# MBBS Year- III

## National University of Medical Sciences
## Pakistan

# Study Guide
## CMH Institute of Medical Sciences (CIMS)
## Bahawalpur

# CALENDAR OF 3rd YEAR MBBS CLASS (2020/ 2021)

| Description | Date & Day | | Deptt Responsibilities |
|---|---|---|---|
| **College Re-Opening** | 7 June 2021 (Mon) | | |
| **Prac Rotation /Trg Hrs**<br>07 June To 05 Sep 2021<br>(12 Weeks) | | 07 Jun to 05 Sep 2021 | • 12 Weeks each Deptt<br>• Time: 0800 hrs onwards<br>• All left over practicals trg to be completed<br>• OSPE trg / rehearsals<br>• Annual Assessment for NUMS |
| | **Pharmacology** | Whole Class( Practical & CBL in batches) | |
| | **G. Pathology** | Whole Class( Practical & CBL in batches) | |
| | **Forensic Med** | Whole Class( Practical & CBL in batches) | |
| **Eid ul Azha Leave** | 17-25 July 2021 | | |
| **Module Exam (2nd & 3rd)** | 27 Aug to 07 Sep 2021 | | Respective Departments |
| **Pre Send up Prep Leave** | 08-12 Sep 2021 (05 Days) | | |
| **Send up Exam (Theory)** | 13 Sep 2021 (Mon) - 0900hrs | Pharmacology | Exam Cell |
| | 16 Sep 2021 (Thur) - 0900 hrs | G. Pathology | |
| | 18 Sep 2021 (Sat) - 0900 hrs | Forensic Med | |
| **Practical/Viva/OSPE** | 20-22 Sep 2021 | Pharmacology, G. Path & Forensic Med | Respective Departments |
| **Paper Discussion** | 23-25 Sep 2021 | | |
| **Prep Leave Annual Exam** | 26 Sep to 25 Oct 2021 (30 Days) | | |
| **NUMS Prof Exams** | 26 Oct 2021 | | |

# WEEKLY TIME TABLE
# 3rd YEAR MBBS CLASS
# 2020 / 2021

| HOURS | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Monday | Pathology | Pharmacology | **Break** | Practical Batch 1, Batch 2, Batch 3 Path, Pharm & Fore | | Pathology | Medicine |
| Tuesday | Pathology | Pharmacology | Forensic Medicine | Practical Batch 1, Batch 2, Batch 3 Path, Pharm & Fore | | SDL | Pathology |
| Wednesday | Pathology | Pharmacology | **Break** | Practical Batch 1, Batch 2, Batch 3 Path, Pharm & Fore | | Forensic Medicine | SDL |
| Thursday | Pathology | Pharmacology | **Break** | CBL Batch 1 & Batch 2 | Pharmacology | Surgery | SDL |
| Friday | Pathology | Pharmacology | Research Methodology & Evidence based Medicine | CBL Batch 1 & Batch 2 | Pharmacology | ***JUMMA BREAK*** | Behavioral Sciences & Professionalism |

**KEY:**

- Pre-clinical sciences
- Practical/ CBL: SGDs
- Clinical Sciences
- Behavioral Sciences
- Research
- Self-Directed learning

# TEACHING HOURS

| SUBJECTS | THIRD YEAR | TOTAL |
|---|---|---|
| General Pathology/ Microbiology | 260 | ***500 (Total Hours of Pathology including Gen Pathology & Special Pathology)** |
| Special Pathology | | |
| Forensic Medicine | 100 | *100 |
| Research Methodology & Evidence based Medicine | 20 | ***100 (at the end of the final year)** |
| Medicine | 120 | ***900 (at the end of the final year)** |
| General Medicine | | 500 |
| Psychiatry | | 50 |
| Emergency Medicine | | 50 |
| Dermatology | | 50 |
| Cardiology | | 50 |
| Neurology | | 50 |
| Pulmonology | | 50 |
| Nephrology | | 50 |
| Gastroenterology | | 50 |
| Surgery | 120 | ***900 (at the end of the final year)** |
| General Surgery | | *600 |
| Anesthesiology and Critical Care | | *50 |
| Orthopedics and Traumatology | | *100 |
| Radiology | | *50 |
| Surgical Specialties:<br>- Urology (Compulsory)<br>- Neurosurgery/ Spine Surgery/ Pediatric Surgery/ Thoracic Surgery/ Plastic Surgery/ Burn/ Vascular Surgery | | 50<br>50 |
| Gynecology and obstetrics | | *300 |
| Pediatrics | | *300 |
| Pediatrics | | 250 |
| Neonatology | | 50 |
| Behavioral Sciences & Professionalism | | ***150 (at the end of the final year)** |
| Communication Skills | 40 | |
| Professionalism | | |
| Leadership and Management | | |
| Medical and Islamic ethics | | |
| Infection control | 15 | ***25 (at the end of the final year)** |
| Patient safety | | ***25 (at the end of the final year)** |
| Self-Directed Learning | 100 | ***500 (at the end of the final year)** |
| Co-curricular activities | 40 | ***200 (at the end of the final year)** |

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# Guidelines: 3rd Year MBBS Curriculum

## 1. Preamble.

a. The curriculum meets the standards of Pakistan Medical and Dental Council and Higher Education Commission of Pakistan so that our students, on completion of program have required competencies as defined worldwide in a graduate doctor. NUMS curriculum, revised 2017, is based on SPICES model of educational strategies. It is student centered, problem based, integrated, community oriented and systematic. Our curriculum is evolved taking into consideration traditional, experiential, behavioral, and constructivist perspectives of curricula.

b. The curriculum framework, for 3rd year MBBS has been developed by the faculty of constituent/affiliated colleges in collaboration with Academic Directorate of NUMS duly approved in 7th Academic Council Meeting held on 29th January' 18.

c. There are three blocks in an academic year. The duration of 1st Block is 12 weeks and rest of the two are of 10 weeks each.

## 2. Vision of MBBS Program

NUMS strive to inspire nationally and internationally by pursuing excellence in medical education, research and patient care to meet the evolving healthcare needs of the nation and the region through Professionalism, Excellence and Teamwork.

## 3. Mission Statement

Our mission is to:

a) Create and nurture a diverse community of the best people as key members of the medical community, whether in clinical practice, medical education, research or as leaders of the health-care system, serving both the uniformed and the nation at large.

b) Produce socially accountable competent doctors who will make a significant contribution to the health of the community through evidence-based healthcare.

c) Attract best faculty who can contribute to the quality of medical education and research.

## 4. Educational Strategies

- Lectures
- Small group discussion
- Lab practical
- Skill lab

- Case based learnings
- Tutorials

## 5. Resources

a. **Faculty:** To be filled in by the institute

b. **Facilities:** To be filled in by the institute (Lecture hall, labs, SGD rooms)

## 6. Administration for Course

To be filled in by the institute

## 7. Administrative structure: Support staff. To be filled in by the institute

## 8. Communication: How Students are informed about their sessions e.g. via notice board

## 9. Internal Assessment

During the block the students shall be continually formatively assessed. The weightage of internal assessment shall be 10 % in 3rd professional MBBS Examination. There shall be three internal blocks and one pre -annual examination. The scores of tests of each end block assessment and pre-annual examination shall be used for calculation of the internal assessment.

## 10. Annual Professional Examination.

The University shall take the 3rd professional Examination as per PM&DC guidelines at the end of the academic year. Annual Theory & Practical Examination shall be of 300 marks each in Gen Pathology/Microbiology; Pharmacology/Therapeutics and 200 marks in Forensic Medicine/Toxicology. The pass score shall be 50% in theory and practical separately. The detail marked distribution of 3rd year is given below: -

**Contact Hours and marks allocation in third year Professional MBBS**

| S No | Subjects | Contact Hours | Total Marks | Clinical Rotation |
|---|---|---|---|---|
| **Examining** | | | | |
| 1 | Pharmacology and Therapeutics | 300 | 300 | |
| 2 | Gen Pathology & Microbiology | 260 | 300 | |
| 3 | Forensic Medicine | 100 | 200 | |
| **Non examining (Clinical)*** | | | | |
| 4 | Medicine & Allied | 120 | | 08 Weeks |
| 5 | Surgery & Allied | 120 | | 08 Weeks |
| **Total** | | **900** | | |

*For clinical subjects contact hours may be covered by following teaching strategies:

- LGIS
- SGD
- 08 week clinical rotation **(mandatory)**

## 11. Evaluation of the Course

To be filled in by the institute

Mechanism of taking feedback from student and faculty to each other.
After taking test, how the key formed by faculty is discussed with the students.
How end of block evaluation is carried out.

# SECTION - I

# PHARMACOLOGY

# PHARMACOLOGY - BLOCK I

**CODE: Y3B1**

**Duration: 12 weeks**

**By the end of Block I, the students will be able to:**

| S No | Theme/Block | Learning Outcomes | Course Content | % Weightage |
|---|---|---|---|---|
| 1 | ***General Pharmacology*** | • Interpret the different pharmacokinetic patterns, their clinical significance and factors affecting these parameters.<br>• Correlate the concept of molecular mechanistic to the therapeutics.<br>• Identify the genetic principles in drug disposition | • Pharmacology: Introduction, Historical overview<br>• Branches/division of Pharmacology,<br>• Sources & active principles of drugs<br>• Routes of administration of drugs<br>• Pharmacokinetics:<br>• Absorption of drugs: processes<br>• Factors modifying drug absorption<br>• Distribution &plasma protein binding of drugs<br>• Biotransformation of drugs<br>• Factors modifying biotransformation<br>• Bioavailability: clinical significance & factors affecting<br>• Half-life of drugs: factors affecting &clinical significance<br>• Excretion of drugs: Drug clearance<br>• Pharmacodynamics: Mechanism of drug action<br>• Factors modifying actions & doses of drugs | **25** |
| 2 | ***Drugs acting on ANS*** | Correlate the physiology of autonomic receptors with the therapeutic application | • A N S: Introduction<br>• Parasympathomimetics or cholinergic Drugs<br>• Anti Cholinesterases, Myesthenia gravis<br>• Organophosphate poisoning & Oximes<br>• Cholinergic blockers: Natural alkaloids, Comparison between Hyoscine & Atropine<br>• Catecholamines: Adrenaline.,Nor adrenaline, Dopamine & Dobutamine<br>• Non Catecholamines: Ephedrine, Amphetamines α/β2 receptor agonists etc<br>• Adrenergic Blockers: Alpha-receptor Blockers, Beta receptor Blockers | **25** |

| | | | | |
|---|---|---|---|---|
| | | | • Central Sympathoplegics<br>• Skeletal Muscle Relaxants<br>• Drug treatment of glaucoma | |
| 3 | ***Drugs acting on CVS*** | Relate the pathophysiology of heart and vessels to its treatment modalities | • Revisiting physiology of CVS<br>• Cardiotonic drugs: Management of cardiotoxicity of cardiac glycosides<br>• Antihypertensive drugs<br>• Drug Treatment of IHD<br>• Anti arrhythmic drugs | **20** |
| 4 | **Blood** | Justify the management plan of anemia, coagulation disorders and dyslipidemias by correlating it to the patho-physiological basis of disease | • Haematinics<br>• Anticoagulants<br>• Thrombolytic<br>• Anti-platelets<br>• Anti Hyperlipidemics | **15** |
| 5 | **Diuretics** | • Recollect the anatomical physiological basis of renal system.<br>• Differentiate therapeutic application of different diuretics | Thiazide, loop,K sparing, osmotic , Carbonic Anhydrase inhibitors | **15** |
| **Total** | | | | **100%** |
| **End Block Assessment** | | **End block assessment is to be taken by the concerned institute itself. Assessment tools: MCQs & SAQs/SEQs** | | |

## List of Practicals

Note: The practicals can be shifted from one Block to other Block depending upon the convenience of the HOD of any Institute.

| **PHARMACOLOGY - BLOCK I** | | |
|---|---|---|
| **CODE: Y3B1** | | |
| **Duration: 12 weeks** | | |
| **By the end of Block I, the students will be able to:** | | |
| **S No** | **Theme** | % |
| 1 | Justify the advantages and disadvantages of different routes of administration | **10** |
| 2 | Perform and interpret the effects of cardiac specific drugs on frog's heart. | **15** |
| 3 | Evaluate the effect of drugs on blood vessels of frogs. | **15** |
| 4 | Interpret and report the effects of CNS stimulants/depressants n frog | **15** |
| 5 | Interpret and report the effects of drugs in rabbit's eye | **15** |
| 6 | Interpret and report the effects of drugs on isolated rabbit's ileum | **30** |
| **Total** | | **100** |
| | | |

# PHARMACOLOGY - BLOCK II

**CODE: Y3B2**

**Duration: 10 weeks**

**By the end of Block II, the students will be able to:**

| S No | Theme/Block | Learning Outcomes | Course Content | % Weightage |
|---|---|---|---|---|
| 1 | **Central Nervous System** | • Correlate the patho-physiology of psychiatric illnesses to their management<br>• Differentiate between different pharmacological agents (LA, GA, opioids, NSAIDs) used in the pain management<br>• Justify the use of antiparkinson drugs correlating it to the underlying pathophysiology of the disease<br>• Analyze the effects of anti-epileptic drugs in relation to neuro-excitatory illnesses<br>• Strategize the management of migraine in accordance with the underlying disease mechanism<br>• Correlate the effects of substances of abuse (alcohol, opioids, heroin) on body to its plan for aversion therapy<br>• Critique on the pharmacological effects of sedative /hypnotics | • Central Neurotransmission<br>• Gen Anesthetics<br>• Local Anesthetics (LA)<br>• Aliphatic Alcohols<br>• Sedatives/ Anxiolytics & Hypnotics<br>• Anti-epilepsy drugs<br>• Antipsychotic drugs<br>• Anti-depressants<br>• Drugs used in Parkinsonism<br>• Drug treatment of Migraine<br>• Non Narcotic Analgesics<br>a. Non-steroidal Anti- inflammatory drugs (NSAIDs)<br>b. Drugs used in gout.<br>c. DMARDs/ Biological Agents<br>• Opioids<br>• Drug Dependence | **50** |
| 2 | ***Chemotherapy-I*** | • Justify the treatment modalities for various microbes (bacteria, viruses) according to mode of action, resistance patterns and regional current practices<br>• Appraise the principles of cancer chemotherapy in relation to its current therapeutic modalities | Introduction & General Principles of Chemotherapy<br>• Mechanism of Resistance<br>• Penicillins<br>• Cephalosporin<br>• Sulfonamides<br>• Macrolides<br>• Tetracyclines<br>• Chloramphenicol<br>• Aminoglycosides<br>• Quinolones<br>• Anti- tuberculosis drugs | **50** |

| | | | | |
|---|---|---|---|---|
| | | | • Misc Drugs: Clindamycin, Fusidic acids, vancomycin, Nitrofurantoin, Linezolid | |
| **Total** | | | | **100%** |
| | **End Block Assessment** | **End block assessment is to be taken by the concerned institute itself. Assessment tools: MCQs & SAQs/SEQs** | | |

## List of Practicals

Note: The practicals can be shifted from one Block to other Block depending upon the convenience of the HOD of any Institute

| **PHARMACOLOGY - BLOCK II** | | |
|---|---|---|
| **CODE: Y3B2** | | |
| **Duration: 12 weeks** | | |
| **By the end of Block II, the students will be able to:** | | |
| **S No** | **Learning Outcomes** | **%** |
| 1 | Interpret the dose response curve | 30 |
| 2 | Calculate different concentrations of drugs or solutions. | 30 |
| 3 | Justify the selection of priority drugs for certain indications and prescribe medicine accordingly -I | 40 |
| **Total** | | **100** |

# PHARMACOLOGY - BLOCK III

**CODE: Y3B3**

**Duration: 10 weeks**

**By the end of Block III, the students will be able to:**

| S No | Theme/Block | Learning Outcomes | Course Content | % Weightage |
|---|---|---|---|---|
| 1 | ***Chemotherapy-II*** | Justify the treatment modalities for various microbes (helminths, parasites) according to mode of action, resistance patterns and regional current practices-II | • Anti fungal drugs<br>• Anti viral drugs<br>• Anti Malarial<br>• Anti Amoebics<br>• Anthelmintics | **30** |
| 2 | ***Endocrinology*** | • Correlate the pathophysiological basis of pituitary, thyroid and adrenal hormones with their therapeutics.<br>• Correlate types of diabetes mellitus to their different treatment modalities<br>• Justify the clinical use of sex hormones in relation to reproductive physiology<br>• Correlate the patho-physiological basis of osteoporosis to its pharmacological management. | • Antidiabetic drugs<br>• Thyroid/Anti-thyroid drugs<br>• Adrenal Hormones<br>• Sex Hormones: Estrogens & Progestins, Anabolic steroids<br>• Drug used in treatment of Infertility<br>• Hormonal contraceptives<br>• Oxytocic drugs &Uterine Relaxants<br>• Drug treatment of osteoporosis | **43** |
| 3 | **Respiratory System** | Develop and justify the management plan of obstructive pulmonary disorders (Asthma, COPD). | • Expectorants & Antitussives<br>• Drugs used in Bronchial Asthma<br>• Antihistamines ($H_1$ antagonists) Prostaglandins | **10** |
| 4 | **Drugs acting on GIT** | Develop and justify the management plan of common disorders of gastrointestinal tract (peptic ulcer, vomiting, constipation, gastropathies, diarrhea). | • Anti emetics<br>• Antidiarrhoeals<br>• Purgatives/laxatives Drugs used in Peptic Ulcer | **15** |
| 5 | **Miscellaneous Topics** | Outline the essential pharmacological principles of toxicology. | • Heavy Metal Poisoning & Antidotes (Chelating Agents)<br>• Drug – Drug interactions | **02** |
| | | **Total** | | **100%** |
| | **End Block Assessment** | **End block assessment is to be taken by the concerned institute itself. Assessment tools: MCQs & SAQs/SEQs** | | |

## List of Practicals

Note: The practicals can be shifted from one Block to other Block depending upon the convenience of the HOD of any Institute

| PHARMACOLOGY - BLOCK III | | |
|---|---|---|
| **CODE: Y3B3** | | |
| **Duration: 12 weeks** | | |
| **By the end of Block III, the students will be able to:** | | |
| **S No** | **Learning Outcomes** | **%** |
| 1 | Justify the selection of priority drugs for certain indications and prescribe medicine accordingly -II | 50 |
| 2 | Analyze the given quantitative data in a statistically significant manner. | 50 |
| **Total** | | **100** |

# SECTION-II

# GENERAL PATHOLOGY & MICROBIOLOGY

# GENERAL PATHOLOGY & MICROBIOLOGY - BLOCK I

**CODE: Y3B1**

**DURATION: 12 WEEKS**

**By the end of Block I, the students will be able to:**

| S No | Theme/Block | Learning Outcomes | Course Content | % Weightage |
|---|---|---|---|---|
| 1 | **Cell Injury, Cell death & Adaptations** | • Correlate the mechanism of different types of pathological cellular adaptations with the micro and macroscopic structure<br>• Critically analyze the pathological basis of apoptosis<br>• Compare different types of necrosis<br>• Relate the genetic aspects of aging with its current theories<br>• Correlate ischemic changes to its morphology<br>• Relate different types of cellular accumulations with the pathological basis of disease<br>● Differentiate between reversible and irreversible cell injury. (definition, causes, morphology, mechanism, examples) | ● Introduction to Pathology<br>● Cellular adaptations<br>● Ischemia & cell injury<br>● Mechanisms of cell injury<br>● Cellular aging<br>● Necrosis & apoptosis<br>● Intracellular accumulations | **20** |
| 2 | **Inflammation and repair** | • Differentiate between acute and chronic inflammation on the basis of etiology, pathogenesis and morphology<br>● Summarize the systemic effects of inflammation with the variants of tissue repair | ● Acute Inflammation<br>● Chemical Mediators<br>● Chronic inflammation<br>● Specific types of chronic inflammation<br>● Wound healing & tissue repair | **20** |
| 3 | **Hemodynamic disorders, thromboembolism and shock** | • Assess the hemodynamic disorders including hyperemia, congestion and edema along with the pathogenesis and contributing factors (thrombosis and embolism).<br>• Describe the pathological factors involved in the process of infarction and shock along with their types. | • Edema, hyperemia & congestion<br>• Thrombosis<br>• Embolism<br>• Hemorrhage<br>• Shock<br>• Infarction<br>• Amyloidosis | **20** |
| 4 | **General Microbiology** | • Correlate the basic morphological, physiological and genetic characteristics of bacteria with their pathological mechanism | ● Introduction to microbiology and biohazards in microbiology lab and infection control measure | **20** |

| | | | | |
|---|---|---|---|---|
| | | • Match the members of normal flora with their appropriate anatomical locations<br>• Appraise the concept and different methods of sterilization and disinfection in detail.<br>• Apply the methods of health professional and patient safety in laboratory and clinical settings. (infection control measures)<br>• Outline the mechanism of bacterial resistance to antibiotics | • Bacterial anatomy, physiology, bacterial growth and genetics<br>• Sterilization and disinfection by physical methods<br>• Sterilization and disinfection by chemical methods<br>• Bacterial pathogenesis<br>• Normal Flora | |
| 5 | **Special Bacteriology (Gram positive cocci ,gram-negative cocci and gram negative bacteria)** | • Correlate the important morphological and pathogenic characteristics, laboratory diagnosis, prevention and virulence factors produced by gram positive cocci, gram-negative cocci with their clinical significance<br>• Describe the important morphological, pathogenic characteristics, laboratory diagnosis and virulence factors produced by gram negative cocci<br>• Describe the important morphological, pathogenic characteristics, laboratory diagnosis, clinical findings and virulence factors produced by Enterobacteriaceae, Non-Enterobacteriaceae, zoonotic and respiratory gram-negative rods | • Gram positive cocci and gram negative bacteria Staphylococci<br>• Antibiotics resistance mechanism<br>• Streptococci, classification and Streptococcus pyogenes<br>• Streptococcus pneumoniae<br>• Other streptococci and enterococci<br>• Neisseria meningitidis<br>• Neisseria gonorrhoeae<br>• Coliform organisms & family Enterobacteriaceae: General characteristics<br>• E. coli, Klebsiella, Enterobacter, Proteus, Providentia and Morganella<br>• Salmonella<br>• Shigella<br>• Vibrio<br>• Pseudomonas<br>• Haemophilus, Bordetella, Legionella<br>• Campylobacter, Helicobacter<br>• Brucella,Pasteurella, Yersinia | **20** |
| **Total** | | | | **100** |
| | **End Block Assessment** | **End block assessment is to be taken by the concerned institute itself. Assessment tools: MCQs & SAQs/SEQs** | | |

# GENERAL PATHOLOGY & MICROBIOLOGY - BLOCK I

**CODE: Y3-B1**

**DURATION: 12 WEEKS**

| S No | THEME | LEARNING OUTCOMES | % |
|---|---|---|---|
| 1 | **Study of microscope** | • Identify different parts of the microscope, types of lenses, their power and their magnification.<br>• Focus the microscope the low power, high power and oil immersion for identification of tissue | **05** |
| 2 | **Gram stain** | Differentiate between gram positive and gram-negative bacteria.<br>Perform Gram staining technique and express the principle.<br>Identify the slide.<br>Enumerate Gram positive and Gram-negative organism.<br>Interpret results of Gram stain.<br>List causes false Gram positive and Gram-negative staining. | **10** |
| 3 | **ZN stain** | Express the principal of ZN Staining.<br>Perform ZN Staining<br>Interpret result of staining.<br>Enumerate acid fast bacteria. | 10 |
| 4 | **Culture media** | Classify culture media.<br>Identify culture media and outline their important characteristics.<br>Match organisms with the media on which they are cultured.<br>Indicate why different organisms need different culture media and have different growth requirements | **10** |
| 5 | **Identification of Bacteria** | Classify bacteria<br>Identify bacteria in laboratory by biochemical tests, catalase test, coagulase test, oxidase test, sugar utilization, motility and microscopy<br>Outline the principle of test used for bacterial identification. | **05** |
| 6 | **Hyperplasia** | Define Hyperplasia<br>Enumerate causes of hyperplasia may be physiological / pathological or compensatory<br>Identify the slide in endometrial hyperplasia and morphological changes | **05** |
| 7 | **Atrophy** | Definition of atrophy.<br>Enumerate the causes of atrophy<br>Identify microscopic and gross appearance of testicular atrophy. | **05** |
| 8 | **Metaplasia** | Define metaplasia<br>Categorize types of Metaplasia and assess its causes<br>Identify the slide of metaplasia | **05** |

| | | | |
|---|---|---|---|
| 9 | **Hydropic change** | Define hydropic change and cellular swelling / vacuolar degeneration.<br>Explain the causes of hydropic changes.<br>Identify the morphology and Microscopic appearance of hydropic changes. | **05** |
| 10 | **Fatty Change** | Definition of fatty change.<br>Describe the causes of fatty changes.<br>Identify the fatty changes in liver on the slide. | **05** |
| 11 | **Calcification** | Define calcification.<br>Enumerate various causes and types of calcification<br>Identify the slide of calcification | **05** |
| 12 | **Intracellular accumulation (melanin, hemosiderin)** | Illustrate the substances that accumulate in the living matter.<br>Explain the various types of pigments<br>Identify the slide of malignant melanoma. | **05** |
| 13 | **Coagulative Necrosis** | Define coagulative necrosis<br>Identify the slides of coagulative necrosis in kidney.<br>Outline the important characteristics. | **05** |
| 14 | **Caseous Necrosis** | Define caseous necrosis.<br>Identify the slides of caseous necrosis.<br>Outline the important characteristics. | **05** |
| 15 | **Acute inflammation** | Define acute inflammation<br>Describe various types and causes of acute inflammation<br>Identify the slide of acute appendicitis | **05** |
| 16 | **Chronic inflammation** | Define chronic inflammation.<br>Describe the causes and types of chronic inflammation<br>Identify the slides of chronic cholecystitis | **05** |
| 17 | **Chronic granulomatous inflammation** | Describe the concept of granulomatous inflammation and granuloma formation.<br>Assess various chronic granulomatous infections that are important clinically.<br>Identify granuloma on slide microscopically. | **05** |
| **Total** | | | **100%** |

# GENERAL PATHOLOGY & MICROBIOLOGY - BLOCK II

**CODE: Y3B2**

**DURATION: 10 WEEKS**

**By the end of Block II, the students will be able to:**

| S No | Theme/Block | Learning Outcomes | Course Content | % Weightage |
|---|---|---|---|---|
| 1 | **Genetic and pediatric disease** | ● Evaluate the nature and pattern of inheritance disorders involving single and multiple gene complex.<br>● Relate the congenital anomalies infections and syndrome. | ● Introduction to genetics, biochemical & molecular basis of Mendelian disorder<br>● Multifactorial disorders<br>● Cytogenetic disorders<br>● Diagnosis of genetic disorders | **20** |
| 2 | **Disease of immune system** | ● Categorize and evaluate the components of normal immune system along with various pathological immune response<br>● Evaluate the autoimmune diseases with various types of immunodeficient syndromes | ● Immune system, complement system, immunoglobulin<br>● Hypersensitivity I,II,III & IV<br>● HLA system<br>● Tissue transplantation, tolerance & autoimmunity<br>● Autoimmune disease<br>● Immune deficiency syndrome, AIDS<br>● Lab diagnosis of immunological diseases | **30** |
| 3 | **Special Bacteriology (GPR, Mycobacteria, mycoplasma, spirochetes, chlamydia, rickettsia and miscellaneous bacteria)** | ● Describe the important morphological, pathogenic characteristics, laboratory diagnosis, virulence factors and clinical findings produced by Enterobacteriaceae, Non-Enterobacteriaceae, zoonotic and respiratory gram-negative rods<br>● State the laboratory diagnosis, pathogenesis and drug sensitivity of Tuberculosis<br>● Categorize the clinical diseases caused by Atypical Mycobacteria<br>● Outline pathophysiological basis and diagnosis of leprosy<br>● Describe the important morphological, pathogenic | • Gram positive rods<br>○ Cornybacteria<br>○ Clostridia<br>○ Bacillus<br>○ Listeria<br>○ Actinomyces & Nocardia<br>• Mycobacteria<br>○ M. tuberculosis<br>○ M. leprae<br>○ Atypical mycobacteria<br>• Mycoplasma<br>• Spirochetes<br>• Chlamydia<br>• Rickettsia and Anaerobes, and other minor bacterial pathogens | **20** |

| | | | | |
|---|---|---|---|---|
| | | characteristics, laboratory diagnosis and virulence factors produced by gram positive rods, mycoplasma, spirochetes, chlamydia, rickettsia and **miscellaneous*** bacteria | | |
| 4 | **Virology** | ● Differentiate classes of viruses<br>● Outline the diagnosis and pathogenesis of viruses<br>● Paraphrase the Pathophysiology, laboratory diagnosis, and prevention of Hepatitis, Polio and Rabies<br>● Outline the causes and clinical features of important viral diseases** | ● Classification of viruses and principles of viral diagnosis<br>● RABIES<br>● HEPATITIS VIRUSES<br>● Polio virus<br>● Herpes viruses<br>● HIV/AIDS<br>● Measles, mumps and rubella<br>● Herpes viruses<br>● VHF<br>● tumour viruses<br>● Rotavirus, norovirus and other important viruses<br>● Papilloma viruses | **30** |
| | | **Miscellaneous*** | Anaerobes, and other minor bacterial pathogens | |
| | | **important viral diseases**** | Herpesviruses, HIV, RNA enveloped and unenveloped viruses, Agents of VHF, tumor viruses, HPV, adenoviruses, arboviruses | |
| **Total** | | | | **100** |
| | **End Block Assessment** | **End block assessment is to be taken by the concerned institute itself. Assessment tools: MCQs & SAQs/SEQs** | | |

# GENERAL PATHOLOGY & MICROBIOLOGY - BLOCK II

**CODE: Y3-B2**

**DURATION : 10 WEEKS**

| S No | THEME | LEARNING OUTCOMES | % |
|---|---|---|---|
| 1 | **Motility test** | Perform motility testing.<br>Recall the principle of motility test.<br>Distinguish between organisms which are motile and those which are non-motile.<br>Indicate the different methods of detecting motility. | **10** |
| 2 | **Oxidase test** | Perform the test.<br>Paraphrase the principle of oxidase test.<br>List organisms which are oxidase positive and oxidase negative. | **10** |
| 3 | **Catalase test** | Define the Principle of catalase test<br>Perform the test.<br>List catalase positive and negative organism and outline their important characteristics. | **10** |
| 4 | **Sugar Sets** | Relate the principle of sugar utilization with the interpretation of results.<br>Perform the test.<br>Identify various bacteria on the basis of color change on sugar utilization in sugar sets. | **10** |
| 5 | **Urine R.E.** | Paraphrase the urine collection technique with special emphasis on clean catch mid-stream urine (MSU) and its significance.<br>Identify the methods used to preserve urine sample in case of delay.<br>Perform the test.<br>Interpret the result of Urine R.E. and correlate with the pathology<br>Correlate clinically the results of Urine R.E. | **10** |
| 6 | **Hyperemia / congestion** | Define chronic venous congestion.<br>Identify venous congestion on gross examination of liver and lung specimen<br>Identify the slide of liver and lung with chronic venous congestion. | **10** |
| 7 | **Edema Lung /Liver** | Define and assess edema<br>Differentiate between transudative and exudative types.<br>Identify edema on gross examination of lung specimen.<br>Identify typical changes microscopically and know about " Heart Failure Cells" on the slide of lung edema | **10** |
| 8 | **Thrombus (coronary)** | Differentiate between thrombi and post mortem clots.<br>Identify thrombus on microscopic examination. | **10** |
| 9 | **Infarction (Myocardial)** | Define infarction along with various types of necrosis<br>Identify infracted area on gross examination<br>Identify the slide of infarction | **10** |

| | | | |
|---|---|---|---|
| 10 | **Amyloidosis** | Define amyloid (Fibrin + Proteins)<br>Illustrate the classification of amyloidosis and different types of proteins making amyloid<br>Recommend the different stains used to differentiate amyloid from other deposits.<br>Identify amyloidosis effected organs on gross examination<br>Identify the slide of amyloidosis | **10** |
| **Total** | | | **100%** |

# GENERAL PATHOLOGY & MICROBIOLOGY - BLOCK III

**CODE:Y3B3**

**DURATION: 10 WEEKS**

**By the end of Block III, the students will be able to:**

| S No | Theme/Block | Learning Outcomes | Course Content | % Weightage |
|---|---|---|---|---|
| 1 | **Neoplasia** | Analyze the nomenclature, characteristic, epidemiology, carcinogenesis, grading and staging, genetic basis, and mechanism of metastasis | ● Introduction<br>● Carcinogenesis<br>● Pathogenesis of tumours<br>● Mechanism of spread of malignant tumor<br>● Clinical features of tumor & lab diagnosis | **30** |
| 2 | **Environmental disease** | Justify the environmental and nutritional factors contributing in diseases and effects. | ● Environmental diseases<br>● Harmful effects of smoking, radiation and alcohol | **10** |
| 3 | **Mycology** | Identify, classify and diagnose various fungi along with their clinical relevance | ● Superficial Mycosis (Cutaneous and sub-cutaneous fungi)<br>● Deep Mycosis (Histoplasma, coccidiodes, paracoccidiodes and blastomyces)<br>● Opportunistic pathogenic fungi (Candida, Aspergillus, Cryptococcus, Rhizopus, Mucor and other minor opportunistic fungi) | **10** |
| 4 | **Parasitology** | ● Identify and classify various parasites<br>● Distinguish the life cycle, pathogenesis and laboratory diagnosis of parasites | ● Introduction to parasitology<br>● Entamoeba histolytica<br>● Giardia lamblia, Trichomonas vaginalis Cryptosporidium parvum<br>● Malaria<br>● Toxoplasma gondii, Leishmania<br>● Trypanosomes<br>● Cestodes-I & II<br>● Tremaodes (introduction and Schistosomes)<br>● Ascaris lumbricoides<br>● Enterobius vermicularis<br>● Ancylotoma and Necator<br>● Trichuris<br>● Trichinella | **30** |

| | | | | |
|---|---|---|---|---|
| | | | • Strongyloides<br>• Tissue nematodes<br>• Spread of parasites and its prevention | |
| 5 | **Infectious diseases/syndromes** | Diagnose (differential and laboratory) and manage infectious diseases and name their possible causative agents | • Respiratory tract infection<br>• Meningitis<br>• STDs<br>• Urinary tract infections<br>• Diarrhea/Dysentry<br>• Infections in immunocompromised | **20** |
| **Total** | | | | **100** |
| | **End Block Assessment** | **End block assessment is to be taken by the concerned institute itself. Assessment tools: MCQs & SAQs/SEQs** | | |

# GENERAL PATHOLOGY & MICROBIOLOGY - BLOCK III

**CODE: Y3-B3**

**DURATION : 10 WEEKS**

| S No | THEME | LEARNING OUTCOMES | % |
|---|---|---|---|
| 1 | **Stool R/E** | Tell the steps for performing stool R.E.<br>List the indications for performing stool R/E.<br>List the transport media for stool sample.<br>Interpret the result of stool R/E | **10** |
| 2 | **Ova /Cyst** | Define the basic terms of parasitology.<br>Perform wet mount to identify various ova and cysts of parasites on the basis of their morphology.<br>Outline the important characteristics of parasites. | **15** |
| 3 | **Malarial parasite** | Apply the concept of making thick and then blood films in detection of malarial parasite.<br>Outline important characteristics of malarial parasites. | **15** |

| | | | |
|---|---|---|---|
| | | Identify and differentiate between various stages of malarial parasites in blood smears. | |
| 4 | **LD bodies** | Outline important characteristics of LD Bodies.<br>Identify LD bodies in slides. | **10** |
| 5 | **Pregnancy test** | Perform the test<br>Interpret the result<br>Explain the principal of test | **10** |
| 6 | **Lipomas** | Identify lipoma on gross examination and cut section of specimen.<br>Identify the slide of lipoma.<br>Outline the characteristics. | **10** |
| 7 | **Leiomyomas** | Assess leiomyoma<br>Identify it on gross examination<br>Identify the slide of leiomyoma. | **10** |
| 8 | **Basal cell carcinoma** | Differentiate between basal cell and squamous cell carcinoma.<br>Enumerate the risk factor involved with basal cell carcinoma.<br>Identify it on the basis of gross appearance and site of leision<br>Identify the slide of skin with basal cell carcinoma. | **10** |
| 9 | **Squamous cell carcinoma** | Differentiate between basal cell and squamous cell carcinoma.<br>Assess the risk factors and common sites of squamous cell carcinoma<br>Identify it on gross specimen.<br>Identify the slide of skin with squamous cell carcinoma. | **10** |
| **Total** | | | **100%** |

# SECTION-III

# FORENSIC MEDICINE

# FORENSIC MEDICINE - BLOCK I

**CODE: Y3B1**

**DURATION: 12 weeks**

**By the end of Block I, the students will be able to:**

| S No | Theme/Block | Learning Outcomes | Course Content | % Weightage |
|---|---|---|---|---|
| 1 | **Introduction to Forensic Medical Sciences** | Describe the role of Forensic Medicine / Sciences in Crime detection, especially in crimes involving human life & body in national as well as international context. | Role of Forensic Medicine / Sciences in Crime detection, especially in crimes involving human life & body | **03** |
| 2 | **Thanatology** | • Identify the causes, manner, mode, mechanisms, medicolegal aspects and indicators of death.<br>• Correlate between the physicochemical changes occurring in various body tissues after death under different environmental conditions to the medico-legal aspects of sudden and unexpected deaths. | • Scientific concepts regarding death, medico-legal aspect of Brain death, Indicators of Death, medico-legal aspects of Sudden and unexpected deaths, causes, manner, mode and mechanisms of death. Physicochemical changes subsequent to death occurring in various body tissues and organs under various environmental conditions.<br>• To write a Certification of death according to WHO guidelines<br>• Autopsy: Types, objectives, rules, and techniques and describe procedure for post-mortem; Methods for Assessment of Fatal period and post-mortem interval. Post-mortem artefacts. Risks and Hazards of autopsy, and Autopsy Protocol. Procedure for selection and reservation, labelling and dispatch of Biological and non-Biological materials for laboratory examination; and collect relevant samples.<br>• Exhumation procedures, and its value and limitations | **27** |

| | | | | |
|---|---|---|---|---|
| 3 | **Traumatology-I** | • Correlate the mechanisms of wound production to their medico-legal aspects.<br>• Identify different ammunitions<br>• Appraise the nomenclature, wound Ballistics and medico-legal aspects of mechanical injuries<br>• List and debate on the laws in relation to causing Bodily harm, Wounding and Homicide<br>• Distinguish between ante-mortem and post-mortem wounds<br>• Diagnose the manner of death( suicidal, homicidal and accidental)<br>• Classify wounds<br>• Relate the mechanisms of wound production to their medico-legal aspects.<br>• Classify firearm injuries.<br>• Identify different ammunitions<br>• Appraise the nomenclature, wound Ballistics and medico-legal aspects of mechanical injuries<br>• List and debate on the laws in relation to causing Bodily harm, Wounding and Homicide.<br>• Distinguish between ante-mortem and post-mortem wounds.<br>• Diagnose the manner of death (suicidal, homicidal and accidental) | • <u>Mechanical Injuries</u>:<br>○ Mechanisms of wound production, classification of wounds, wounds produced by conventional weapons and their medico-legal aspects.<br>○ Firearms, Ammunition, Classification, Nomenclature, wound Ballistics and medico-legal aspects.<br>○ Medico-Legal Considerations:<br>▪ Suicide, homicide and accident. | **50** |
| 4 | **Personal Identity** | • Distinguish between living and dead, decomposed and mutilated from burnt bodies, skeletal and fragmentary remains by using appropriate parameters of personal identity.<br>• Use different techniques | • Parameters of personal identity, methods of identifying living, dead, decomposed, mutilated and burnt bodies, and skeletal and fragmentary remains,<br>• Special techniques (Dentistry: Radiology, Neutron Activation | **10** |

| | | | | |
|---|---|---|---|---|
| | | (Dentistry: Radiology, Neutron Activation Analysis etc.) and objective methods of (Osteometry, Dactyloscopy, DNA Technique, Super imposition photography etc.).<br>• Determine the age, sex and race of an individual by various methods with their medico-legal aspects.<br>• Critique on methods to trace the evidence, Lockard's Principle of exchange and its medico-legal significance. | Analysis etc.), and objective methods of identification (Osteomtery, Dactyloscopy, DNA Technique, Super imposition photography etc.).<br>• Methods of determination of age, sex and race by various methods with their medico-legal aspects.<br>• Methods to trace evidence, Locard's Principle of exchange and its medico-legal significance | |
| 5 | **Biological Specimens** | • Appraise the forensic importance of Biological specimens (Blood, Semen, Salvia, Vomitus, Breath, Urine, Hair).<br>• Collects, preserve, dispatch various human body specimens | • Forensic importance of Biological specimens (Blood, Semen, Salvia, Vomitus, Breath, Urine, Hair).<br>• Method of their collection, preservation, dispatch and the common laboratory tests | **10** |
| **Total** | | | | **100** |
| | **End Block Assessment** | **End block assessment is to be taken by the concerned institute itself. Assessment tools: MCQs & SAQs/SEQs** | | |

| FORENSIC MEDICINE - BLOCK I | |
|---|---|
| **CODE:Y3B1** | |
| **DURATION: 12 WEEKS** | |
| **THEME/LEARNING OUTCOMES** | **%** |
| **At the end of this block, student shall be able to** | |
| Perform Autopsy& Medicolegal Examinations | **10** |
| Examine different biological specimens in forensic context. | **10** |
| Perform the procedure of preservation, dispatch of Biological and other evidentiary material | **10** |
| Write Death Certificate according to WHO guidelines | **10** |
| Perform Exhumation procedure | **10** |
| Identify the importance of finger prints in personal identity | **10** |
| Distinguish various firearm injuries | **10** |
| Identification of Blood, Semen, Saliva etc. | **10** |
| Examine an injured person, certify nature, manner of cause, causative agent and dating of wounds. Link Sequelae of trauma to its original cause and search for the relationship of sequelae to pre-existing disease. | **10** |
| Perform common lab tests on different body specimens | **10** |
| **Total** | **100%** |

# FORENSIC MEDICINE - BLOCK II

**Duration: 10 weeks**

**CODE: Y3B2**

**By the end of Block II, the students will be able to:**

| S No | Theme/Block | Learning Outcomes | Course Content | % Weightage |
|---|---|---|---|---|
| 1 | **Traumatology-II** | • Differentiate among the various possible etiologies of Regional Injuries, of Head (Scalp, Skull, Brain) and Face, Vertebral column and its contents, Neck, Chest, Abdomen, Limbs, Bones and Joints and Special trauma (Transportation injuries, Police torture, and Deaths in Custody)<br>• Compare and contrast Heat, Cold, Electrical injuries with emphasis on their medicolegal aspects.<br>• Recognize signs of violent death, mechanical, chemical and environmental asphyxia death and their medico legal implications.<br>• Interpret injuries caused by blast | • Regional Injuries, of Head (Scalp, Skull, Brain) and Face, Vertebral column and its contents, Neck, Chest, Abdomen, Limbs, Bones and Joints and Special trauma such as: Transportation injuries, Police torture, and Deaths in Custody. And Should be able to determine the medicolegal aspects of Heat, Cold, Electrical injuries.<br>• **Blast injuries.** Recognition and interpretation of injuries caused by blast | **10** |
| 2 | **Violent Deaths Due to Asphyxia** | Define, Classify and detect the aanatomical, pphysiological, biochemical and pathological signs of violent death, mmechanical, chemical and environmental asphyxia death and their medicolegal implications. | Define, Classify, causes of; and detect the Anatomical, Physiological, Biochemical and Pathological signs of violent death; and of Mechanical, chemical and environmental asphyxia death and their medicolegal implications | **10** |
| 3 | **Sexual Offences /Reproduction** | • Assess the sexual offences and relate it to relevant Sections of Law (Zina and Hudood Ordinance)<br>• Differentiate between natural and unnatural sexual offences<br>• Address the causes of common sexual perversions | • Sexual Offences and Relevant Sections of Law (Zina and Hudood Ordinance)<br>○ Natural and unnatural sexual offences<br>○ Medical examination of victim and assailant, collection of specific specimens.<br>○ Common sexual perversions and their cause. | **30** |

| | | | | |
|---|---|---|---|---|
| | | • Distinguish between Impotence, Virginity, Pregnancy and criminal acts during delivery(their medico-legal aspects, examination procedure and reporting)<br>• Appraise the procedure of performing clinical l examination of victim and assailant in case of sexual offense, collect specific specimens and write a required certification.<br>• Appraise the relevant sections of law, Medico-legal aspects applicable to miscarriage; and be able to.<br>• Crime Against New-Born, Infants and Child.<br>• identify infanticide and criminal and non-accidental violence or abuse to a newborn, infant or child. | ○ approach to Impotence, determination of Virginity, Pregnancy and criminal processes during delivery, their medico-legal aspects, examination procedure and reporting.<br>○ Miscarriage:<br>○ Crime Against New-Born, Infants and Child.<br>• Infanticide and criminal and non-accidental violence or abuse to a newborn, infant or child | |
| 4 | **General Toxicology** | • Relate the cases of toxicology to its related laws<br>• Manage toxicological cases in acute and chronic exposure<br>• Interpret acute and chronic cases of poisoning in living and dead | • Scope of forensic aspects of toxicology.<br>• Common Toxicants in our environments and their abuse | **10** |
| 5 | **Poisons** | • Differentiate between the different ssources, mechanism of action, sign and symptoms and management of poisoning<br>• Analyze the autopsy findings of a case with poisoning with emphasis on its medicolegal aspects | • Sources of poisons<br>• Mechanism of action of poisons<br>• Sign and symptoms of poisoning<br>• Management of poisoning<br>• Autopsy findings of death due to poisoning Medicolegal aspects | **40** |
| **Total** | | | | **100** |
| | **End Block Assessment** | **End block assessment is to be taken by the concerned institute itself. Assessment tools: MCQs & SAQs/SEQs** | | |

| FORENSIC MEDICINE - BLOCK II | |
|---|---|
| **CODE:Y3B2** | |
| **At the end of this block, student shall be able to** | |
| **THEME/LEARNING OUTCOMES** | **%** |
| Perform Autopsy& Medicolegal Examinations | 20 |
| Perform medico-legal Examination of injured | 30 |
| Preserve and dispatch biological and other evidentiary material | 10 |
| Examine mother and aborted material; and send aborted material in proper preservative for examination | 40 |
| **Total** | **100%** |

# FORENSIC MEDICINE - BLOCK III

**Duration: 10 weeks**

**CODE: Y3B3**

**By the end of Block III, the students will be able to:**

| S No | Theme/Block | Learning Outcomes | Course Content | % Weightage |
|---|---|---|---|---|
| 1 | **Specific Poisons** | Study of Poisons/drugs prevailing in our society along with medico-legal aspects is recommended. Emphasis must be given to the following poisons/drugs:<br>I) Alcohol<br>II) Opiates, Opioids and other narcotics<br>III) Salicylates and paracetamol<br>IV) Hypnotics and Sedatives<br>V) Stimulants (Cocaine), cannabis<br>VI) Poisonous Plants (Aconite, Belladonna, Hyoscyamus, Stramonium, Digitalis, Ergot, Mushrooms, Nux Vomica, Oleander, Tobacco)<br>VII) Venomous insects (Snakes)<br>VIII) Inorganic elements, Antimony, Arsenic, lead, Mercury, Phosphorus<br>IX) Volatile Poisons and corrosives (Carbon monoxide, Hydro carbons, Cyanides, Sulphuric Acid, Oxalic Acid, Carbolic Acid and Alkalis)<br>X) Pesticides, Herbicides and Insecticides and others | Study of following poisons/drugs:<br>I) Alcohol<br>II) Opiates, Opioids and other narcotics<br>III) Salicylates and paracetamol<br>IV) Hypnotics and Sedatives<br>V) Stimulants (Cocaine), cannabis<br>VI) Poisonous Plants (Aconite, Belladonna, Hyoscyamus, Stramonium, Digitalis, Ergot, Mushrooms, Nux Vomica, Oleander, Tobacco)<br>VII) Venomous insects (Snakes)<br>VIII) Inorganic elements, Antimony, Arsenic, lead, Mercury, Phosphorus<br>IX) Volatile Poisons and corrosives (Carbon monoxide, Hydro carbons, Cyanides, Sulphuric Acid, Oxalic Acid, Carbolic Acid and Alkalis)<br>X) Pesticides, Herbicides and Insecticides and others | **40** |
| 2 | **Forensic Psychiatry** | • Distinguish between true and feigned insanity.<br>• Advise on procedure of restraint of the mentally ill.<br>• List limitations to civil and criminal responsibilities of mentally ill. | • True and feigned insanity<br>• Procedure of restraint of the mentally ill<br>• Limitations to civil and criminal responsibilities of mentally ill | **25** |

| | | | | |
|---|---|---|---|---|
| 3 | **Medical Ethics, consent & negligence** | Apply ethical principles of medicine as physicians/ in their clinical clerkships according to national as well as international code of ethics | • Powers and jurisdiction of courts<br>• procedures for inquest, and legal Procedures.<br>• Important Legal terms<br>• Application of relevant Legal sections of the penal code<br>• Role of a medical doctor in the medico-legal system<br>• Medical evidence in courts.<br>• Document information to be prepared by a medical doctor for legal procedures.<br>o Procedure of Court attendance and recording of evidence | **10** |
| 4 | **Law in relation to medical man** | • Identify the principles of inter professional and patient interaction in clinical practice<br>• Correlate the medical ethics while examining patient to medical negligence and professional misconduct<br>• Justify the guarding of professional secrets and privileged communication.<br>• Debate on legal and ethical aspect of organ transplantation<br>• Employ the moral and ethical implications of medical procedures (Artificial insemination, Therapeutic abortions, Euthanasia, Biomedical research) in clinical practice | Law in relation to medical man | **25** |
| | | **Total** | | **100** |
| | **End Block Assessment** | **End block assessment is to be taken by the concerned institute itself. Assessment tools: MCQs & SAQs/SEQs** | | |

| FORENSIC MEDICINE - BLOCK III | |
|---|---|
| **CODE:Y3M3** | |
| **Duration: 10 weeks** | |
| **THEME** | **%** |
| Autopsies | **20** |
| Medico-legal Examination of injured | **40** |
| Visits to Court, Forensic Science Laboratory, Psychiatric unit or Jail, Site during conduction of exhumation | **20** |
| Visual, olfactory and tactile identification of common poisons found in communities and country | **20** |
| **Total** | **100%** |

# TABLE OF SPECIFICATIONS

## PHARMACOLOGY

### PRE-ANNUAL/ANNUAL 3RD PROFESSIONAL EXAMAMINATION: THEORY (2020)

**Time Allowed = 03 hrs *(Including MCQs)***
**Marks of theory paper = 135**
**Internal assessment = 15**
**Total marks = 150**
**Pass Marks = 75**
**65 x MCQs = (65 Marks) Time =1 hrs 15 min**
**(6x SAQs/SEQs (Recall) = 7 marks each**
**4 x SAQs/SEQs (Application) = 7 marks each)**
**Total Marks = (70 Marks) Time = 1 hrs 45 Min**

| TOPIC | NUMBER OF MCQs (65)<br>Recall: 50%<br>Application: 50%<br>(1 mark each) | NUMBER OF SAQs/SEQs (10)<br>(7 marks each)<br>Recall (06)<br>Application (04) |
|---|---|---|
| General pharmacology | 08 | 01 |
| Drugs acting on Autonomic Nervous System (ANS) | 08 | 01 |
| Drugs acting on Central Nervous System (CNS) | 12 | 02 |
| Drugs acting on Cardiovascular System (CVS)/Diuretics | 12 | 01 |
| Chemotherapy | 12 | 02 |
| Endocrinology | 05 | 01 |
| Respiration/Autacoids/Misc | 03 | 01 |
| Gastrointestinal System (GIT)/ Blood | 05 | 01 |
| **Total** | **65 (65 Marks)** | **10 (70 marks)** |

# Table of specifications for Pre-Annual/ Annual Professional Exam: Practical (2020)

**Practical = 135**

**Internal Assessment = 15**

**Total marks = 150**

**Pass Marks = 75**

| Gen Viva Voce | | Practical | | Gen Viva + Practical | Internal Evaluation | Total |
|---|---|---|---|---|---|---|
| Int Examiner | Ext Examiner | OSPE/Practical | Notebook | 135 | 15 | **150** |
| 35 | 35 | 60 | 5 | | | |

*** Lab work: 03 Practical (Observed) (Pharmacodynamics) of 10 marks each = 30 Marks**
**05 Unobserved stations of 06 marks each = 30 Marks**

## Theory: Internal Assessment (IA) Calculation

| A | B | C | D |
|---|---|---|---|
| Roll No. | Name | All Blocks/<br>Pre annual<br>Exams or any other exam | Total Marks of internal assessment<br>Out of 15 |
| Total Marks | | Sum of Marks obtained x15/ sum of total marks in all Internal exams | |

## Practical: Internal Assessment Calculation

| A | B | C | D |
|---|---|---|---|
| Roll No. | Name | OSPE /All Class tests throughout the year /Pre annual practical<br>Exams or any other exam | Total Marks of internal assessment<br>Out of 15 |
| Total Marks | | Sum of Marks obtained x15/ sum of total marks in all Internal exams | |

# TABLE OF SPECIFICATIONS

## GENERAL PATHOLOGY & MICROBIOLOGY

### PRE-ANNUAL/ANNUAL 3RD PROFESSIONAL EXAMAMINATION: THEORY (2020)

**Time Allowed** **=03 hrs *(Including MCQs)***
**Marks of theory paper** **=135**
**Internal assessment** **=15**
**Total marks** **=150**
**Pass Marks** **=75**
**Q.NO.1 65 x MCQs** **= (65 Marks)** **Time = 1 hour 15 Min**
**10 x SAQs/SEQs/ Scenario based question: 07 Marks each (70 Marks) Time = 1 hour 45 Min**

| TOPIC | NUMBER OF MCQs (65) Recall (20) Application (45) (1 mark each) | NUMBER OF SAQs/SEQs (10) (07 Marks each) |
|---|---|---|
| **General Pathology** | | |
| Cell Injury, Cell death & Adaptations | 05 | 01 |
| Inflammation & repair | 05 | 01 |
| Disorders of the Immune system | 05 | 01 |
| Genetics & Paediatric disorders | 03 | |
| Hemodynamic disorder, Thrombo-embolism and shock | 05 | 01 |
| Neoplasia | 05 | 01 |
| Environmental diseases | 02 | - |
| **Microbiology** | | |
| General Microbiology | 06 | 01 |
| Special Bacteriology | 10 | 02 |
| Virology | 08 | 01 |
| Mycology | 03 | |
| Parasitology | 08 | 01 |
| **Total** | **65 (65 Marks)** | **10 (70 marks)** |

## Table of specifications for Pre-Annual/Annual Professional Exam: Practical

**Practical = 135**
**Internal Assessment = 15**
**Total marks =150**
**Pass Marks = 75**

| Gen Viva Voce | | Practical | | Internal Evaluation | Total |
|---|---|---|---|---|---|
| Int Examiner | Ext Examiner | *OSPE/Practical | Notebook | 15 | **150** |
| 35 | 35 | 60 | 05 | | |

***Marks Distribution (OSPE/Practical):**

- **Unobserved stations (OSPE): 3 x 12 Stations= 36 marks**
- **Practical/ Performance: 6 x 4 Practical = 24 marks (Select any three from the list given below)**

| S. No | Practical Topic | S. No | Practical Topic |
|---|---|---|---|
| 1. | Gram Stain | 6. | Urine R.E |
| 2. | ZN Stain | 7. | Biochemical/ Sugar set |
| 3. | Catalase Test | 8. | Stool R/E/ Ova / Cyst |
| 4. | Oxidase Test | 9. | Pregnancy Test |
| 5. | Motility Test | 10. | Focusing of microscope at low high and oil immersion for identification of tissue |

## Theory: Internal Assessment (IA) Calculation

| A | B | C | D |
|---|---|---|---|
| Roll No. | Name | All Blocks/ Pre annual Exams or any other exam | Total Marks of internal assessment Out of 15 |
| Total Marks | | Sum of Marks obtained x15/ sum of total marks in all internal exams | |

## Practical: Internal Assessment Calculation

| A | B | C | D |
|---|---|---|---|
| Roll No. | Name | OSPE /all practical Class tests throughout the year /Pre annual practical Exams or any other exam | Total Marks of internal assessment Out of 15 |
| Total Marks | | Sum of Marks obtained x15/ sum of total marks in all internal exams | |

# TABLE OF SPECIFICATIONS

## FORENSIC MEDICINE

### PRE-ANNUAL/ANNUAL 3RD PROFESSIONAL EXAMAMINATION: THEORY (2020)

**Time Allowed** = 03 hrs*(Including MCQs)*

**Marks of theory paper** = 90

**Internal assessment** = 10

**Total marks** = 100

**Pass Marks** = 50

**45 x MCQs** = (45 Marks) **Time = 1 hour**

**Q. No. 1,2,3,4,5,6,7,8,9**

**(3x SAQs/SEQs (Recall) = 05 marks each**

**6 x SAQs/SEQs (Application) = 05 marks each**

**Total Marks** = (45 Marks) **Time = 2 hours**

| TOPIC | NUMBER OF MCQs (45)<br>Recall (15)<br>Application (30)<br>(1 mark each) | NUMBER OF SAQs/SEQs (09)<br>(5 marks each) |
|---|---|---|
| Thanatology/Autopsy | 05 | 01 |
| • Personal identification<br>• Legal aspect of Reproduction and sexual offences | 05 | 02 |
| Traumatology | 13 | 02 |
| • Medical Ethics & Laws related to medical man<br>• Forensic Psychiatry | 06 | 01 |
| General Toxicology | 05 | 01 |
| Special Toxicology | 11 | 02 |
| **Total** | **45 (45 Marks)** | **09 (45 Marks)** |

# Table of specifications for Pre-Annual/Annual Professional Exam: Practical

**Practical = 90**

**Internal Assessment = 10**

**Pass Marks = 50**

| Gen Viva Voce | | Lab Work | | Internal Evaluation | Total |
|---|---|---|---|---|---|
| Internal Examiner | Ext Examiner | Practical/ OSPE | Practical Notebook and Forensic Daybook marks 5+5 | 10 | **100** |
| 25 | 25 | 30 | | | |

**Theory: Internal Assessment (IA) Calculation**

| A | B | C | D |
|---|---|---|---|
| **Roll No.** | **Name** | **All Blocks/ Pre-annual Exams or any other exam** | **Total Marks of internal assessment Out of 10** |
| Total Marks | | Sum of Marks obtained x10/ sum of total marks in all internal exams | |

## Practical: Internal Assessment Calculation

| A | B | C | D |
|---|---|---|---|
| **Roll No.** | **Name** | **OSPE /all practical Class tests throughout the year /Pre-annual practical Exams or any other exam** | **Total Marks of internal assessment Out of 10** |
| Total Marks | | Sum of Marks obtained x10/ sum of total marks in all internal exams | |