BC10.7	Describe applications of molecular technologies like recombinant DNA technology and PCR in the diagnosis and treatment of diseases. Briefly discuss microarray, FISH, CRISPR	K	KH	Y	LGT, SGT, Flipped class room	Written/Viva voce	
Topic 11: Organ Function tests and Hormones		**Number of competencies:(02)**			**Number of competencies that require certification:(NIL)**		
BC 11.1	Describe the function tests of kidney, liver, thyroid and adrenal glands and their clinical significance. Interpret the function tests report.	K,S	KH/SH	Y	LGT, SGT, Case studies / SDL	Written/Viva voce/Case studies/OSPE	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
BC11.2	Enumerate the hormones and markers related to reproduction and reproductive health and their clinical interpretation (For e.g. LH, FSH, Prolactin, beta-HCG, Estrogen Progesterone, testosterone and AMH. Discuss importance of prenatal screening.	K	KH	Y	LGT, SGT / SDL, Flipped class room	Written/Viva voce/Direct observation/ OSPE	
Topic 12: Xenobiotic, oxidative stress and antioxidants		**Number of competencies:(03)**			**Number of competencies that require certification:(NIL)**		
BC12.1	Describe the role of xenobiotics in disease in health and disease	K	KH	Y	LGT, SGT	Written/Viva voce	
BC12.2	Describe the anti-oxidant defense systems in the body.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC12.3	Describe the role of oxidative stress in the pathogenesis of conditions such as cancer, complications of diabetes mellitus and atherosclerosis	K	KH	Y	LGT, SGT / SDL	Written/Viva voce	
Topic 13: Miscellaneous		**Number of competencies:(05)**			**Number of competencies that require certification:(NIL)**		
BC 13.1	Describe oncogenesis, oncogenes & its activation with focus on p53 & apoptosis.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC 13.2	Describe various Biochemical tumor markers and the Biochemical basis of cancer therapy.	K	KH	Y	LGT, SGT	Written/Viva voce	
BC13.3	Discuss briefly on HIV and Biochemical changes in AIDS.	K	KH	N	LGT, SGT	Written/Viva voce	
BC13.4	Discuss metabolism of alcohol with Biochemical changes and effects of chronic alcoholism.	K	KH	Y	LGT, SGT, SDL	Written/Viva voce	
BC13.5	Describe the role of Artificial Intelligence in clinical Biochemistry laboratory practices.	K	KH	N	LGT, SGT / SDL	Written/ Viva voce Logbook Record	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
Topic 14: Biochemical Laboratory test / Practical Number of competencies: (24) Number of competencies that require certification : (11)							
14.1	Describe commonly used laboratory apparatus equipments, good / safe laboratory practice, Biomedical hazards & waste management.	K	KH	Y	LGT, SGT	Written/ Viva voce/ Direct observation	
BC14.2	Describe estimation of pH by pH meter or ABG analyser and interpretation of results with paper case scenarios.	K	KH	Y	LGT, SGT / Case discussion	Written/ Viva voce Direct observation/ OSPE	
BC14.3	Describe the physical properties, chemical constituents of normal urine and abnormal constituents of urine and Perform urine analysis to determine normal and abnormal constituents (including dipsticks method demonstration).	K,S	KH/P	Y	LGT, Small group Discussion / DOAP	Written/ Viva voce / DOAP	2
BC14.4	Identify abnormal constituents in urine, interpret the findings and correlate these with pathological states and prepare a urine report.	S	P	Y	DOAPs	Skill assessment / OSPE	1
BC14.5	Describe screening of urine for inborn errors & describe the use of paper chromatography	K	KH	Y	LGT, SGT	Written/ Viva voce/ Direct observation/ OSPE	
BC14.6	Describe the principles of Colorimetry & Spectrophotometry.	K	KH	Y	LGT, SGT	Written / Viva voce / Direct observation	
BC14.7	Perform estimation of glucose by manual / semi-automated analyzer method and demonstrate glucometer usage. and interpretation of results with clinical scenarios.	S	P	Y	DOAPs	Skill Assessment OSPE	1
BC14.8	Perform estimation of urea and calculate BUN and interpretation of results in clinical scenarios.	S	P	Y	DOAPs	Skill Assessment OSPE	1

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
BC14.9	Perform the estimation of serum creatinine and calculate creatinine clearance.	S	P	Y	DOAP	Skill Assessment OSPE	1
BC14.10	Perform estimation of uric acid in serum and interpretation of results with clinical scenarios.	S	P	Y	DOAPs	Skill Assessment OSPE	1
BC14.11	Perform estimation of serum proteins, albumin and A:G ratio	S	P	Y	DOAPs	Skill Assessment OSPE	1
BC14.12	Perform the estimation of serum total cholesterol	S	P	Y	DOAPs	Skill Assessment OSPE	1
BC14.13	Perform the estimation of serum Bilirubin by manual / semi-automated analyzer method.	S	P	Y	DOAP	Skills assessment / OSPE	1
BC14.14	Describe estimation of calcium and phosphorus and interpretation of results.	K	KH	Y	LGT, SGT, Demonstration	Written / Viva voce	
BC14.15	Describe the estimation Triglycerides, HDL and calculation of LDL and interpretation of results with clinical scenarios.	K	KH	Y	LGT, SGT	Written / Viva voce / OSPE (LDL Calculate)	
BC14.16	Describe the estimation of SGOT (AST) / SGPT (ALT) / Alkaline Phosphatase and interpretation of results with clinical scenarios.	K	KH	Y	LGT, SGT	Written/ Viva voce	
BC14.17	Describe briefly various body fluids & discuss the composition of CSF.	K	KH	Y	LGT, SGT	Written/ Viva voce	
BC14.18	Observe use of commonly used equipments/techniques in Biochemistry laboratory including: • pH meter • Paper chromatography of amino acid • Protein electrophoresis	K	KH	Y	Demonstration (SGT) & Lab Visit	Written/ Viva voce / Direct observation	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
	• TLC, PAGE • Electrolyte analysis by ISE • ABG analyzer • ELISA • Immunodiffusion • Autoanalyser • DNA isolation from blood/ tissue						
BC14.19	Explain the basis and rationale of Biochemical tests done and interpretation of laboratory results in the following conditions: - Diabetes mellitus, - Obesity, - dyslipidaemia, - Fatty liver - myocardial infarction, - Renal failure, - Gout, - Nephrotic syndrome, - Jaundice, - Liver diseases, pancreatitis, disorders of acid- base balance, - Thyroid disorders, - Genetic disorders - Nutritional disorders - Vitamin deficiency disorders, - Disorders of Mineral metabolism, - Disorders of electrolyte metabolism.	K	KH	Y	LGT/ Clinical case studies discussion (SGT)	Written/ Viva voce / OSPE / Case studies interpretation	
BC14.20	Describe & Identify Pre-Analytical (especially order of draw, tourniquet technique), Analytical, Post Analytical errors.	S	SH	Y	LGT, SGT DOAP(clinical lab), Skill lab	Written/ Viva voce/ OSPE/ Direct observation/ OSPE	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
BC14.21	Describe Quality control and identify basic L J charts in Clinical biochemistry lab.	S	SH	Y	LGT / SGT / DOAP (clinical lab)	Written/ Viva voce/ OSPE/ Direct observation/ OSPE	1
BC14.22	Describe performance of OGTT, Glucose Challenge Test and HbA1c and interpretation of results with clinical scenarios.	K	KH	Y	LGT, SGT	Written/ Viva voce/ OSPE /Direct observation/ Case studies interpretation.	
BC14.23	Calculate energy content of different food Items, identify food items with high and low glycaemic index and explain the importance of these in the diet.	K	KH	Y	LGT, SGT	Written/ Viva voce	
BC 14.24	Observe, Interpret and discuss the baseline, diagnostic, prognostic, and discharge investigations of clinical biochemistry.	K,A,S,C	SH	Y	ECE-SGT(Bedside/ Ward visit/ Medical record department	Logbook, reflections	

PHARMACOLOGY (CODE: PH)

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PHARMACOLOGY (Topics = 10, Competencies = 92)							
Topic 1: General Pharmacology (GP)		**Number of competencies: (13)**			**Number of competencies that require certification : (04)**		
PH1.1	Describe the principles of pharmacology, pharmacotherapeutics and define various terms in pharmacology.	K	KH	Y	LGT/ SGT	Written, Tutorial	
PH1.2	Describe evidence based medicine and rational use of drugs & discuss why these are relevant to therapeutics.	K	KH	Y	LGT/ SGT	Written, Tutorial	
PH1.3	Describe nomenclature of drugs i.e., generic, branded drugs and scheduled drugs, explaining the utility of the nomenclature, cost effectiveness and use.	K	KH	Y	LGT/ Practical	Written, Tutorial	
PH1.4	Identify the common drug formulations and drug delivery systems, demonstrate their use and describe their advantages and disadvantages.	K,S,A,C	KH, SH	Y	SGT, DOAP, role plays/ Simulations (mannequins, hybrid, computer)	Written/ Viva voce / Tutorial /OSPE/ direct observation	1
PH1.5	Describe various routes of drug administration, their advantages and disadvantages and demonstrate administration of, e.g., SC, IV, IM, SL, rectal, spinal, sublingual, intranasal sprays and inhalers	K, S,A,C	KH, SH	Y	SGT, videos, DOAP, simulations, hybrid models	Written/ Viva voce/Tutorial/ OSPE	2
PH1.6	Describe salient features of absorption, distribution, metabolism and excretion of drugs with emphasis on various routes of drug administration	K	KH	Y	LGT/ SGT, CBL, Simulations, practical exercises, Graphs, Flipped class room	Written/ Tutorial	
PH1.7	Describe various principles of mechanism of action of drugs	K	KH	Y	LGT, Small Group discussion, Demonstration	Written/ Viva voce/ OSPE	
PH1.8	Demonstrate the mechanism of action & effects of common prototype drugs on human body using computer assisted learning	S,K	KH/SH	Y	Animations, videos	OSPE	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PH 1.9	Select rational drug combinations based on the pharmacokinetics/pharmacodynamic (PK/PD) parameters with emphasis on synergism, antagonism, 'therapeutic efficacy', risk benefit ratio	K	KH,SH	Y	LGT, SGT, demonstrations, CBL, Flipped class room	Written, OSPE, Viva voce/Tutorial	
PH1.10	Describe changes in pharmacology of drugs in geriatric, pediatric and special situations such as Pregnancy, lactation, hepatic and renal disorders and adjust the drug treatment accordingly.	K, S, A	KH, SH	Y	LGT, CBL/ PBL	Written/ Tutorial, OSPE	
PH 1.11	Define Adverse Drug Reactions (ADRs) & their types. Identify the ADRs in the given case scenario and assess causality.	K	KH, SH	Y	LGT, SGT, CBL	Written, Viva voce/Tutorial, OSPE	
PH1.12	Define Pharmacovigilance its principles and demonstrate ADR reporting	K, S, C	KH, SH	Y	LGT, DOAP, CBL, Can be covered in Pandemic module sessions	Written/ Viva voce OSPE	2
PH1.13	Identify and describe the management of drug interactions	K	KH, SH	Y	LGT, SGT/ CBL	Written/Viva/ Tutorial/ Prescription audit	1
Topic 2 : Autonomic & Peripheral Nervous system, Autacoids		**Number of competencies: (8)**			**Number of competencies that require certification : (NIL)**		
PH2.1	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of adrenergic and antiadrenergic drugs	K	KH	Y	LGT, SGT	Written/ Tutorial	
PH2.2	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of cholinergic and anticholinergic drugs and demonstrate OPC poisoning management	K,S,A,C	KH, SH	Y	LGT, SGT, Simulations, Role play, CBL	Written/ Tutorial/ Direct observations	
PH 2.3	Explain the rationale and demonstrate the emergency use of various sympathetic and parasympathetic drug agonists/antagonists (like Noradrenaline/ Adrenaline/Dopamine/Dobutamine, Atropine) in case-based scenarios	S,A,C	KH,SH	Y	CBL, SGT, Simulations,	Written/ Viva/ Tutorial/ OSCE	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PH2.4	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of skeletal muscle relaxants	K	KH	Y	LGT, SGT	Written/ Viva voce/Tutorial	
PH2.5	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of local anaesthetics (LA) & demonstrate various methods of administration of LA	K, S	KH, SH	Y	LGT, SGT, DOAP in simulated environment	Written/ Viva voce/Tutorial, OSPE	
PH2.6	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of anti-histaminics and explain management of common cold & allergic rhinitis.	K	KH	Y	LGT, CBL	Written/ Viva voce/ Tutorial	
PH2.7	Define pain and enumerate drugs used for pain. Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of analgesics including NSAIDs (except opioids)	K	KH	Y	LGT, SGT, Flipped class room	Written/ Viva voce/Tutorial	
PH2.8	Devise management plan for a case of gout, arthritis and migraine using appropriate drugs	K, S	KH, SH	Y	LGT, CBL, PBL, prescription writing	Written/ Viva voce/Tutorial, prescription audit	
Topic 3: Central Nervous system		**Number of competencies: (09)**			**Number of competencies that require certification : (NIL)**		
PH3.1	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of General anaesthetics, and pre-anaesthetic medications	K	KH	Y	LGT, SGT, Flipped class room	Written/ Tutorial	
PH3.2	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of different sedative and hypnotic agents and explain pharmacological basis of selection and use of different sedative and hypnotic agents	K	KH	Y	LGT, CBL/ PBL, prescription writing	Written/ Viva voce/Tutorial, prescription audit	
PH3.3	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used in epilepsy and devise management plan for a case of uncontrolled seizure	K, S,A,C	KH, SH	Y	LGT, CBL/PBL/ Bedside teaching, prescription writing	Written/ Viva voce/ Tutorial, prescription audit	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PH3.4	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs of opioid analgesics and explain the special instructions for use of opioids.	K, C	KH, SH	Y	LGT, CBL/PBL/ Bedside teaching	Written/ Viva voce/Tutorial/ Direct observation	
PH3.5	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for depression and psychosis, devise management plan for depressive and psychotic disorders	K, A, C	KH, SH	Y	LGT, CBL/PBL/ Bedside teaching, prescription writing	Written/ Viva voce/ prescription audit	
PH3.6	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used in anxiety disorders. Discuss about general goals of Pharmacotherapy for the management of above disorders	K, A,C	KH, SH	Y	LGT, CBD, Bedside teaching, prescription writing	Written/ Viva voce, prescription audit	
PH3.7	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for Parkinsonism and other neurodegenerative disorders. Write a prescription to manage a case of drug induced parkinsonism	K	KH	Y	LGT, Problem/ case-based group discussion, prescription writing	Written/ Viva voce, prescription audit	
PH3.8	Identify and manage methanol poisoning and chronic ethanol intoxication	K, S,A,C	KH, SH	Y	LGT, SGT, CBL, bedside teaching	Written/ Viva voce, direct observation	
PH3.9	Describe the drugs that are abused and cause addiction (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences). Explain the process and steps for management of drug de addiction	K	KH	Y	LGT, SGT/CBL, Simulations, Flipped class room	Written/ Viva voce/Tutorial	
Topic 4: Cardiovascular system & Blood		**Number of competencies: (11)**			**Number of competencies that require certification : (NIL)**		
PH4.1	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for different anaemias and thrombocytopenia.	K	KH	Y	LGT, integration module, CBL, SDL, Prescription writing	Written/ Tutorial/ Prescription audit	Anemia Integration

PH4.2	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs acting on coagulation system (Coagulants/anticoagulants) and devise a plan to monitor therapy and management of adverse effects.	K, A, C	KH, SH	Y	LGT, SGT, bedside teaching	Written/Viva voce/ Direct observation	

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
PH4.3	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of Fibrinolytics and Antifibrinolytic agents.	K	KH	Y	LGT, SGT	Written/Tutorial	
PH4.4	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of Antiplatelets agents.	K	KH	Y	LGT, CBL, Flipped class room	Written/Tutorial	
PH4.5	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of Diuretics, antidiuretics-vasopressin and analogues	K	KH	Y	LGT, SGT	Written/ Tutorial	
PH4.6	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs modulating renin angiotensin aldosterone system.	K	KH	Y	LGT, SGT	Written/ Tutorial	
PH4.7	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of hypertension Devise plan for pharmacologic management of hypertension with Diabetes, Pregnancy induced hypertension and hypertensive emergency and urgency	K	KH	Y	LGT, CBL/PBL, prescription writing, Simulations	Written/ Viva voce/Tutorial prescription audit/ Direct observations	
PH4.8	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease and devise management plan for a patient of acute myocardial Infarction	K, S,A,C	KH, SH	Y	LGT, CBL, Simulations, prescription writing	Written/ Viva voce/ Direct observations, audit of prescriptions	

PH4.9	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of heart failure. Devise management plan for heart failure patients and describe the strategies to prevent long term complications of heart failure.	K, A,C	KH	Y	LGT, CBL, PBL, SDL, prescription writing	Written/ Viva voce/ prescription audit	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PH4.10	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for cardiac arrhythmias. Devise a plan to manage a patient with supraventricular, ventricular arrhythmias, cardiac arrest and fibrillations	K,S, A,C	KH, SH	Y	LGT, SGT, CBL, SDL, simulations, prescription writing	Written/ Viva voce/ direct observation/ prescription audit	
PH4.11	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of dyslipidaemias and enumerate drugs leading to dyslipidaemias	K	KH	Y	LGT, SGT, CBL	Written/ Viva voce/ Tutorial	
Topic 5: Respiratory system		**Number of competencies: (2)**			**Number of competencies that require certification : (NIL)**		
PH5.1	Devise management of various stages of Bronchial asthma, COPD. Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of Bronchial asthma, COPD and Rhinitis.	K, A, C	KH /SH	Y	LGT, SGT, Demonstration of devices used in Br Asthma, Prescription writing	Written/ Viva voce/ OSPE/ Direct observation, Prescription audit	
PH5.2	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for cough management. Describe management of dry & productive cough	K	KH	Y	LGT , SGT, Flipped class room	Written/ Tutorial	
Topic 6: Gastrointestinal system		**Number of competencies: (5)**			**Number of competencies that require certification : (NIL)**		
PH6.1	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used in Acid peptic diseases including Peptic Ulcers, GERD and devise a management plan for a case of peptic ulcer.	K,	KH	Y	LGT, SGT, Prescription writing	Written/ Viva voce/ Tutorial, Prescription audit	

PH6.2	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of prokinetics & drugs used for emesis and antiemetics.	K	KH	Y	LGT, SGT	Written/ Viva voce/ Tutorial	

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
PH6.3	Describe salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of diarrhoea and devise pharmacotherapeutic plan to manage acute and chronic diarrhoea in adults and children.	K, C	KH, SH	Y	LGT, SGT, bed side teaching, SDL	Written/ Viva voce, Direct observation, OSPE	
PH6.4	Describe salient pharmacokinetics, pharmacodynamics, adverse drug reactions of drugs used for the management of constipation and devise management plan for a case of constipation	K, C	KH, C	N	LGT, SGT, Direct observation	Written/ Tutorial	
PH6.5	Describe salient pharmacokinetics, pharmacodynamics, adverse drug reactions of drugs used for the management of Inflammatory Bowel Disease and Irritable Bowel Disorders	K	KH	N	LGT, SGT	Written/ Tutorial	
	Topic 7: Endocrine system	**Number of competencies: (9)**			**Number of competencies that require certification : (NIL)**		
PH7.1	Describe the types, kinetics, dynamics, adverse drug reactions of drugs used in diabetes mellitus and devise management for an obese and non-obese diabetic patient & also comment on prevention of complications of the diabetes.	K,A	KH	Y	LGT, CBL, SDL, SGT, Prescription writing	Written/ Viva voce/Tutorial, prescription audit	
PH7.2	Describe the types, kinetics, dynamics, therapeutic uses, adverse drug reactions of drugs used in osteoporosis and devise management plan for a female and male patient with osteoporosis.	K	KH	Y	LGT, CBL/ SDL/ SGT, Prescription writing	Written/ Viva voce/ Tutorial, prescription audit	
PH7.3	Describe the types, kinetics, dynamics, adverse drug reactions of drugs used in thyroid Disorders and devise a management plan for a case with thyroid Disorder.	K	KH	Y	LGT, CBL, SDL, SGT, Prescription writing	Written/ Tutorial, prescription audit	

PH7.4	Describe the types, mechanisms of action, adverse effects, indications and contraindications of the drugs which modify the release of Anterior Pituitary Hormones	K	KH	N	LGT	Written/ Tutorial	
PH7.5	Explain the types, kinetics, dynamics, adverse effects, indications and contraindications of corticosteroids and communicate to patient the appropriate use of corticosteroids	K, A,C	KH, SH	Y	LGT, SGT/ CBL/ PBL, Role play	Written/ Viva voce/tutorial, Direct observation, OSPE	

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
PH7.6	Describe the types, kinetics, dynamics, adverse effects, indications and contraindications of Androgens and drugs used of Erectile Dysfunction	K	KH	N	LGT, SGT/ CBL	Written/ tutorial	
PH7.7	Explain the types, kinetics, dynamics, adverse effects, indications and contraindications of drugs which modify Female Reproductive Functions including contraceptives. Explain the important instruction for use of female and male contraceptives	K,A,C	KH, SH	Y	LGT, SDL, CBL, PBL, SGT, Role play	Written/ Viva voce/tutorial, OSPE	
PH7.8	Explain the types, kinetics, dynamics, adverse effects, indications and contraindications of uterine relaxants and stimulants.	K	KH	Y	LGT, CBL, Flipped class room	Written/ Tutorial	
PH7.9	Describe drugs used for treatment of Infertility	K	KH	Y	LGT, CBL	Written/ tutorial	
Topic 8: Chemotherapy		**Number of competencies: (11)**			**Number of competencies that require certification : (NIL)**		
PH8.1	Discuss general principles of chemotherapy with emphasis on antimicrobial resistance.	K	KH	Y	LGT	Written/ Viva voce/tutorial, Pandemic module	
PH8.2	Discuss rational use of antimicrobials and describe antibiotic stewardship program of your institute	K	KH	Y	LGT, CBL, SGT, Flipped class room	Written/ Viva voce/tutorial, Pandemic module	

PH8.3	Explain the kinetics, dynamics, adverse effects, indications of the following antibacterial drugs: Sulphonamides Quinolones, Beta-lactams, Macrolides, Tetracyclines, Aminoglycosides, and newer antibacterial drugs	K	KH	Y	LGT, CBL, SGT	Written/ Viva voce/tutorial	
PH8.4	Devise a pharmacotherapeutic plan for UTI and STDs and explain to patient the instructions and adherence to treatment.	K,A,C	KH, SH	Y	LGT, CBL/ PBL/ SGT, role play, Prescription writing	Written/Viva voce/tutorial, OSPE/ Prescription audit, Direct observation	

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
PH8.5	Explain the types, kinetics, dynamics, therapeutic uses and adverse effects of drugs used in tuberculosis. Devise management plan for tuberculosis treatment in various categories.	K	KH, SH	Y	LGT, CBL, PBL, SDL, Prescription writing	Written/ Viva voce/tutorial, Prescription audit	
PH8.6	Discuss the types, Kinetics, dynamics, adverse effects for drugs used for Leprosy and outline management of Lepra reactions	K	KH	Y	LGT/CBL. Prescription writing	Written/ Viva voce/tutorial Prescription audit	
PH8.7	Discuss the types, Kinetics, dynamics, adverse effects of drugs used for following Protozoal / Vector borne diseases: 1. Amoebiasis 2. Kala-azar 3. Malaria 4. Filariasis	K	KH	Y	LGT SGT, CBL, Prescription writing	Written/Viva voce/tutorial, Prescription audit	
PH8.8	Explain the types, kinetics, dynamics, adverse effects of drugs used for fungal infections	K	KH	Y	LGT SGT, CBL, Prescription writing	Written/Viva voce/tutorial, Prescription	
PH8.9	Discuss the types, kinetics, dynamics, adverse effects of drugs used for Intestinal Helminthiasis	K	KH	Y	LGT SGT, CBL, Prescription writing	Written/Viva voce, Prescription	
PH8.10	Discuss the types, kinetics, dynamics, adverse effects, indications and contraindications of drugs used for viral diseases including HIV	K	KH	Y	LGT SGT, CBL, Prescription writing	Written/Viva voce/tutorial, Prescription	

PH8.11	Describe the types, kinetics, dynamics, adverse effects, indications and contraindications of anti-cancer drugs . Devise plan for amelioration of anticancer drug induced toxicity.	K	KH	N	LGT, SGT, CBL	Written/tutorial	
Topic 9: Miscellaneous		**Number of competencies: (7)**			**Number of competencies that require certification : (NIL)**		
PH9.1	Describe the types, kinetics, dynamics, therapeutic uses, adverse drug reactions of immunomodulators	K	KH	N	LGT/ SGT	Written/ Viva voce /tutorial	
PH9.2	Describe management of common drug poisonings, insecticides, common stings and bites	K	KH	Y	LGT, CBL, Simulations	Written/ Viva voce/tutorial, direct observations	

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
PH9.3	Describe chelating agents and make a plan for management of heavy metal poisoning	K	KH	N	LGT, CBL	Written/ tutorial	
PH9.4	Describe basics of vaccine use and types of vaccines	K	KH	Y	SGT, LGT	Written/ tutorial	
PH9.5	Describe types, precautions and uses of antiseptics and disinfectants	K	KH	Y	SGT, LGT	Written/ tutorial	
PH9.6	Describe drugs used in various skin disorders like acne vulgaris, scabies , pediculosis, psoriasis including sunscreens	K	KH	N	LGT, Prescription writing	Written/ tutorial, Prescription audit	
PH9.7	Describe drugs used in glaucoma and other ocular disorders including topical (ocular) drug delivery systems	K	KH	N	LGT	Written/ tutorial	
Topic 10: Applied Pharmacology		**Number of competencies: (17)**			**Number of competencies that require certification : (7)**		
PH10.1	Compare and contrast different sources of drug information and update on latest information on drugs	K, C	KH, SH	Y	SGT, Practicals, Debate	Written, OSPE	2
PH10.2	Perform a critical evaluation of the drug promotional literature and Interpret the package insert information contained in the drug package	K	KH/SH	Y	CBL, SGT, Debate	Written, OSPE	1
PH10.3	To prepare and explain a list of P-drugs for a given case/condition	S,K,C	SH/KH	Y	CBL, SGT	OSPE, written	2

PH10.4	Describe parts of a correct, rational and legible prescription and write rational prescriptions for the provided condition. (examples of conditions to be used are given with other relevant competencies)	K	KH, SH	Y	Practical, DOAP, CBL, prescription writing	Written/ Viva voce/tutorial prescription audit	5
PH10.5	Identify and apply the legal and ethical regulation of prescribing drugs especially when prescribing for controlled drugs, off-label medicines, and prescribing for self, close family and friends	K	KH	Y	SGT, CBL	short note/ Viva voce/tutorial	
PH10.6	Perform a critical appraisal of a given prescription and suggest ways to improve it	SK	KH	Y	CBL, SGT, prescription critique	Written, Viva voce, OSPE	
PH10.7	Describe Pharmacogenomics and Pharmacoeconomics and manage genomic & economic issues in drug use and find out the price of given medication(s).	K	KH, SH	N	LGT, SGT,	Written/ Viva voce	

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
PH10.8	Describe Essential medicines, Fixed dose combination, Over the counter drugs and explain steps to choose essential medicines.	K	KH, SH	Y	SGT, DOAP, Debate	Written/ Viva voce/ OSPE	
PH10.9	Calculate the dosage of drugs for an individual patient, including children, elderly, pregnant and lactating women and patients with renal or hepatic dysfunction.	K,S	SH	Y	LGT, practical	Written/ OSPE	1
PH10.10	Identify when therapeutic drug monitoring is considered for a particular patient, determine timing of sampling and calculate revised dose.	K	KH	N	LGT, SGT/CBL	Written, OSPE	
PH10.11	Identify and apply drug Regulations principles, acts and legal aspects related of drug discovery and clinical use	K	KH/SH	Y	LGT, Visit to clinical research facility, Can be covered in Pandemic module sessions	Written/ Viva voce/ tutorial	
PH10.12	Describe overview of drug development including phases of clinical trials and Good Clinical Practice & reflect on the role of research in developing new drugs	K,A	KH	Y	LGT, SGT, Can be covered in Pandemic module sessions	Written/ Viva voce/ tutorial	

PH10.13	Demonstrate how to optimize interaction with pharmaceutical representative/media to get/disseminate authentic information on drugs	C,A,K	SH	Y	Role Play, Videos, actual encounters	Direct observation, OSPE	2
PH10.14	Communicate with the patient regarding optimal use of a drug therapy using empathy and professionalism e.g. Oral contraceptives, anti TB drugs etc.	A,C	SH	Y	Role Play, Videos, actual encounters	OSPE, Direct observation	
PH10.15	Describe methods to improve adherence to treatment and motivate patients with chronic diseases to adhere to the prescribed pharmacotherapy	K,C,A	SH	Y	Role Play, Videos, actual encounters	Written/ OSPE, Direct observation	2
PH10.16	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	K,C	KH,SH	Y	SGT, CBL	Written/ OSPE, Direct observation	
PH10.17	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	A,C	SH	Y	Role Play, Videos, actual encounters, Plays	OSPE, Direct observation	

PATHOLOGY (CODE: PA)

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	N ɹmber required to certify P
	PATHOLOGY (Topics = 35, Competencies = 182)						
	Topic 1: Introduction to Pathology	**Number of competencies: (3)**			**Number of competencies that require certification : (NIL)**		
PA1.1	Describe the role of a pathologist in diagnosis and management of disease	K	K	Y	LGT	Written/ Viva voce	
PA1.2	Enumerate common definitions and terms used in Pathology and Describe the history and evolution of Pathology	K	K	Y	LGT, SGT	Written/ Viva voce	
PA1.3	Describe proliferation and cell cycle and concept of regenerative medicine along with role of stem cells.	K	K	Y	LGT, SGT	Written/ Viva voce	
	Topic 2: Cell Injury and Adaptation	**Number of competencies: (08)**			**Number of competencies that require certification: (NIL)**		
PA2.1	Describe the causes, mechanisms, types and effects of cell injury and their clinical significance	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA2.2	Describe the etiology of cell injury. Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA2.3	Describe morphological changes in intracellular accumulation of fats, proteins, carbohydrates, pigments	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA2.4	Describe and explain Cell death- types, mechanisms, necrosis, apoptosis (basic as contrasted with necrosis), autolysis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA2.5	Describe types and pathology of calcifications and gangrene	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA2.6	Describe cellular adaptations: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia and carcinoma in situ	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA2.7	Describe the mechanisms of cellular aging and apoptosis	K	KH	N	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA2.8	Identify and describe various forms of cell injuries with their manifestations and consequences in gross and microscopic specimens	S	SH	Y	DOAP	Viva voce	
	Topic: 3 Inflammation	**Number of competencies:(04)**			**Number of competencies that require certification: (NIL)**		
PA3.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA3.2	Enumerate and describe the mediators of acute inflammation	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA3.3	Define and describe chronic inflammation including causes, types non-specific and granulomatous and enumerate examples of each	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA3.4	Identify and describe acute and chronic inflammation in gross and microscopic specimens	S	SH	Y	DOAP	Viva voce	
	Topic 4: Healing and repair	**Number of competencies: (01)**			**Number of competencies that require certification:(NIL)**		
PA4.1	Define and describe the process of repair and regeneration including wound healing and its types	K	KH	Y	LGT, SGT	Written/ Viva voce	
	Topic 5: Hemodynamic disorders	**Number of competencies: (06)**			**Number of competencies that require certification :(NIL)**		
PA5.1	Define and describe edema, its types, pathogenesis and clinical correlations	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA5.2	Define and describe hyperemia, congestion, hemorrhage	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA5.3	Define and describe shock, its pathogenesis and its stage	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA5.4	Define and describe normal haemostasis and the etiopathogenesis and consequences of thrombosis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA5.5	Define and describe Ischemia/infarction, embolism its types, etiology, morphologic changes and clinical effects	K	KH	Y	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA5.6	Identify and describe the gross and microscopic features of infarction in a pathologic specimen	S	SH	Y	DOAP	Viva voce	
	Topic 6: Neoplastic disorders	**Number of competencies: (07)**			**Number of competencies that require certification: (NIL)**		
PA6.1	Define and classify neoplasia. Describe the characteristics of neoplasia including gross, microscopy, Biological, behavior and spread. Differentiate between benign from malignant neoplasms	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA6.2	Describe the molecular basis of cancer, role of genetic and epigenetic alterations with special emphasis on common cancers like breast/ colon	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA6.3	Define and classify the carcinogens and describe the process of different types of carcinogenesis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA6.4	Describe the effects of tumor on the host including para neoplastic syndrome	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA6.5	Describe laboratory diagnosis of cancer including molecular profiles of tumors, tumors markers and future of cancer diagnostics	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA6.6	Describe immunology and the immune response to cancer with its clinical significance – Immunotherapy	K	KH	N	LGT, SGT	Written/ Viva voce	
PA6.7	Identify and describe the gross and microscopic features of Benign and malignant neoplasm in a pathologic specimen	S	SH	Y	DOAP	Viva voce	
	Topic 7: Basic diagnostic cytology	**Number of competencies:(01)**			**Number of competencies that require certification:(NIL)**		
PA7.1	Describe the techniques of cytology, staining & diagnostic role of cytology and its application in clinical care	K	KH	Y	LGT, SGT	Written/ Viva voce	
	Topic 8: Immunopathology and AIDS	**Number of competencies : (06)**			**Number of competencies that require certification: (NIL)**		
PA8.1	Describe the principles and mechanisms involved in immunity	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA8.2	Describe the mechanism of hypersensitivity reaction	K	KH	Y	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA8.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA8.4	Define autoimmunity. Enumerate autoimmune disorder and describe the pathogenesis of common autoimmune diseases	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA8.5	Define and describe the pathogenesis of systemic Lupus Erythematosus	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA8.6	Define and describe the pathogenesis and pathology of HIV and AIDS	K	KH	Y	LGT, SGT	Written/ Viva voce	
	Topic 9: Amyloidosis	**Number of competencies: (02)**			**Number of competencies that require certification:(NIL)**		
PA9.1	Describe the pathogenesis and pathology of amyloidosis	K	KH	N	LGT, SGT	Written/ Viva voce	
PA9.2	Identify and describe various forms of amyloidosis with their manifestations and consequences in gross and microscopic specimens	S	SH	Y	DOAP	Viva voce	
	Topic 10: Infections and Infestations	**Number of competencies: (05)**			**Number of competencies that require certification:(NIL)**		
PA10.1	Define and describe the pathogenesis and pathology of malaria	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA10.3	Define and describe the pathogenesis and pathology of leprosy	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	K	KH	N	LGT, SGT	Written/ Viva voce	
PA10.5	Define and describe the pathogenesis and pathology and laboratory findings in COVID	K	KH	Y	LGT, SGT	Written/ Viva voce	
	Topic 11: Genetic and pediatric diseases	**Number of competencies: (03)**			**Number of competencies that require certification :(NIL)**		
PA11.1	Describe the pathogenesis and features of common cytogenetic abnormalities and mutations in with diagnostic modalities in childhood	K	KH	N	LGT, SGT	Written/ Viva voce	
PA11.2	Describe the pathogenesis and pathology of tumor and tumor like conditions in infancy and childhood	K	KH	N	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA11.3	Describe the pathogenesis of common storage disorders in infancy and childhood	K	KH	N	LGT, SGT	Written/ Viva voce	
	Topic 12: Environmental and nutritional diseases	**Number of competencies:(03)**			**Number of competencies that require certification:(NIL)**		
PA12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco, alcohol and noise	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition, vitamins and starvation	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA12.3	Describe the pathogenesis of obesity and its consequences with special emphasis on metabolic syndrome	K	KH	Y	LGT, SGT	Written/ Viva voce	
	Topic 13: Introduction to hematology	**Number of competencies: (04)**			**Number of competencies that require certification:(1)**		
PA13.1	Describe hematopoiesis and extra medullary hematopoiesis and the role of anticoagulants in hematology	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA13.2	Define and classify anemia Enumerate and describe the investigation of anemia	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA13.3	Describe collection of specimens and identify coagulants and anticoagulant bulbs, instruments	S	SH`	Y	DEMO	Viva voce / OSPE	
PA13.4	Perform common haematological tests – Hb, RBC count, WBC count and DLC	S	SH`	Y	DEMO	Viva voce / OSPE	4
Topic 14: Microcytic anemia		**Number of competencies: (02)**			**Number of competencies that require certification:(1)**		
PA14.1	Describe iron metabolism and Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA14.2	Identify and describe the peripheral smear in microcytic Anemia	S	SH`	Y	DEMO	Viva voce / OSPE	1
	Topic 15: Macrocytic anemia	**Number of competencies: (03)**			**Number of competencies that require certification: (1)**		
PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency and describe laboratory investigations of macrocytic anemia	K	KH	Y	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA15.2	Enumerate the differences and describe the etiology, laboratory features of megaloblastic anemia and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA15.3	Identify and describe the peripheral blood picture of macrocytic Anemia	S	SH`	Y	DEMO	Viva voce / OSPE	1
	Topic 16: Hemolytic anemia	**Number of competencies: (03)**			**Number of competencies that require certification: (01)**		
PA16.1	Define and classify hemolytic anemia and describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA16.2	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce	1
PA16.3	Describe the etiology, pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia and different hemolytic Anemia's	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce	
	Topic 17: Aplastic anemia	**Number of competencies: (01)**			**Number of competencies that require certification:(NIL)**		
PA 17.1	Describe the etiology, pathogenesis and findings in aplastic Anemia and Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	K	K	N	LGT, SGT	Written/ Viva voce	
	Topic 18: Leukocyte disorders	**Number of competencies: (02)**			**Number of competencies that require certification:(NIL)**		
PA18.1	Enumerate and describe the causes of leukocytosis leucopenia lymphocytosis and leukemoid reactions	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA 18.2	Describe the etiology, genetics, pathogenesis classification, features, hematologic features of acute and chronic leukemia	K	KH	Y	LGT, SGT	Written/ Viva voce	
	Topic 19: Lymph node and spleen	**Number of competencies: (06)**			**Number of competencies that require certification:(NIL)**		
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA19.2	Describe the pathogenesis and pathology of tuberculous Lymphadenitis	K	KH	Y	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA19.3	Describe and discuss the pathogenesis, pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	S	SH	Y	DOAP	Skill assessment	
PA19.4	Enumerate and differentiate the causes of splenomegaly	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA19.5	Identify and describe the features of tuberculous lymphadenitis in a gross and microscopic specimen	S	SH	Y	DOAP	Viva voce	
PA19.6	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	S	SH	Y	DOAP	Viva voce	
	Topic 20: Hemorrhagic disorders	**Number of competencies: (03)**			**Number of competencies that require certification:(NIL)**		
PA20.1	Describe normal hemostasis Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP and hemophilia's	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA20.2	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular coagulation and diagnosis of Vitamin K deficiency	S	SH	Y	LGT, SGT	Written/ Viva voce	
PA20.3	Define and describe its laboratory findings and diagnosis of Multiple Myeloma	K	KH	Y	LGT, SGT	Written/ Viva voce	
	Topic 21: Blood banking and transfusion	**Number of competencies: (06)**			**Number of competencies that require certification: (1)**		
PA21.1	Classify and describe blood group systems (ABO and RH)	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA21.2	Enumerate blood components and describe their clinical uses	S	SH	Y	LGT, SGT	Written/ Viva voce	
PA21.3	Enumerate and describe infections transmitted by blood transfusion	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA21.4	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA21.5	Enumerate the indications and describe the principles and procedure of autologous transfusion	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA21.6	Describe the correct technique to perform blood grouping Describe the correct technique to perform a cross match	S	SH`	Y	DEMO	Viva voce / OSPE	1

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
	Topic 22: Clinical Pathology Number of competencies: (05) Number of competencies that require certification: (2)						
PA22.1	Describe abnormal urinary findings in disease states and identify and describe common urinary abnormalities in a clinical specimen	S	SH	Y	DOAP	Skill Assessment	
PA22.2	Describe abnormal findings in body fluids in various disease states	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA22.3	Describe and interpret the abnormalities in a panel containing semen analysis, thyroid function tests.	S	SH	Y	DOAP	Skill Assessment	
PA22.4	Describe and interpret the abnormalities in a panel containing liver function tests	KS	KH	Y	LGT/DOAP	Written/ Viva voce/ Skill Assessment	4
PA22.5	Describe and interpret the abnormalities in a panel containing, renal function tests	KS	KH	Y	LGT/DOAP	Written/ Viva voce/ Skill Assessment	4
	Topic 23: Gastrointestinal tract	**Number of competencies: (09)**			**Number of competencies that require certification: (NIL)**		
PA23.1	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA23.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of carcinoma esophagus	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA23.3	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA23.4	Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA23.5	Describe and etiology and pathogenesis and pathologic features of Tuberculosis of the intestine and appendicitis.	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA23.6	Describe and etiology and pathogenesis and pathologic and distinguishing features of Inflammatory bowel disease	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA23.7	Enumerate causes and describe laboratory diagnosis of malabsorption syndrome	K	KH	N	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA23.8	Describe the etiology, pathogenesis, pathology and distinguishing features of carcinoma of the colon	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA23.9	Describe and identify the microscopic features of peptic ulcer ,intestinal ulcers and tumours of GIT	S	SH	Y	DOAP	Viva voce	
	Topic 24: Hepatobiliary system	**Number of competencies: (09)**			**Number of competencies that require certification: (01)**		
PA24.1	Describe Bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyper Bilirubinemia	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA24.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA24.3	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	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA24.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA24.5	Describe the etiology, pathogenesis and complications of portal hypertension	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA24.6	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	DOAP	Skill assessment	1
PA24.7	Define and describe the etiology, types, pathogenesis, morphology and complications of Hepatocellular Carcinoma	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA24.8	Describe the pathophysiology, pathology and complications of acute cholecystitis and Cholelithiasis	K	KH	Y	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA24.9	Describe and identify the microscopic features of liver diseases and tumors	S	SH	Y	DOAP	Viva voce	
	Topic 25: Respiratory system	**Number of competencies: (07)**			**Number of competencies that require certification: (NIL)**		
PA25.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA25.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA25.3	Define and describe the etiology, types, pathogenesis, stages morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA25.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA25.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	K	KH	Y	LGT, SGT	Written / Viva voce	
PA25.6	Define and describe the etiology, types, exposure, genetic environmental influence, pathogenesis, stages, morphology, microscopic appearance, metastases and complications of tumors of the lung and pleura including mesothelioma	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA25.7	Identify and describe the features of diseases and tumors of lung in a gross and microscopic specimen	S	SH	Y	DOAP	Viva voce	
	Topic 26: Cardiovascular system	**Number of competencies: (10)**			**Number of competencies that require certification: (NIL)**		
PA26.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of atherosclerosis	K	KH	Y	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA26.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA26.3	Describe the etiology, types, stages pathophysiology, pathology and complications of heart failure	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA26.4	Describe the etiology, pathophysiology, pathology, gross and, complications of Congenital heart disease	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA26.5	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA26.6	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic heart disease and Interpret abnormalities in cardiac function testing in acute coronary syndromes	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA26.7	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA26.8	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion	S	SH	Y	DOAP	Skill Assessment	
PA26.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	LGT, SGT	Written/ Viva voce	
PA26.10	Describe the etiology, pathophysiology, pathology features and complications of tumors of cardiovascular system.	K	KH	N	LGT, SGT	Written/ Viva voce	
	Topic 27 : Urinary Tract	**Number of competencies: (17)**			**Number of competencies that require certification: (NIL)**		
PA27.1	Describe the normal histology of the kidney	K	K	Y	LGT, SGT	Written/ Viva voce	
PA27.2	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	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA27.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA27.4	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA27.5	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	LGT, SGT	Written/ Viva voce	
PA27.6	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA27.7	Enumerate and describe the findings in glomerular manifestations of systemic disease	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA27.8	Enumerate and classify diseases affecting the tubular Interstitium	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA27.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA27.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA27.11	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	LGT, SGT	Written/ Viva voce	
PA27.12	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	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA27.13	Define classify and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression and complications of renal stone disease and obstructive uropathy	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA27.14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	K	KH	N	LGT, SGT	Written/ Viva voce	
PA27.15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies	K	KH	N	LGT, SGT	Written/ Viva voce	
PA27.16	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of urothelial tumors	K	KH	N	LGT, SGT	Written/ Viva voce	
PA27.17	Identify and describe the features of kidney diseases and tumors in a gross and microscopic specimen	S	SH`	Y	DEMO	Viva voce / OSPE	
Topic 28: Male Genital Tract		**Number of competencies: (06)**			**Number of competencies that require certification: (NIL)**		
PA28.1	Classify testicular tumors and describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of testicular tumors	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA28.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA28.3	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign prostatic hyperplasia	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA28.4	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	K	KH	Y	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA28.5	Describe the etiology, pathogenesis, pathology and progression of prostatitis	K	KH	N	LGT, SGT	Written/ Viva voce	
PA28.6	Describe and identify the morphologic and microscopic features of diseases and tumors of male genital tract	S	SH	Y	DOAP	Viva voce	
	Topic 29: Female Genital Tract	**Number of competencies: (10)**			**Number of competencies that require certification: (NIL)**		
PA.29.1	Describe the epidemiology, pathogenesis, etiology, pathology, screening, diagnosis and progression of carcinoma of the cervix	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA29.2	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the endometrium	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA29.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyoma and leiomyosarcomas	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA29.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA29.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA29.6	Describe the etiology and morphologic features of cervicitis	K	KH	N	LGT, SGT	Written/ Viva voce	
PA29.7	Describe the etiology, hormonal dependence, features and morphology of endometriosis	K	KH	N	LGT, SGT	Written/ Viva voce	
PA29.8	Describe the etiology and morphologic features of adenomyosis	K	KH	N	LGT, SGT	Written/ Viva voce	
PA29.9	Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia	K	KH	N	LGT, SGT	Written/ Viva voce	
PA29.10	Describe and identify the morphologic and microscopic features of diseases and tumors of female genital tract	S	SH	Y	DOAP	Viva voce	
	Topic 30: Breast	**Number of competencies: (05)**			**Number of competencies that require certification: (NIL)**		

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA30.1	Classify and describe the types, etiology, pathogenesis, hormonal dependency of breast pathology and benign disease	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA30.2	Classify and describe the epidemiology, pathogenesis, classification, morphologic and microscopic features, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA30.3	Describe and identify the morphologic and microscopic features of Phyllodes tumor of the breast	S	SH	N	DOAP	Skill Assessment	
PA30.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of Gynaecomastia	K	KH	N	LGT, SGT	Written/ Viva voce	
PA30.5	Describe and identify the morphologic and microscopic features of benign and malignant tumors of the breast	S	SH	Y	DOAP	Viva voce	
	Topic 31: Endocrine system	**Number of competencies: (10)**			**Number of competencies that require certification: (NIL)**		
PA31.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA31.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA31.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/ hypothyroidism	K	KH	Y	LGT, Small group	Written/ Viva voce	
PA31.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features & complications of Thyroid tumors	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA31.5	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	K	KH	N	LGT, SGT	Written/ Viva voce	
PA31.6	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	K	KH	N	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA31.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	K	KH	N	LGT, SGT	Written/ Viva voce	
PA31.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	K	KH	N	LGT, SGT	Written/ Viva voce	
PA31.9	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	K	KH	N	LGT, SGT	Written/ Viva voce	
PA31.10	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	S	SH	Y	DOAP	Viva voce	
	Topic 32: Bone and soft tissue	**Number of competencies: (07)**			**Number of competencies**		
PA32.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA32.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA32.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA32.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	K	KH	N	LGT, SGT	Written/ Viva voce	
PA32.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	K	KH	N	LGT, SGT	Written/ Viva voce	
PA32.6	Classify and describe the etiology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of Osteo arthritis and Gouty arthritis	K	KH	N	LGT, SGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA32.7	Describe and identify the morphologic and microscopic features of diseases and tumors of bone	S	SH	Y	DOAP	Viva voce	
Topic 33: Skin		**Number of competencies: (04)**			**Number of competencies that require certification:(NIL)**		
PA33.1	Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA33.2	Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of the skin	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA33.3	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	LGT, SGT	Written/ Viva voce	
PA33.4	Identify, distinguish and describe common tumors of the skin	S	SH	N	DOAP	Skill Assessment	
Topic 34: Central Nervous System		**Number of competencies:(03)**			**Number of competencies that require certification: (01)**		
PA34.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA34.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumors	K	KH	Y	LGT, SGT	Written/ Viva voce	
PA34.3	Identify the etiology of meningitis based on given CSF parameters	S	P	Y	DOAP	Skill Assessment	1
Topic 35: Eye		**Number of competencies: (01)**			**Number of competencies that require certification: (NIL)**		

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
PA35.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	K	KH	N	LGT, SGT	Written/ Viva voce	

MICROBIOLOGY (CODE: MI)

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
MICROBIOLOGY (Topics = 11, Competencies = 74)							
Topic 1: General Microbiology, Ethics & Communication		**Number of competencies: (13)**			**Number of competencies that require certification: (02)**		
MI 1.1	Discuss notable historical events, scientific developments and contributions of key scientists in the evolution of medical microbiology. Discuss the role of microbes in health and disease	K	K	N	LGT	Written assessment, Viva Voce	-
MI 1.2	Describe basic morphology, physiology/characteristics, classification and common infections /diseases caused by bacteria, viruses, fungi and parasites.	K	KH	Y	LGT	Written assessment, Viva Voce	
MI 1.3	Describe the basic principles of molecular biology and the concept and significance of studying molecular genetics. Discuss molecular techniques applied to disease diagnosis in clinical microbiology.	K	KH	Y	LGT	Written assessment, Viva Voce	
MI 1.4	Describe the laboratory methods used to detect causative agents of infectious diseases.	K	KH	Y	LGT	Written assessment, Viva Voce	
MI 1.5	Discuss the appropriate method of collecting and transporting samples to detect microbial agents, including instructions to be given to patients before sample collection.	K	KH	Y	LGT/ SGT	Written assessment, Viva Voce	
MI 1.6	Demonstrate the appropriate method of collection and transport of samples for the detection of microbial agents including instructions to be given to patients before sample collection.	S	SH	Y	DOAP, Role play	Practical exercises /OSPE	3
MI 1.7	Discuss the attitude & behaviors that portray respect & demonstrate respect for patient samples sent to the laboratory for performance of laboratory tests in the detection of microbial agents causing Infectious diseases	A	SH	Y	SGT, Role play	Observation, Viva Voce, Scenario based questions	

MI 1.8	Discuss and demonstrate effective communication skills with patients, relatives and clinicians during sample collection and pre/posttest counseling	C	SH	Y	Role play	OSPE, Observation, Scenario based questions	
MI 1.9	Discuss & demonstrate confidentiality pertaining to patient identity in laboratory results	A	SH	Y	SGT, Role play	Scenario based questions, Viva Voce	
MI 1.10	Perform Gram stain, ZN stain, and routine stool examination to identify the different causative agents of infectious diseases from the clinical specimen	S	P	Y	DOAP	Practicals/OSPE	3 for each procedure
MI 1.11	Describe the epidemiological basis of infectious diseases and their application.	K	KH	Y	LGT	Written assessment, Viva Voce	
MI 1.12	Classify and describe the different methods of sterilization and disinfection. Discuss the mechanism of action, application and quality control of different methods in the laboratory and in clinical and surgical practices.	K	KH	Y	LGT SGT	Written assessment, Case discussion exercise, Case based MCQ, Viva Voce	
MI 1.13	Choose the most appropriate method of sterilization and disinfection to be used in specific situations in the laboratory, in clinical and surgical practice.	K	KH	Y	SGT, Case discussion	Written assessment/Viva voce/	
	Topic 2 : Basic Immunology & Immunological disorders	**Number of competencies: (08)**			**Number of competencies that require certification: (NIL)**		
MI 2.1	Explain the role of immunological mechanisms in health and disease (innate and acquired immunity).	K	KH	Y	LGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.2	Describe the structure and functions of immune system and its components (antigens, antibodies and complement systems).	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.3	Describe the host immune responses in Microbial infections (humoral and cellular immune response).	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.4	Explain the immune response in different types of infections (bacterial, mycobacterial, viral, fungal and parasitic infections)	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	

MI 2.5	Discuss the principles and applications of laboratory tests used in diagnostic microbiology based on the host's immune response.	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.6	Discuss the immunological basis of disease prevention through active and passive immune prophylaxis. Discuss the importance of herd immunity in prevention and control of infectious disease in community.	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.7	Describe the immunological mechanisms in immunological disorders (hypersensitivity, autoimmune disorders and immunodeficiency states) and discuss the laboratory methods used in their detection.	K	KH	Y	LGT SGT	Written assessment, Case based MCQ, Viva Voce	
MI 2.8	Describe the immunological mechanisms involved in transplantation, tumour immunity and their applications in disease management.	K	KH	N	LGT, SDL`	MCQ, Viva Voce	
Topic 3: CVS and Blood		**Number of competencies: (13)**			**Number of competencies that require certification: (1)**		
MI 3.1	Describe the etiopathogenesis, clinical features, complications/sequelae and laboratory diagnosis of rheumatic fever.	K	KH	Y	LGT SGT, Case-based discussion	Written/ Viva voce	
MI3.2	Describe the classification etio-pathogenesis, clinical features of Infective endocarditis (IE).	K	KH	Y	LGT, SGT, Case based discussion	Written/ Viva voce	
MI 3.3	Discuss the diagnostic modalities of IE available with special emphasis on concept of sepsis and blood culture collection & processing.	K	KH	Y	LGT, SGT , Case based discussion	Written/ Viva voce	2
MI 3.4	Diagnose a clinically suspected case of rheumatic fever/IE based on the findings of various microscopic, serological and culture investigations.	K	KH	Y	LGT, SGT, Case based discussion	Case based exercise, Case based MCQ, Viva voce	
MI 3.5	Define & describe types of Pyrexia of unknown origin (PUO). Discuss the etiopathogenesis and diagnostic modalities available to rule out infective causes of PUO.	K	KH	Y	LGT, SDL, SGT , Case-based discussion	Written assessment/ Viva voce	
MI 3.6	Classify & describe the enteric fever pathogens. Discuss the evolution of the clinical course, pathogenesis, complications, laboratory diagnosis and prevention of enteric fever.	K	KH	Y	LGT. SGT, Case-based discussion	Case based exercise, Written assessment, Case based MCQ, Viva voce	

MI 3.7	Choose the most appropriate laboratory test in a suspected case of enteric fever based on the duration of illness and in a suspected case of carrier.	K	KH	Y	Interpretational exercises (Practicals)	Case based exercise, Case based MCQ, interpretational exercise, Viva Voce	
MI 3.8	Read and interpret the results of various laboratory investigations in a suspected case of enteric fever with special emphasis on serological test results.	K	KH	Y	Interpretational exercises (Practicals)	Case discussion exercise, Case based MCQ, interpretation exercise, Viva Voce	
MI 3.9	Enumerate the common infective causes of anaemia and describe the mechanisms involved in causing anaemia by them.	K	KH	Y	LGT	Written assessment	
MI 3.10	Describe the morphology, life cycle, pathogenesis, laboratory diagnosis, prevention and control of the common parasites causing anaemia.	K	KH	Y	LGT	Written assessment, Case based exercise, Case based MCQ, Viva Voce	
MI 3.11	Describe the morphology, life cycle, pathogenesis, clinical presentation, laboratory diagnosis and prevention of hemoparasites commonly prevalent in India (e.g. causing kala-azar, malaria, filariasis etc.)	K	KH	Y	LGT, SGT, SDL	Written assessment, Case discussion exercise, Case based MCQ, Viva Voce	
MI 3.12	Differentiate agents of malignant malaria from agents of benign malaria reported in peripheral blood smear examination/ serology and explain its clinical significance.	K,	KH	Y	Case-based discussion with reports (Practicals)	Interpretational exercise, Case based exercise, Case based MCQ, Viva Voce	
MI 3.13	Describe the epidemiology, the etio- pathogenesis, evolution complications, opportunistic infections, diagnosis, prevention and the principles of management of HIV	K	KH	Y	LGT, SDL	Written assessment, Case based MCQ, Viva Voce	
Topic 4: Gastrointestinal and Hepatobiliary system		**Number of competencies:(09)**			**Number of competencies that require certification:(01)**		
MI 4.1	Define and differentiate between diarrhea, dysentery and food poisoning. Enumerate the microbial agents causing them.	K	KH	Y	LGT	Written assessment, Case based MCQ, Viva Voce	

MI 4.2	Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing diarrhoea.	K	KH	Y	LGT	Written assessment, Case based MCQ, Viva Voce	
MI 4.3	Describe the epidemiology, morphology, pathogenesis, clinical features and diagnostic modalities of bacterial, viral, parasitic and fungal agents causing dysentery	K	KH	Y	LGT with case discussions	Written assessment, Case based MCQ, Viva Voce	
MI 4.4	Identify the common etiologic agents of diarrhoea and dysentery by stool microscopic examination.	S	SH	Y	DOAP (Practicals)	Interpretational exercises /practical exercise	3
MI 4.5	Enumerate the bacterial, viral, parasitic and fungal agents of food poisoning and discuss their pathogenesis, clinical course and laboratory diagnosis.	K	KH	Y	LGT with case discussion , SGT	Written assessment, Case based MCQ, Viva Voce	
MI 4.6	Describe the infective aetiology, pathogenesis and clinical course of Acid peptic disease (APD) and Discuss the laboratory diagnosis and management of the causative agent of APD.	K	KH	Y	LGT with case discussion, SDL	Written assessment, Case based MCQ, Viva Voce	
MI 4.7	Describe the epidemiology, etiopathogenesis, clinical features and complications of viral hepatitis.	K	KH	Y	LGT with case / clinical report discussion	Written assessment, Case based MCQ, Viva Voce	
MI 4.8	Discuss the modalities in laboratory diagnosis, with special emphasis on viral markers and preventive strategies for viral hepatitis caused by hepatitis viruses.	K	KH	Y	LGT with case / clinical report discussion	Written assessment, Case based MCQ, Viva Voce	
MI 4.9	Suggest the most appropriate laboratory test based on history and clinical presentation in a suspected case of viral hepatitis and interpret the type and progress of viral hepatitis based on the laboratory report of viral markers in a case of infection by hepatitis virus.	K	KH	Y	SDL, SGT with case / clinical report discussion	Written assessment, Case based MCQ, Viva Voce	
	Topic 5: Musculoskeletal system, Skin and Soft tissue infections	**Number of competencies: (05)**			**Number of competencies that require certification: (NIL)**		
MI 5.1	Enumerate the microbial agents causing anaerobic infections. Describe the pathogenesis, clinical course and the laboratory diagnosis of anaerobic infections.	K	KH	Y	LGT with case discussion	Written assessment, Case based MCQ, Viva Voce	
MI 5.2	Explain the etiopathogenesis, clinical course & laboratory diagnosis of bone & joint infections caused by bacterial, fungal, viral and parasitic agents.	K	KH	Y	LGT with case discussion	Written assessment, Case based MCQ, Viva Voce	

MI 5.3	Explain the etiopathogenesis, clinical course and the laboratory diagnosis of skin and soft tissue infections caused by bacterial, fungal, viral and parasitic agents.	K	KH	Y	LGT with case discussion SGT	Written assessment, Case based MCQ, Viva Voce	
MI 5.4	Differentiate between infective and non-infective lesions in the skin. Enlist microbes causing systemic disease with involvement of skin.	K	KH	N	LGT	Written assessment, Viva voce	
MI 5.5	Describe the etiopathogenesis, clinical course, complications and laboratory diagnosis of mycobacterial infections involving skin & soft tissue with special emphasis on sample collection from/of skin	K	KH	Y	LGT, SGT, SDL	Written assessment	
Topic 6 : Central Nervous System infections		**Number of competencies: (03)**			**Number of competencies that require certification: (NIL)**		
MI 6.1	Enumerate the microbial agents causing meningitis. Explain the pathogenesis, clinical course and laboratory diagnosis of meningitis caused by bacterial, fungal, viral and parasitic agents.	K	KH	Y	LGT with case discussion SGT	Written assessment, Case based MCQ, Viva Voce	
MI 6.2	Enumerate the microbial agents causing encephalitis Explain the pathogenesis, clinical course and laboratory diagnosis of encephalitis caused by bacterial, fungal, viral and parasitic agents.	K	KH	Y	LGT with case discussion SGT, SDL	Written assessment, Case based MCQ, Viva Voce	
MI 6.3	Identify the microbial agents causing meningitis from a Gram stained given smear. Read & Interpret the microscopic findings and culture report of CSF to diagnose a case of bacterial, viral, fungal or parasitic infection in CNS	K	KH	Y	SGT	Written assessment, Case based MCQ, Viva Voce, OSCE	
Topic 7: Respiratory tract infections		**Number of competencies: (05)**			**Number of competencies/ skills that require certification: (02)**		
MI 7.1	Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the upper respiratory tract caused by bacterial, viral, fungal and parasitic agents.	K	KH	Y	LGT with case discussion SGT	Written assessment, Case based MCQ, Viva Voce	
MI 7.2	Explain the etiopathogenesis, laboratory diagnosis and prevention of Infections of the lower respiratory tract caused by bacterial, mycobacterial, viral, fungal and parasitic agents.	K	KH	Y	LGT with case discussion SGT	Written assessment, Case based MCQ, Viva Voce	
MI 7.3	Enlist & identify the etiological agents of lower respiratory infection in specific situations like age, immune status, community-acquired pneumonia, hospital-acquired pneumonia etc	K	KH	Y	LGT with case discussion , SGT	Written assessment, Case based MCQ, Viva Voce	
MI 7.4	Identify the common etiologic agents of upper respiratory tract infections in a Gram Stain/ Albert stained smear of throat swab and correlate with the clinical findings provided.	S	P	Y	DOAP Practicals	OSPE, Clinical case based exercises	3

MI 7.5	Identify the common etiologic agents of lower respiratory tract infections in a provided Gram Stained & Acid fast stained smear of sputum/BAL/tracheal aspirate and correlate with the clinical findings provided	S	P	Y	DOAP Practicals	OSPE, Clinical case based exercises	3
	Topic:8 Genitourinary and Sexually Transmitted Infections	**Number of competencies: (04)**			**Number of competencies that require certification: (NIL)**		
MI 8.1	Describe the etiopathogenesis and discuss the laboratory diagnosis of common bacterial, viral, fungal and parasitic infections of the genito-urinary system	K	KH	Y	LGT/ SGT	Written assessment, Viva voce	-
MI 8.2	Enlist common sexually transmitted infections (STI). Explain the pathogenesis, laboratory diagnosis and prevention of common bacterial and viral sexually transmitted infections.	K	KH	Y	LGT/ SGT	Written assessment, Viva Voce	
MI 8.	Explain the concept and utility of Syndromic management of STI.	K	KH	Y	SDL/ SGT	Written assessment, Viva voce	
MI 8.4	Explain etiopathogenesis, clinical course, and the appropriate method for specimen collection, and discuss the laboratory diagnosis of different clinical and epidemiological types of urinary tract infections.	K	KH	Y	LGT/ SGT	Written assessment, Viva voce	
	Topic 9: Zoonotic diseases and Miscellaneous	**Number of competencies: (06)**			**Number of competencies that require certification: (NIL)**		
MI 9.1	Define and classify Zoonotic infections. Explain etio-pathogenesis, vectors, clinical course, transmission, risk factors, laboratory diagnosis, and preventive & control strategies of different zoonotic infections caused by bacterial, viral, fungal and parasitic agents.	K	KH	Y	LGT/ SGT	Written assessment, Viva voce	
MI 9.2	Describe the etiopathogenesis and laboratory diagnosis of opportunistic infections(OI) along with factors predisposing to the development of OI by bacterial, viral, fungal and parasitic agents.	K	KH	Y	LGT, SGT	Written assessment, Viva voce	
MI 9.3	Choose the most suitable microbiological investigation in a given clinical situation and Interpret the results of the laboratory tests for the diagnosis of the infectious disease	K	SH	Y	Case based exercise, SGT	Cased based exercises, Case based MCQ	
MI 9.4	Describe the etiopathogenesis of infective causes of malignancy and explain the mechanisms used by oncogenic viruses in the development of virus-associated malignancies, along with their preventive measures.	K	KH	Y	LGT SGT	Written assessment, Viva voce	

MI 9.5	Describe the concept of emerging & re-emerging Infectious diseases. Explain the factors responsible for emergence and re-emergence of these disease and strategies for their prevention and control.	K	KH	Y	LGT, small group discussion, SDL	Written assessment, Viva voce	
MI 9.6	Describe the National Health Programs in the prevention of common infectious diseases and discuss the National reference centres for disease diagnosis and control	K	K	N	LGT	Written assessment, Viva voce	
	Topic 10: Healthcare-associated infections (HAI)	**Number of competencies: (05)**			**Number of competencies that require certification: (01)**		
MI 10.1	Enumerate different causative agents and the types of Healthcare-Associated Infections (HAI). Define HAI and describe the chain of transmission and its role in preventing HAI.	K	K	Y	LGTs, SGT	Written assessment, Viva voce	
MI 10.2	Describe the standard & transmission based precautions for infection control and the role of the hospital infection control committee (HICC) in the prevention of HAI.	K	KH	Y	LGTs, SGT	MCQ, viva voce	
MI 10.3	Demonstrate hand washing, donning- doffing of PPE and segregation of Biomedical waste	S	SH	Y	DOAP, Role-play, SGT, Practicals	OSPE, Direct Observation with checklist	3 each
MI 10.4	Describe the methods used and significance of assessing the microbial contamination of food, water and air (in hospital surveillance)	K	KH	N	Interactive LGTs	Written assessment, MCQ, Viva Voce	
MI 10.5	Describe the commonly detected drug-resistant microbes in HAI. Explain the mechanism of evolution, spread, and control of antimicrobial drug resistance in hospitalized patients.	K	KH	Y	LGT, SGT	Written assessment, MCQ, Viva Voce	
	Topic 11: Antimicrobial resistance (AMR) & Antimicrobial Stewardship (AMSP)	**Number of competencies: (03)**			**Number of competencies that require certification: (Nil)**		
MI 11.1	Describe the genotypic & phenotypic mechanisms of antimicrobial drug resistance and the methods of antimicrobial susceptibility testing, along with interpretation of the antimicrobial susceptibility testing report	K	KH	Y	LGT, SGT	Written assessment, MCQ, Viva Voce, Interpretational exercise	-
MI 11.2	Explain intrinsic & acquired drug resistance along with the antimicrobial spectrum of important human pathogens and its application in clinical therapy.	K	KH	Y	LGT, SGT	Written assessment, MCQ, Viva Voce	-
MI 11.3	Explain the concept and application of the antimicrobial stewardship program including rational antimicrobial prescription and your role in its implementation.	K	KH	Y	LGT, SGT	Written assessment, MCQ, Viva Voce	-

FORENSIC MEDICINE & TOXICOLOGY (CODE: FM)

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
FORENSIC MEDICINE & TOXICOLOGY (Topics = 14, Competencies = 158)							
Topic 1: Introduction to forensic medicine basics of legal procedure.		**Number of competencies: (09)**			**Number of competencies that require certification: (NIL)**		
FM1.1	Define Forensic medicine, Clinical Forensic Medicine, Forensic Pathology, State Medicine, Legal Medicine and Medical Jurisprudence	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM1.2	Describe history of Forensic Medicine	K	KH	N	SDL	Written/ Viva voce	
FM1.3	Describe legal competencies including Bharatiya Nagarika Suraksha Sanhita (BNSS), Bharatiya Nyay Sanhita (BNS) Bharatiya Sakshya Adhiniyam (BSA), Protection of Children from Sexual Offences Act (POCSO) Civil and Criminal Cases, Inquest (Police Inquest and Magistrate's Inquest), Cognizable and Non-cognizable offences	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM1.4	Describe Courts in India and their powers: Supreme Court, High Court, Sessions court, Magistrate's Court, Labour Court, Family Court, Executive Magistrate Court and Juvenile Justice Board	K	KH	N	SDL/Moot Court	Written/ Viva voce	
FM1.5	Describe Court competencies including issue of Summons, conduct money, types of witnesses, recording of evidence oath, affirmation, examination in chief, cross examination, re-examination and court questions, recording of evidence & conduct of doctor in witness box	K	KH	Y	LGT, SGT/ Practicals / Seminars, Moot Court	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
FM1.6	Describe Offenses in Court including Perjury; Court strictures vis-a-vis Medical Officer	K	KH	N	SDL	Written/ Viva voce	
FM1.7	Describe Dying Declaration & Dying Deposition	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM1.8	Describe the latest decisions/notifications/resolutions/ circulars/standing orders related to medico-legal practice issued by Courts/Government authorities etc.	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM1.9	Describe the importance of documentation in medical practice in regard to medico legal examinations, Medical Certificates and medico legal reports especially - maintenance of patient case records, discharge summary, prescribed registers to be maintained in Health Centres. - maintenance of medico-legal register like accident register. - documents of issuance of wound certificate - documents of issuance of drunkenness certificate. - documents of issuance of sickness and fitness certificate. - documents for issuance of death certificate. -documents of Medical Certification of Cause of Death - Form Number4 and 4A - documents for estimation of age by physical, dental and radiological examination and issuance of certificate	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce/Direct observation	
Topic 2: Forensic Pathology		**Number of competencies: (28)**			**Number of competencies that require certification : (1)**		
FM2.1	Select appropriate cause of death in a particular scenario by referring ICD 11 code	K	KH	Y	LGT,SGT/ Practicals / Seminars	Written/ Viva voce	
FM2.2	Write a correct Medical Certificate of Cause of Death (MCCD) certificate as per ICD 11 document	S	SH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce/ Direct observation /OSPE	3

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
FM2.3	Define, describe and discuss death and its types including somatic/clinical/cellular, molecular and brain-death, Cortical Death and Brainstem Death	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM2.4	Describe salient features of the Organ Transplantation and The Human Organ Transplant (Amendment) Act 2011 and discuss ethical issues regarding organ donation	K	KH	Y	LGT, SGT/ Practicals / Seminars/video demo.	Written/ Viva voce	
FM2.5	Describe and discuss issues related to sudden natural deaths	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM2.6	Describe and discuss natural and unnatural deaths	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM2.7	Discuss moment of death, modes of death – coma, asphyxia and syncope	K	KH	Y	LGT, SGT/ Practicals / Seminars/ Video demo.	Written/ Viva voce	
FM2.8	Describe and discuss suspended animation	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM2.9	Describe and discuss post-mortem changes including signs of death, cooling of body, post-mortem lividity, rigor mortis, cadaveric spasm, cold stiffening and heat stiffening	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP/Video Demo.	Written/Viva voce/OSPE	
FM2.10	Describe putrefaction, mummification, adipocere and maceration	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/Viva voce/OSPE	
FM2.11	Discuss estimation of time since death	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/ Viva voce/OSPE	
FM2:12	Introduction to mortuary setup and minimum requirement for conducting post-mortem examination and Embalming techniques	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM2.13	Describe and discuss autopsy competencies including post-mortem examination, different types of autopsies, aims and objectives of post-mortem examination	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/Viva voce/OSPE	
FM2.14	Describe the legal requirements to conduct post-mortem examination and competencies to conduct medico-legal post-	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/Viva voce/OSPE	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
	mortem examination						
FM2.15	Describe and discuss obscure autopsy and Virtopsy	K	KH	Y	LGT, SGT/ Practicals / Seminars, Video Demo.	Written/ Viva voce	
FM2.16	Describe and discuss examination of clothing, preservation of viscera on post-mortem examination for chemical analysis and other medico-legal purposes, post-mortem artefacts	K	KH	Y	LGT, SGT/ Practicals / Seminars , Autopsy, DOAP, Video Demo.	Written/ Viva voce/OSPE	
FM2.17	Describe the clinical features, post-mortem finding and medico legal aspects of injuries due to physical agents like heat (heat-hyper-pyrexia, heat stroke, sun stroke, heat exhaustion/prostration, heat cramps [miner's cramp] or cold (systemic and localized hypothermia, frostbite, trench foot, immersion foot)	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy ,DOAP	Written/ Viva voce	
FM2.18	Describe types of injuries, clinical features, patho-physiology, post-mortem findings and medico-legal aspects in cases of burns, scalds, lightening, electrocution and radiations	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/ Viva voce/OSPE	
FM2.19	Describe and discuss clinical features, post-mortem findings and medico-legal aspects of death due to starvation and neglect	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM 2.20	Describe special protocols for conduction of medico-legal autopsies in cases of death in custody or following violation of human rights as per National Human Rights Commission Guidelines	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/ Viva voce/OSPE	
FM2.21	Describe and discuss examination of mutilated bodies or fragments, charred bones and bundle of bones	K	KH	Y	LGT, SGT/ Practicals / Seminars, DOAP	Written/ Viva voce/OSPE	
FM2.22	Describe and discuss exhumation	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM2.23	Crime Scene Investigation: Describe and discuss the objectives of crime scene visit, the duties & responsibilities of doctors on crime scene and the reconstruction of sequence of events after crime scene investigation	K	KH	N	SDL	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
FM2.24	Investigation of anaesthetic, operative deaths: Describe and discuss special protocols for conduction of autopsy and for collection, preservation and dispatch of related material evidences	K	KH	N	SDL	Written/ Viva voce	
FM2.25	Demonstrate professionalism while conducting autopsy in medico legal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A, C	KH/SH	Y	LGT, SGT/ Practicals / Seminars, DOAP	Written/ Viva voce/ OSPE	
FM2.26	Demonstrate ability to work in a team for conduction of medico-legal autopsies in cases of death following alleged negligence medical dowry death, death in custody or following violation of human rights as per National Human Rights Commission Guidelines on exhumation	A	KH	Y	LGT, SGT/ Practicals / Seminars, DOAP	Written/ Viva voce/ OSPE	
FM2.27	Demonstrate ability to exchange information by verbal, or nonverbal communication to the peers, family members, law enforcing agency and judiciary	A and C	KH	Y	LGT, SGT/ Practicals / Seminars, DOAP	Written/ Viva voce	
FM2.28	Demonstrate ability to use local resources whenever required like in mass disaster situations	A and C	KH	Y	LGT, SGT/ Practicals /Seminars	Written/ Viva voce	
Topic 3: Mechanical asphyxia		**Number of competencies: (04)**			**Number of competencies that require certification : (NIL)**		
FM3.1	Define, classify and describe asphyxia and medico-legal interpretation of post-mortem findings in asphyxial deaths	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/ Viva voce/OSPE	
FM3.2	Describe and discuss different types of hanging and strangulation including clinical findings, causes of death, post-mortem findings and medico-legal aspects of death due to hanging and strangulation including examination, preservation and dispatch of ligature material	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy DOAP	Written/ Viva voce/OSPE	
FM3.3	Describe and discuss patho-physiology, clinical features, post-mortem findings and medico-legal aspects of traumatic asphyxia, obstruction of nose & mouth, suffocation and sexual asphyxia	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/ Viva voce/OSPE	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
FM3.4	Describe and discuss types, patho-physiology, clinical features, postmortem findings and medico-legal aspects of drowning	K	KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/ Viva voce/OSPE	
	Topic 4: Clinical forensic medicine – identification	**Number of competencies: (05)**			**Number of competencies that require certification : (NIL)**		
FM4.1	Define and describe Corpus Delicti, establishment of identity of living persons including race, sex, religion, complexion, stature.	K	KH	Y	LGT, SGT/ Practicals / Seminars , Bedside clinic, DOAP	Written/Viva voce/ skill assessment	
FM4.2	Discuss teeth-eruption, decay, bite marks, and medico-legal aspects of teeth.	K	KH	Y	LGT, SGT/ Practicals / Seminars , Bedside clinic, DOAP	Written/Viva voce/ skill assessment	
FM4.3	Discuss age determination using morphology, bones- ossification centers and medico-legal aspects of age.	K	KH	Y	LGT, SGT/ Practicals / Seminars , Bedside clinic, DOAP	Written/Viva voce/ skill assessment	
FM 4.4	Describe and discuss identification of criminals, unknown persons, dead bodies from the remains-hairs, fibers, teeth, anthropometry	K	KH	Y	LGT, SGT/ Practicals / Seminars , Bedside clinic, DOAP	Written/Viva voce/ skill assessment	
FM4.5	Dactylography, footprints, scars, tattoos, poroscopy and superimposition	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
	Topic 5: Clinical forensic medicine - mechanical injuries and wounds	**Number of competencies: (06)**			**Number of competencies that require certification : (NIL)**		
FM5.1	Define, describe and classify different types of mechanical injuries, abrasion, bruise, laceration, stab wound, incised wound, chop wound, defense wound, self- inflicted/fabricated wounds and their medico-legal aspects	K	KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, DOAP	Written/ Viva voce/OSCE	
FM5.2	Define injury, assault & hurt. Describe Bharatiya Nyay Sanhita (BNS) pertaining to injuries	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	

FM5.3	Describe accidental, suicidal and homicidal injuries. Describe simple, grievous and dangerous injuries. Describe ante-mortem and post-mortem injuries	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM5.4	Describe healing of injury and fracture of bones with its medico-legal importance	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
FM5.5	Describe factors influencing infliction of injuries and healing, examination and certification of wounds and wound as a cause of death: Primary and Secondary	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM5.6	Describe and discuss different types of weapons including dangerous weapons and their examination	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
Topic 6: Clinical forensic medicine - firearm injuries		**Number of competencies: (02)**			**Number of competencies that require certification : (NIL)**		
FM6.1	Describe different types of firearms including structure and components. Along with description of ammunition propellant charge and mechanism of fire-arms, different types of cartridges and bullets and various terminology in relation of firearm – caliber, range, choking	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM6.2	Describe and discuss wound ballistics-different types of firearm injuries, blast injuries and their interpretation, preservation and dispatch of trace evidences in cases of firearm and blast injuries, various tests related to confirmation of use of firearms	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, DOAP	Written/Viva voce/OSCE	
Topic 7: Clinical forensic medicine - regional injuries		**Number of competencies: (02)**			**Number of competencies that require certification : (NIL)**		
FM7.1	Describeanddiscuss regional injuries to head(Scalpwounds, fracture skull, intracranial hemorrhages, coup and countercoup injuries), neck, chest, abdomen, limbs, genital organs, spinal cord and Skeleton	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic or autopsy, DOAP	Written/ Viva voce/ OSCE/OSPE	

FM7.2	Describe and discuss injuries related to fall from height and vehicular injuries – Primary and Secondary impact, Secondary injuries, crush syndrome, railway spine	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic or autopsy, DOAP	Written/ Viva voce/ OSCE/OSPE	
Topic 8: Clinical forensic medicine - sexual offences		**Number of competencies: (16)**			**Number of competencies that require certification : (NIL)**		

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
FM8.1	Describe various sections of BNS and BNSS related to definition of rape, medical examination of rape victim/ survivor and accused of rape, police information by the doctors and medical care with recent amendments notified till date (i.e. Sections 63 BNS, 200 BNS, 397 BNSS & 184 BNSS, 52 BNSS), and recent amendments notified till date, sections 3 to 12, 27 and 41 of Protection of Children from sexual offences (POCSO) Act.	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Video Demo.	Written/ Viva voce/ OSCE/OSPE	
FM8.2	Describe and discuss the examination of the survivor of an alleged case of rape, and the preparation of report, framing the opinion and preservation and dispatch of trace evidences in such cases	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, DOAP, Video Demo.	Written/ Viva voce/OSCE	
FM8.3	Describe and discuss informed consent in sexual intercourse. Describe and discuss histories of gender and sexuality-based (sexual orientation) identities and rights in India. Describe history of decriminalization of 'adultery' and consensual adult homosexual sexual behaviour. Describe sexual offences with its medicolegal significance- ➢ Forced/ non-consensual penetrative anal sex ➢ Forced/ non-consensual oral sex ➢ Sexual acts with animals/ bestiality/ zoophilia ➢ Forced/ non-consensual insertion of fingers or objects Forced/ non-consensual touching or groping or disrobing ('indecent assault').	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	

FM 8.4	Define and discuss infanticide, foeticide and stillbirth	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM8.5	Define and discuss signs of intrauterine death, signs of live birth, viability of foetus, age determination of foetus, DOAP of ossification centres, Hydrostatic test, Sudden infant death syndrome and Munchausen's syndrome by proxy.	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM8.6	Describe the difference between paraphilia and paraphilic disorder. Describe paraphilic disorder as per the latest guidelines of DSM and ICD and describe medico-legal implications of paraphilic disorder by referring scientific literature and legal justification (if any). Describe and discuss various paraphilias in the context of informed consent during any sexual interaction.	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM8.7	Describe legitimacy and its medico legal importance. Describe and discuss how 'signs' of virginity (so called 'virginity test', including finger tests (on female genitalia) are unscientific, inhuman and discriminatory. Describe and discuss how to appraise the courts about unscientific basis of these tests if court orders it.	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM8.8	Discuss the medico legal aspects of pregnancy and delivery, signs of pregnancy, precipitate labour, superfoetation, superfecundation and signs of recent and remote delivery in living and dead	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
FM8.9	Discuss disputed paternity and maternity	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM8.10	Discuss Pre-conception and Pre Natal Diagnostic Techniques (PC&PNDT) - Prohibition of Sex Selection Act 2003 and Domestic Violence Act 2005 with Amendments	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM8.11	Define and discuss impotence, sterility, frigidity, sexual dysfunction, premature ejaculation. Discuss the causes of impotence and sterility in male and female	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	

FM8.12	Discuss Sterilization of male and female, artificial insemination, Test Tube Baby, surrogate mother, hormonal replacement therapy with respect to appropriate national and state laws	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM8.13	Discuss the relative importance of surgical methods of contraception(vasectomy and tubectomy) as methods of contraception in the National Family Planning Programme	K	K/KH	N	SDL	Written	
FM 8.14	Discuss Assisted Reproductive Technology Regulation Act 2021 and Surrogacy Act 2021 for accreditation, supervision and regulation of ART and Surrogacy Clinics in India.	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written	
FM8.15	Define, classify and discuss abortion, methods of MTP and criminal abortion and complication of abortion. MTP Act 2021 and recent amendments.	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written	
FM8.16	Describe evidences of abortion - living and dead, duties of doctor in cases of abortion, investigations of death due to criminal abortion	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
Topic 9: Clinical forensic medicine - child abuse and torture and human rights Number of competencies: (04) Number of competencies that require certification : (NIL)							

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
FM9.1	Describe and discuss child abuse and battered baby syndrome	K	K/KH	Y	LGT, SGT/ Practicals/ Seminars	Written/ Viva voce	
FM9.2	Describe and discuss issues relating to torture, identification of injuries caused by torture and its sequalae, management of torture Survivors	K	K/KH	N	SDL	Written/ Viva voce	
FM9.3	Describe and discuss guidelines and Protocols of National Human Rights Commission regarding torture	K	K/KH	N	SDL	Written/ Viva voce	
FM9.4	Should be able to demonstrate the professionalism while dealing with survivor of torture and human right violations, sexual assaults- psychological consultation, rehabilitation	A, C	K/KH/SH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	

Topic 10: Medical jurisprudence (medical law and ethics)		Number of competencies: (29)			Number of competencies that require certification : (NIL)		
FM10.1	Describe Medical Ethics and explain its historical emergence	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.2	Describe the Indian Medical Register	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.3	Describe the functions and role of National Medical Commission and State Medical Councils	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.4	Describe the Code of Medical Ethics 2002 conduct, Etiquette and Ethics in medical practice and unethical practices & the dichotomy	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.5	Rights/privileges of a medical practitioner, penal erasure, infamous conduct, disciplinary Committee, disciplinary competencies, warning notice and penal erasure	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.6	Describe the Laws in Relation to medical practice and the duties of a medical practitioner towards patients and society	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.7	Describe and discuss ethics related to HIV patients and legal aspects as per The Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (Prevention and Control) Act, 2017.	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.8	Describe the Consumer Protection Act-2019 (Medical Indemnity Insurance, Civil Litigations and Compensations)	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.9	Describe the medico - legal issues in relation to family violence, violation of human rights, NHRC and doctors	K	KH	N	SDL	Written/ Viva voce	
FM10.10	Describe communication between doctors, public and media	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.11	Describe and discuss euthanasia and Do not Resuscitate (DNR)	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.12	Discuss legal and ethical issues in relation to stem cell research	K	KH	N	SDL	Written/ Viva voce	

FM10.13	Describe social aspects of Medico-legal cases with respect to survivors of assault, rape, attempted suicide, homicide, domestic violence, dowry- related cases	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.14	Describe & discuss the challenges in managing medico-legal cases including development of skills in relationship management – Human behavior, communication skills, conflict resolution Techniques	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.15	Describe the principles of handling pressure – definition, types, causes, sources and skills for managing the pressure while dealing with medico-legal cases by the doctor	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.16	Describe and discuss Bioethics	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.17	Describe and discuss ethical Principles: Respect for autonomy, non-malfeasance, beneficence & justice	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.18	Describe and discuss medical negligence including civil and criminal negligence, contributory negligence, corporate negligence, vicarious liability, Res Ipsa Loquitor, prevention of medical negligence and defenses in medical negligence litigations	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.19	Define Consent. Describe different types of consent and ingredients of informed consent. Describe the rules of consent and importance of consent in relation to age, emergency situation, mental illness and alcohol intoxication	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.20	Describe therapeutic privilege, Malingering, therapeutic Misadventure, Professional Secrecy, Human Experimentation	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.21	Describe Products liability and Medical Indemnity Insurance	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.22	Explain Oath – Hippocrates, Charaka and Sushruta and procedure for administration of Oath.	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	

FM10.23	Describe the modified Declaration of Geneva and its relevance	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.24	Enumerate rights, privileges and duties of a Registered Medical Practitioner. Discuss doctor- patient relationship: professional secrecy and privileged communication	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.25	Clinical research & Ethics Discuss human experimentation including clinical trials	K	KH	N	SDL	Written/ Viva voce	
FM10.26	Discuss the constitution and functions of ethical committees	K	KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.27	Describe and discuss Ethical Guidelines for Biomedical Research on Human Subjects & Animals	K	KH	N	SDL	Written/ Viva voce	
FM10.28	Demonstrate respect to laws relating to medical practice and Ethical code of conduct prescribed by National Medical Commission and rules and regulations prescribed by it from time to time	A and C	SH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM10.29	Demonstrate ability to conduct research in pursuance to guidelines or research ethics	A and C	KH/SH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
Topic 11: Forensic psychiatry		**Number of competencies: (06)**			**Number of competencies that require certification : (NIL)**		

Number	**COMPETENCY** **The student should be able to**	**Predominant Domain K/S/A/C**	**Level K/KH/SH/P**	**Core (Y/N)**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**Number required to certify P**
FM11.1	Classify common mental illnesses including post-traumatic stress disorder (PTSD)	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM11.2	Define, classify and describe delusions, hallucinations, illusion, lucid interval and obsessions with exemplification	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM11.3	Describe Civil and criminal responsibilities of a mentally ill person	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM11.4	Differentiate between true mental illness from feigned mental illness	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	

FM11.5	Describe & discuss Delirium tremors	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM11.6	Describe the Indian Mental Health Act, 2017 and recent amendments with special reference to admission, care and discharge of a mentally ill person	K	K/KH	N	SDL	Written/ Viva voce	
Topic 12: Forensic laboratory investigation, recent advances and trace evidences		**Number of competencies: (06)**			**Number of competencies that require certification : (NIL)**		
FM12.1	Describe different types of specimen and tissues to be collected both in the living and dead: Body fluids (blood, urine, semen, faeces saliva), Skin, Nails, tooth pulp, vaginal smear, viscera, skull, specimen for histo-pathological examination, blood grouping, HLA Typing and DNA Fingerprinting. Describe Locard's Exchange Principle	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM12.2	Describe the methods of sample collection, preservation, labelling, dispatch, and interpretation of reports	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM12.3	Cyber Forensic in relation to Privacy of Medical Documents	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM12.4	Demonstrate professionalism while sending the biological or trace evidences to Forensic Science laboratory, specifying the required tests to be carried out, objectives of preservation of evidences sent for examination, personal discussions on interpretation of findings	A and C	KH/SH	Y	LGT, SGT/ Practicals / Seminars, DOAPs	Viva voce / OSPE	
FM12.5	Demonstrate the professionalism while preparing reports in medico legal situations, interpretation of findings and making inference/opinion, collection preservation and dispatch of biological or trace evidences	A and C	SH	Y	LGT, SGT/ Practicals / Seminars	OSPE/Viva voce	

FM12.6	Enumerate the indications and describe the principles and appropriate use for: - DNA profiling - -Facial reconstruction - Polygraph (Lie Detector) - Narcoanalysis, - Brain Mapping, Digital autopsy, - Virtual Autopsy, Imaging technologies	K	K/KH	N	SDL	Written/ Viva voce	
	Topic 13: Toxicology	**Number of competencies: (21)**			**Number of competencies that require certification : (NIL)**		
FM13.1	Describe the history of Toxicology	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM13.2	Define the terms Toxicology, Forensic Toxicology, Clinical Toxicology and poison.	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM13.3	Describe the various types of poisons, Toxicokinetics, and Toxicodynamics and diagnosis of poisoning in living and dead	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/viva voce	
FM13.4	Describe the Laws in relations to poisons including NDPS Act, Medico-legal aspects of poisons	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM13.5	Describe Medico-legal autopsy in cases of poisoning including preservation and dispatch of viscera for chemical analysis	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy, DOAP	Written/ Viva voce/OSPE	
FM13.6	Describe the general symptoms, principles of diagnosis and management of common poisons encountered in India	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, DOAP	Written/ Viva voce/OSCE	
FM13.7	Describe simple Bedside clinic tests to detect poison/drug in a patient's body fluids	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, DOAP	Written/ Viva voce/OSCE	
FM13.8	Describe basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, competencies of enhanced elimination	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, DOAP	Written/ Viva voce/OSCE	

FM13.9	Describe the procedure of intimation of suspicious cases or actual cases of foul play to the police, maintenance of records, preservation and dispatch of relevant samples for laboratory analysis.	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM13.10	Describe the general principles of Analytical Toxicology and give a brief description of analytical methods available for toxicological analysis: Chromatography – Thin Layer Chromatography, Gas Chromatography, Liquid Chromatography and Atomic Absorption Spectroscopy	K	K/KH	Y	LGT, SGT/ Practicals / Seminars	Written/ Viva voce	
FM13.11	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, competencies of enhanced elimination with regard to: Caustics Inorganic – sulphuric, nitric, and hydrochloric acids; Organic- Carbolic Acid (phenol), Oxalic and acetylsalicylic acids	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, Autopsy, DOAP	Written/ Viva voce/OSCE	
FM13.12	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, competencies of enhanced elimination with regard to Phosphorus, Iodine, Barium	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, Autopsy, DOAP	Written/ Viva voce/OSCE	
FM13.13	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, competencies of enhanced elimination with regard to Arsenic, lead, mercury, copper, iron.	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, Autopsy, DOAP	Written/ Viva voce/OSCE	
FM13.14	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, competencies of enhanced elimination with regard to Ethanol, methanol, ethylene glycol Local Made Liquor and Hooch Tragedy	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, Autopsy, DOAP	Written/ Viva voce/OSCE	
FM13.15	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, competencies of enhanced elimination with regard to Organophosphates, Carbamates, Organochlorines, Pyrethroids, Paraquat, Aluminium and Zinc phosphide	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, Autopsy, DOAP	Written/ Viva voce/OSCE	

FM13.16	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, competencies of enhanced elimination with regard to Ammonia, carbon monoxide, hydrogen cyanide & derivatives, methyl isocyanate, tear (riot control) gases	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, Autopsy, DOAP	Written/ Viva voce/OSCE	
FM13.17	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, competencies of enhanced elimination with regard to: i. Antipyretics – Paracetamol, Salicylates ii. Anti-Infectives (Common antibiotics – an overview) iii. Neuropsychotoxicology Barbiturates, benzodiazepines, phenytoin, lithium, haloperidol, neuroleptics, tricyclics	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, Autopsy, DOAP	Written/ Viva voce/OSCE	

FM13.18	Describe General Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, competencies of enhanced elimination with regard to: iv. Narcotic Analgesics, Anaesthetics, and Muscle Relaxants v.Cardiovascular Toxicology Cardio toxic plants – oleander, Cerbera odollam, aconite, digitalis vi. Gastro- Intestinal and Endocrinal Drugs – Insulin	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Bed side clinic, Autopsy, DOAP	Written/ Viva voce/OSCE	
FM13.19	Describe features and management of Snake bite, scorpion sting, bee and wasp sting and spider bite	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy	Written/ Viva voce	
FM13.20	Describe features and management of abuse/poisoning of Tobacco, cannabis, amphetamines, cocaine, hallucinogens, designer drugs & solvent, Mushroom Poisoning, Food Poisoning	K	K/KH	Y	LGT, SGT/ Practicals / Seminars, Autopsy	Written/ Viva voce	
FM13.21	Describe toxic pollution of environment, its medico-legal aspects &toxic hazards of occupation and industry	K	K/KH	N	SDL	Written/ Viva voce	

Topic 14: Skills in forensic medicine & toxicology		Number of competencies: (20)			Number of competencies that require certification: (5)		
FM14.1	Examine and prepare Medico-legal report of an injured person with different etiologies in a simulated/ supervised environment	S	SH/P	Y	Bedside clinic (ward/ casualty), SGT/ Practicals / Seminars	Log book/ Skill station/Viva voce / OSCE	3
FM14.2	Demonstrate the correct technique of clinical examination in a suspected case of poisoning & prepare medico-legal report in a simulated/ supervised environment	S	SH	Y	Bedside clinic (ward/casualty), SGT/ Practicals / Seminars	Log book/ Skill station/Viva voce / OSCE	
FM14.3	Assist and demonstrate the proper technique in collecting, preserving and dispatch of the exhibits in a suspected case of poisoning, along with clinical examination	S	SH	Y	Bedside clinic, SGT/ Practicals / Seminars, DOAP	Skill lab/ Viva voce	
FM14.4	Conduct and prepare report of estimation of age of a person for medico-legal and other purposes & prepare medico-legal report in a simulated/ supervised environments	S	KH	Y	SGT/ Practicals / Seminars, Demonstration	Log book/ Skill station/Viva voce / OSCE	
FM14.5	Examine and prepare Medical Certificate Of Cause Of Death (MCCD)in a simulated/ supervised environment	S	SH/P	Y	Bedside clinic (ward/ casualty), SGT/ Practicals / Seminars	Log book/ Skill station/Viva voce / OSCE	3
FM14.6	Conduct & prepare post-mortem examination report of varied etiologies (at least 15) in a simulated/ supervised environment	S	KH	Y	SGT/ Practicals / Seminars, Autopsy, DOAP	Log book/ Skill station/Viva voce / OSCE	3
FM14.7	Demonstrate the correct technique to perform and identify ABO &RH blood group of a person	S	SH	Y	SGT/ Practicals / Seminars, DOAP	Log book/Skill station/Viva voce	
FM14.8	Demonstrate examination of & present an opinion after examination of skeletal remains in a simulated/ supervised environment	S	SH	Y	SGT/ Practicals / Seminars, DOAP	Log book/Skill station/Viva voce	
FM14.9	Demonstrate ability to identify & prepare medico legal inference from specimens obtained from various types of injuries e.g. contusion, abrasion, laceration, firearm wounds, burns, head injury and fracture of bone	S	KH	Y	SGT/ Practicals / Seminars, DOAP	Log book/Skill station/Viva voce/ OSPE	

FM14.10	To identify & describe weapons of medico legal importance which are commonly used e.g. lathi, knife, kripan, axe, gandasa, gupti, farsha, dagger, bhalla, razor & stick. Able to prepare report of the weapons brought by police and to give opinion regarding injuries present on the person as described in injury report/ PM report so as to connect weapon with the injuries. (Prepare injury report/ PM report must be provided to connect the weapon with the injuries)	S	KH	Y	SGT/ Practicals / Seminars, DOAP	Log book/Skill station/Viva voce/ OSPE	
FM14.11	Describe the contents and structure of bullet and cartridges used &to provide medico- legal interpretation from these	S	KH	Y	SGT/ Practicals / Seminars, DOAP	Log book/ Skill	
FM14.12	To estimate the age of foetus by post-mortem examination	S	KH	Y	SGT/ Practicals / Seminars, DOAP	Theory/ Clinical assessment/ Viva voce	
FM14.13	To examine & prepare report of an alleged accused person in cases of various sexual offences in a simulated/ supervised	S	KH	Y	SGT/ Practicals / Seminars, DOAP	Log book/ Skill station/Viva voce /	3
	environment. Demonstrate an understanding of framing the opinion, preservation and dispatch of trace evidencxes in such cases. Describe and discuss personal opinions and their impact on such examinations and the need for objectivity/ neutrality to avoid prejudice influencing the case.					OSCE	
FM14.14	To examine & prepare medico-legal report on an alleged victim/ survivor of various sexual offences in a simulated/ supervised environment. (Guidelines and protocols of Medico Legal Care for Survivors/ Victims of sexual violence; Ministry of Health and Family Welfare, GOI- with latest modifications if any). Demonstrate an understanding of framing the opinion, preservation and dispatch of trace evidences in such cases. Describe and discuss sympathetic/ empathetic examination and interview of victims/ survivors of sexual assault, including presence of trusted adult figure (person) in cases of minor victims/ survivors.	S	KH	Y	SGT/ Practicals / Seminars, DOAP	Log book/ Skill station/Viva voce / OSCE	3
FM14.15	To examine & prepare medico-legal report of drunk person in a simulated/ supervised environment	S	KH	Y	SGT/ Practicals / Seminars, Bed side clinic, DOAP	Log book/ Skill station/Viva voce / OSCE	

FM14.16	To identify & draw medico-legal inference from common poisons e.g. dhatura, castor, cannabis, opium, aconite copper sulphate, pesticides compounds, marking nut, oleander, Nux vomica, abrus seeds, Snakes, capsicum, calotropis, lead compounds & tobacco.	S	KH	Y	SGT/ Practicals / Seminars, DOAP	Log book/ Viva voce	
FM14.17	To examine & prepare medico-legal report of a person in police, judicial custody or referred by Court of Law and violation of human rights as requirement of NHRC, who has been brought for medical examination	S	KH	Y	SGT/ Practicals / Seminars, DOAP	Log book/ Skill station/Viva voce / OSCE	
FM14.18	To record and certify dying declaration in a simulated/ supervised environment	S	KH	Y	SGT/ Practicals / Seminars, Role Play, Bed side clinic DOAP	Log book/ Skill station/Viva voce /OSCE	
FM14.19	To collect, preserve, seal and dispatch exhibits for DNA-Fingerprinting using various formats of different laboratories.	S	KH	Y	LGT , SGT/ Practicals / Seminars,	Log book/ Skill station/Viva voce	
FM14.20	To give expert medical/ medico-legal evidence in Court of law	S	KH	Y	LGT, SGT/ Practicals / Seminars, DOAP, role play, Court Visits	Log book/ Viva voce/OSCE	

LIST OF CONTRIBUTORS

Anatomy

Chairperson: Dr. Praveen R Singh, Professor of Anatomy and Medical Education, Assistant Dean, Basic Sciences Education, Convener, NMC executive committee on FDP, Convenor, NMC-Nodal Centre for MET, Pramukhswami Medical College, Karamsad-388325, Gujarat.

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