Maharshi Dayanand University
Rohtak

Ordinances, Syllabus and Courses of Reading for M.B.B.S.1st Prof. Examination

Session—2002-2003

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PATTERN OF EXAMINATION & SYLLABUS IN THE SUBJECT OF ANATOMY FIRST PROFESSIONAL M.B.B.S. EXAMINATION.

1. PATTERN OF EXAMINATION :

A : Theory

2 papers of 50 marks each (with one applied question of 10 marks in each paper).	100 marks
Oral	20 marks
Internal assessment	20 marks
Total of theory	140 marks

B : Practical

Practical	40 marks
Internal Assessment	20 marks
Total of Practical	60 marks
Total of Theory & Practical :	200 marks

Paper-A Part-I : shall consist of Head & Neck (including its embryology and histology), General Anatomy.

Part-II : shall consist of Brain Spinal cord, Upper limb (including its embryology and histology), General Histology.

Paper-B Part-I : shall consist of abdomen & pelvis (including its embryology and histology), General embryology.

Part-II : Shall consist of Thorax, Lower Limb (including its embryology and histology) principles of genetics.

Question papers should have atleast 50% questions of short answer type.

SYLLABUS :

A: Gross Anatomy, Gross Anatomy of the entire human body which will consist of the following :-

i) Osteology, including structure attachments relations, ossification, age changes and blood supply of all bones. Individual skill bones, small bones of hand and foot details excluded.

ii) Arthrology :

Classification and structure of various types of joints. Study of the structure, relations, functions, vascular and nerve supply and applied anatomy of all major joints.

iii) Myology : Attachments, actions, nerve supply of all muscles and relations of important muscles.

iv) Vascular system: Structure of heart including the anatomy of individual chambersm valves, coronary circulation, nerve supply, pericardiaum and relations. Course, relations, branches distribution anastomoses of all arteries and veins including venous sinuses.

Lymphatic drainage of all parts and organs of the body. Position and relations of various groups of lymphnodes. Course and Relationship of Major lymph vessels. Arterial supply, venous and lymphatic drainage of the entire body.

v) Nervous System : Covering of the brain and spinal cord, formation and circulation of cerebro-spinal fluid. Anatomy of Brain including external and internal structure of its subdivisions. Cortical and nuclear connections; ventricles, commissures, blood supply.

Anatomy of spinal cord, including its internal structure, regional differences, blood supply, related nerves and ganglia. Study of nervous pathways. Peripheral nervous system including origin course, relations, branches distribution, composition of all cranial and spinal nerves. Autonomic nervous system including the central and peripheral connection of the sympathetic and parasympathetic ganglic and their relationship.

vi) Splanchnology : Study of the size, position, shape, relations blood supply, lymphatic drainage, nerve supply and structure of all viscera and organs including the respiratory, digestive, urogenital systems and endocrine glands.

vii) Special sense organs : Anatomy of the peripheral sense organs of taste, smell, sight, hearing and the skin.

B : EMBRYOLOGY : General embryology including cyclical changes in female fenital tract, formation and maturation of germ cells, fertilization, segmentation and implementation. Formation, structure, anomalies, circulation. Types and functions of placenta.

Differentiation of fertilized ovum and development of thew embryo upto formation of germ layers, development of membranes. Physiology of the maintenance and termination of pregnancy; regional embryology including the process of development of all tissues and organs of the body. Developmental anomalies and their causation and effects.

C : Histology and General Anatomy : Histology of all cells, tissues and organs of the body. General principles governing the structure, function, growth and regeneration of various tissues.

D : Applied Anatomy : Anatomy as applied to surgery, medicine, obsterics and gynecology, family welfare, ophthalmology ad other specialised disciplines of medical science.

E : Functional Anatomy : Relationship of structure and function in respect of various tissues and organs of the body.

F. Living Anatomy : Surface anatomy, radiological anatomy including principles of modern imaging techniques.

G. Principles of genetics : Including structure and Significance of chromosomes, Karyotyping structure and significance of DNA and RNA-cell division, Mendelian Laws of inheritance, influence of heredity and environment on development, mechanism of inheritance of some common hereditary disorders.

RECOMMENDED BOOKS IN ANATOMY :

1. Textbook of human Anatomy : HANILDON
2. Human Anatomy by Singh
3. Cunninghams Manual of practical Anatomy.
4. Human Embryology by Singh.
5. Human Neuro-Anatomy by Singh.
6. Applied Anatomy : Mc GREGOR.
7. HISTOLOGY : by singh.

PATTERN OF EXAMINATION & SYLLABUS IN THE SUBJECT OF PHYSIOLOGY FIRST PROFESSIONAL M.B.B.S. EXAMINATION. FOR 2002-2003

1. PATTERN OF EXAMINATION :

A : THEORY (Human Physiology including Biophysics)

2 papers of 50 marks each (with one applied question of 10 marks in each paper).	100 Marks
Oral (viva)	20 Marks
Internal assessment	20 Marks
Total of theory	140 Marks

B : Practical

including	40 Marks
Haematology Clinical Examination Problem solving exercise including equipment etc./spotting	
Internal Assessment	20 Marks
Total in practical	60 marks
Total in theory & Practical :	200 Marks

Pass Marks : In the subject of Physiology a candidate must obtain 50% in aggregate with a minimum of 50% in theory including orals and minimum of 50% in practicals.

Paper-A Part-I : Cardiovascular system, Blood and Lymph, Skin and temperature regulation.

Part-II : Respiration, Endocrines and Reproduction, Family Planning measures, nutrition of mother during pregnancy and lactation,

Paper-B Part-I : Nervous system including special senses.

Part-II : Muscle and nerve Physiology, Digestion and renal Physiology, General Bio-Physics.

Nature of questions will be short answer type.

SYLLABUS

A. THEORY

Introduction to Physiology

1. Functional Organisation of the Human body & control of Internal Environment.
2. Principles of Biophysics as applicable to human body.

NERVE-Muscle Physiology

1. Skeletal Muscles-structure, function, properties of motor unit.
2. Phenomenon of muscular contraction
3. Structure and function of Nervous tissue including Properties of nerves. Transmission of impulse in nerve.
4. Regeneration and degeneration in peripheral nerves.
5. Neuromuscular transmission, Myasthenia gravis.

Digestive system

1. General principles of Gastro-Intestinal function.
2. Secretory functions of alimentary tract, Regulation & function tests.
3. Transport and mixing of food in alimentary tract
4. GIT-hormones.
5. Digestion and absorption of Carbohydrate, fats, proteins etc. in GIT.

6. Dietary fibres.
7. Physiology of liver, gall bladder, bile, function tests.
8. Physiological principles underlying pathogenesis of common gastro-intestinal disorders like jaundice, paptic ulcer, Hirschsprung's Disease.

BLOOD

1. Composition and functions of blood.
2. Plasma proteins.
3. RBC, WBC, Erythropoisis, Granulopoisis.
4. Haemoglobin, structure, function, Anaemia and Polycymemia, Haemeoglobinopathies, Jaundice.
5. Coagulation of blood and Haemostasis
6. Platelets
7. Anticoagulants.
8. Lab. investigations of bleeding disorders.
9. Blood groups and blood transfusion
10. Immunity and organ transplantation
11. Blood volume & its regulation
12. Physiology of lymph

CARDIOVASCULAR SYSTEM

1. General consideration
2. Structure and property of cardiac muscle.
3. Junctional tissue of heart.
4. Excitation and conduction of cardiac impulse.
5. ECG
6. Cardiac cycle, pressure volume changes, in atria, ventricle, arota, heart sounds, JVP, Arterial pulse.
7. Heart rate, cardiac output, venous return, BP. regulation & methods used for their study.
8. Haemodynamics of circulation.
9. Control of C.V.S.
10. Circulation through special regions-coronary, skeletal, pulmonary; cutaneous.

11. Physiological basis of manifestations present in Haemorrhagic shock, change of posture, muscular exercise, Heart failure, hypertension.

RESPIRATION

1. Mechanics of pulmonary ventilation
2. Volumes & capacities of lung.
3. Transport of O_2 & CO_2 in blood, O2 dissociation curve surfactant & compliance.
4. Perfusion & diffusion of gases.
5. Regulation of respiration.
6. Rulmonary function tests
7. Types ofhypoxia & Oxygen therapy.
8. Voluntary hyperventilation
9. Haemorespiratory changes in muscular exercise.
10. Drowning & asphyxia and artificial respiration.
11. Aviation, high altitude physiology and space physiology.
12. Physiology of deep sea diving.

EXCRETORY SYSTEM

1. Physiological anatomy of kidney, ureter and urinary bladder.
2. Glomerular filtration, prosimal & distal tubular functions and renal blood flow.
3. Mechanics, of urine formation & urinary concentration
4. Renal regulation of blood volume and ECF Volume - Renin angiotensin system, antidiuretic hormone etc.
5. Physiology of micturition
6. Renal function tests.

NERVOUS SYSTEM

1. organisation of Nervous system, synapses & synaptic transmission.
2. Chemical transmitter substances in Nerves system.
3. Sensory physiology

4. Motor functions of spinal cord and reflexes, muscle tone.
5. Cerebellum, basal ganglia, vestibular apparatus and over all motor control.
6. Cortical and brain stem control of brain function.
7. Control of body movements & posture.
8. Higher functions of nervous system - learning, memory and speech.
9. Limbic system and hypothalamus.
10. Status of brain activity, sleep, brain waves.
11. autonomic nervous system
12. Physiological basis of different important related clinical disorders like spinal cord lesions, hemiplegia, parkinsonism, epilepsy, cerebeller lesions.

SPECIAL SENSES

Eye Structure of Eye, Optics of vision, nuro physiology of vision. Regractory efforts.

Ear Structure & function, deafness.

Sense of taste and smell.

ENDOCRINAL SYSTEM

1. Introduction, pituitary gland, thyroid gland, parathyroid, adernal cortex, adernal medulla, pancreas.
2. Functions of different hormones produced by these endocrine glands, disorder caused by excess or deficiency of hormones.
3. Local hormones.

REPRODUCTION

Physiology of reproduction and hormonal functions in males. Female reproduction physiology and female hormones.

Physiology of pregnancy and lactation-Nutritional needs during pregnancy & lactation.

Contraceptive measures.

Regulation of body temperature, physiological basis of response to heart or cold in man.

Physiological aspects of Growth, Development & Selity.

B. PRACTICALS

In two semesters (six month each) of Ist. Prof. MBBS following demonstrations and practicals will be completed.

I) General and Biophysics

Study of use of various apparatus used in the physiology laboratories.

II) Human experiments

a) All haematological experiments applicable later in human investigation.

b) To learn to record the various functions in the human body as of cardiovascular system, Respiratory system. Nervous system, special senses, digestion, Excertion and reproduction, including clinical demonstration.

c) To demonstrate use of some sophisticated equipments which students cannot use themselves, for the study of some physiolocal functions.

III) Mammalion Experiments :

a) Demonstrations of Rabbits Heart perfusion, record of isolated intenstinal movements and the effect of various drugs.

b) Demonstration of recording of blood pressure, Respiration, urine flow, intestinal movements etc.

IV) Amphibian Experiments :

Experiments on Nerve and Muscle & Heart

Note : Amphibian and Rabbit experiments to be designed to study the physiological phenomena in human body.

BOOKS RECOMMENDED :

1. Review of Medical Physiology : W.F. Ganogn
2. Samson Wright's applied Physiology : Keela & Neil
3. Text book of Medical Physiology : A.C. Gyton.

4. Best and Taylor's Physiological basis : Johan B. test of Medical Practice.
5. Special practical note-books for haematology and experimental physiology as recommended from the department of physiology, PGIMS, Rohtak.

BIO-CHEMISTRY

Theory

Paper - A	50 marks
Part-I	25 marks
Part-II	25 marks
Paper - B	50 marks
Part-I	25 marks
Part-II	25 marks
Internal Assessment	20 marks
Oral (Viva)	20 marks
Total :	140 marks
Practical	40 marks
Internal Assessment	20 marks
Total :	60 marks

Grand Total : Theory & Practical : 200

140 + 60 = 200

There will be two theory papers each consisting of paper-A and paper-B. Paper-A and paper-B will have three question each. Each paper should contain one applied question of 10 marks. The partwise distribution of topics for the two theory papers is given below :-

Paper - A

Part - I : Structure and functions of cell and sub-cellular organelles Biomembranes and transport system. Fundamental aspects of enzymology and clinical significance of enzymes; Chemistry and Functions of biomolecules (Carbohydrates, lipids, proteins and amino acids and nuclic acids including nucleoproteins); Digestion and absorption of nutrients; Biological oxidation; Electron transport chain and exidative phosphorylation.

Part - II : Metabolism of carbohydrates, lipids, proteins and nucleic acids, Metabolic integration; Metabolic disorders; Mechanism of action of hormones, Biosynthesis, secretion and metabolic effects of hormones of adrenals, thyroid pancreas and parathyroid gland and related disorders, Hormonal regulation of metabolism.

Paper-B :

Part-I : Basic elements of nutrition, nutrition in health and disease malnutrition; Water and fat soluble vitamins; Mineral metabolism; and deficiency diseases; Basic concepts of immunology; Water and Electrolyte metabolism; Regulation of acid base balance and related disorders; Kidney function tests.

Part-II : Molecular biology of gene and Regulation of gene expression; biochemical genetics and genetic engineering; Xenobiotics metabolism; biochemical aspects of cancer and chemical carcinogenesis; Organ function tests (Liver, pancreatic and gestric and interpretation of clinical chemistry investigations.

BIOCHEMISTRY

THEORY

1. Molecular and functional organisation of a cell and its subcellular components; structural organisation of biomembrances and transport systems.
2. Fundamentals aspects of anzymology and clinical significance of enzymes.
3. Chemistry and functions of biomolecules (carbohydrates, lipids proteins and nucleic acids-including nucleoproteins).
4. Digestion and absorption of nutrients;
5. Biological oxidation, electron Transport chain and oxidative Phosphorylation.
6. Metabolism of Carbohydrates, lipids, proteins and nucleic acids; metabolic integration and hormonal regulation of metabolism, metabolic disorders.
7. Mechanism of action of hormones; Biosynthesis,

secretion and metabolic effects of hormones of adernals, thyroid, pancreas and parathyroid gland and related disorders.

8. Basic elements of nutrition; water and fat soluble vitamins; mineral metabolism; deficiency diseases; malnutrition; Nutrition in health and disease.
9. Basic concepts of immunology.
10. Water and Electrolyte metabolism; regulation of acid base balance and related disorders, kidney function tests.
11. Molecular biology of gene and regulation of gene expression; Biochemical genetics and genetic engineering.
12. Metabolism of xenebiotics.
13. Biochemical aspects of cancer and chemical carcinogenesis.
14. Organ function tests (Liver, pancreatic and gastric) and interpretation of important clinical chemistry investigations.

PRACTICALS :

1. Reactions of carbohydrates, fats and proteins.
2. Analysis of some foods.
3. Study of some enzymes including factors affecting enzyme activity.
4. Qualitative analysis of urne for normal and abnormal constituents of clinical importance.
5. Study of Hb and its derivatives.
6. Quantitative estimation of some important constitutents of clinical importance, such as sugar, urea, coroatinine, protein, uric acid bilirubin, cholesterol etc.

DEMONSTRATION :

Introduction to some analytical techniques such as photoelectronic colorimetry, Flame photometry, Chromatography, electrophoresis etc.

II nd prof. MBBS Examination

PATHOLOGY PAPER-A

Max. Mark : 40

Part-I	No. of Questions	Marks
Cellular Injury and Cell Death, Cellular Growth and Differentiation, Inflammation and Repair Neoplasis, Diseases of Immunity.	3	20
Part-II		
Haemedynamic disorders, Thrombosis and Shock, cardiovascular System including Blood Vessels, respiratory system, Diseases of Red Blood Cells, White Blood Cells and Bleeding disorders.	2	10
Applied pathology	1	10
Total :	6	40

PATHOLOGY PAPER-B

Max. Mark : 40

Part-I	No. of Questions	Marks
Gastrointestinal Tract including Oral Cavity, Jaws and Salivary Glands, Liver and Biliary Tract, Kidney, Male Genital System including prestate.	3	20
Part-II		
Female Genital System including Breast, Endocrine System, Muscule-skeletal System, Central Nervous system, chemical pathology, Cytology.	2	10
Applied pathology including Autopsy	1	10
Total :	6	40

RECOMMENDED BOOKS :

1. Robbins pathological Basis of Diseases : Edited by Cotran, Kumar and Colliness
2. Degruchy's Clinical Haematology in Medical Practice : Edited by Firkin, Chesterman, Penington and Rush.
3. Lynch's Medical Laboratory Technology : Edited by Stanley S. Raphael.

SYLLABUS FOR 2ND PROF. (THEORY EXAMINATION), PATHOLOGY

PAPER-A

1. **CELLULAR INJURY AND CELLULAR DEATH :**

   Introduction to pathology, Definitions, causes of cell Injury, Cell Injury and Necrosis (General mechanisms, Ischaemic and Hypoxic Injury, Free Radical Induce Cell Injury, Morphology of Reversible cell injury and necrosis), Apoptosis stress Proteins and cell Injury, Subcellular alterations in cell Injury (Lysosomes : Heterophagy and Autophagy, Induction of Smooth Endoplasmic Reticulum, Mitochondrial alterations and Cytoskeletal abnormalities, Intracellular Accumulations (Lipids, Proteins, Glycogen and Pigments), Pathological calcification (Dystrophic and Metastatic), Hyaline change and Cellular Agin.

2. **CELLULAR GROWTH AND DIFFERENTIATION, NORMAL REGULATION AND ADAPTATIONS**

   Control of cell growth (Cell cycle and types of cells, Molecular events in cell growth, Growth inhibition, Growth factors), Extra-cellular Matrix and cell-matrix interactions, cellular adaptions of growth and differentiation (Hyperplasia, Hypertrophy, Atrophy and Metaplasia).

3. **INFLAMMATION AND REPAIR**

   Acute Inflammation (Vascular changes, cellular events : Leukocyte extravasation and Phagocytosis), Chemical Mediators of Inflammation (Vasoactive

amines, plasma proteases, Arachidonic acid metabolites, Platelet activating factor, Cytokines, Nitric Oxide, Lysosomal Constituents of Leukocytes, Oxygen derived free Radicals, Outcomes of acute inflammation), Chronic inflammation (Mononuclear infiltration, Repair by connective tissue, Granulomatous Inflammation including Tuberculosis, Syphilis, Leprosy, Actinomycosis, Lymphatics in Inflammation), Morphologic patterns in Acute and Chronic inflammation, Systemic effects of Inflammation, Wound Healing (Mechanisms of wound healing, pathologic aspects of inflammation and Repair).

4. NEOPLASIA

Definitions, Nomenclature, Characteristics of Benign and Malignant Neoplasms (Differentiation and Anaplasia, Rate of growth, Local Invasion, Metastasis), Epidemiology (Cancer incidence, Geographical and Environmental factors, Age, Heredity, Acquired Preneoplastic disorders), Molecular basis of cancer (Oncogenes and cancer, cancer suppressor Genes, Genes that regulate apoptasis, Molecular basis of multisteps carcinogenesis, karyotypic change in tumours, Biology of Tumour.

Growth (Kinetics of tumour cell growth, Tumour Angiogenesis Tumour Progression and Heterogeneity, Mechanisms of invasion and metastasis) Carcinogenic agents and their cellular interactions (chemical carcinogenesis, Radiation carcinogenesis, Viral Carcinogenesis), Host defence against tumours, Tumour Immunity (Tumour Antigens, antitumour effecter mechanisms, Immunosurveillance, Immunotherapy and Gene Therapy of Tumours), Clinical features of Tumours (effects of Tumour on Host, Grading and staging of Tumours, laboratory diagnosis of cancer).

5. DISEASES OF IMMUNITY

Cells of Immune system, Autoimmune Disease-Immunologic Tolerance and Mechanisms of

Autoimmune Diseases, Systemic Lupue Erythematosis, Sjogren's syndrome, Systemic Sclerosis, Inflammatory Myopathies, Mixed Connective Tissue disease, Polyarteritis Nodosa, Amyloidosis, Acquire Immune Deficiency Syndrome.

6. **HEMODYNAMIC DISORDERS, THROMBOSIS AND SHOCK.**

Edema-pathophysiology and Morphology, Hyperomia and Congestion, Hemorrhage, Hemostasis and thrombosis (Normal Hemostasis, Thrombosis and Disseminated intravascular coagulation), Embolism (Pulmonary, systemic, Amniotic Fluid, Air and fat embolism, infarction and Shock-pathophysiology of Shock.

7. **THE HEART**

Effects of aging on Heart, Congestive Heart Failure-Pathophysiology Ischaemic Heart Disease, Rheumatic Heart Disease, Hypertensive Heart Disease, Infective Endocarditic and other forms of Endocarditis, Valvular Heart Disease, Myocardial Disease, Pericardial Disease, Neoplastic Heart Disease, congenital Heart Disease and Cardiac Transplantation.

8. **BLOOD VESSELS :**

Ebdothelial cells, vascular smooth Muscle Cells, Congenital Anomalies, Atherosclerosis and other forms of arteriosclerosis Hypertensive Vascular Disease, The vasculitides, Raynaud's disease, Aneurysms and dissection, Veins and Lymphatics, Tumours. pathology of Therapeutic Interventions in Vascular Disease.

9. **THE LONG :**

Congeital Anamalies, Alterations in Lung Expansion, Diseases of Vascular Origin, Obstructive and Restrictive Pulmonary Disease, Chronic Obstructive Airway Disease, Pneumoconiosis Pulmonary infections, Diffuse interetitial diseases of Lung (Infiltrative, Restrictive), Other forms of Pulmonary Disease. Tumours of lung and Pleura.

10. DISEASE OF RED BLOOD CELLS, WHITE BLOOD CELLS AND BLEEDING DISORDERS

Normal development of Blood cells, Anaemias, Polycythemia, Leukemia and Myeloproliferative disorders, Bleeding disorders and Hemorrhagic Diathesis due to Thrombocytopenia and Coagulation disorders, Diseases of the Lymph nodes-Malignant Lymphomas, Plasma Cell Dyscrasias and related disorders, Histiocytosis, Diseases of Spleen and Thymus.

PAPER-B

1. GASTRO INTESTINAL TRACT

Oral Cavity, Jaws, Salivary Glands, Desophagus, Stomach, Small and Large Intestinal lesions including Tumours, Peritoneum.

2. LIVER AND BILLARY TRACT :

Jaundice-pathophysiology, Hepatic Failure, Hereditary Hyperbilirubinemias, Circulatory disorders, Necrosis, Infections, Cirrhosis, Portal Hypertension-pathophysiology, Tumours of Liver and Biliary Tract, Gall Bladder - Cholecystitis, Gall Stones, Tumours of Gall Bladder, Exocrine pancreas-Pancreatitis and Tumours.

3. THE KIDNEY

Congenital Anomalies, pathophysiological consdierations with special reference to Nephrotic Syndrome, Glomerular Diseases, Diseases of tubules-Tubulointerstitial disease, Disease of Blood vessels, Hypertension, Obstructive Uropathy, Urolithiasis, Tumours of the Kidney, Urinary Bladder-Inflammation and Tumours.

4. MALE GENETIAL SYSTEM

Testis and Epididymis, Congenital disorders-Klinefelter's Syndrome, Inflammation, Vascular disturbances, Tumours. Prostate-Benign enlargement and Malignancy.

5. FEMALE GENITAL SYSTEM

Pelvic Inflammatory Disease, Inflammation and Tumours of Cervix Body of Uterus and Endometrium, Adenomyosis and Endomstriosis, Dysfunctional Uterine Bleeding, Endometrial Hyperplasia and Tumours, Ovaries-Tumours and Gestational Trophoblastic diseases.

Breast-Inflammation, Fibrocystic Disease and Tumours.

6. ENDOCRINE SYSTEM

Pituitary, Adrenal, Thyroid, parathyroid, Endocrine pancreas-Pathophysiology of Diabetes Mellitue.

7. THE MUSCULOSKELETAL SYSTEM

Bone infections, Fractures, Osteoporosis, Rickets and Osteo-malaria, skeletal change in Hyper thyroidism, paget's disease of Bone, Tumours and Tumour like lesion.

8. THE CENTRAL NERVOUS SYSTEM

Cerebral Infraction and abscess, Maningitis and Tumours.

9. CHEMICAL PATHOLOGY

Liver function tests including Serum Bilirubin, Icteric Index, Vanden Bergh's reaction, Laboratory diagnosis of Jaundice, CSF examination-Normal and Clinical Significance in important diseases. Gastric analysis, Normal Values, Clinical Significance in important diseases.

Renal Function Tests-Normal values and clinical Significance in important diseases, Blood Sugar Estimation-Normal values, Glycosuria, Glucose, Tolerance Estimation.

10. CYTOLOGY

Expoliative Cytology, Cytology of Body Fluids, Differences between transudate and Exudate, Fire Needle Aspiration Cytology, various Routine and Special Stains.

11. AUTOPSY CASES

Autopsy findings in a patient who has died of Rheumatic Heart Disease/Multiple Myeloma/Portal Hypertension/Myocardial infarction/Essential Hypertension/Disseminated Tuberculosis/Nephrotic Syndrome/Diabetes Mellitus/Acquired Immune Deficiency Syndrome/ Amyloidosis and possible causes of Death.

SYLLABUS FOR 2ND PROF. MBBS (PATHOLOGY PRACTICAL EXAMINATION

1. Study of Microscope
2. Histopathological techniques, fixation, preparation of paraffin blocks, cutting, H & E stain.
3. Frozen sections, cutting, fat staining 7 other special stains with interpretation of results.
4. study of histopathology slides - various neoplastic and non-neoplastic lesions.
5. Urine examination - physical, chemical and microscopic examination withe interpretation of results.
6. Various hematological tests - hb estimation, staining of blood smears, Ramenowsky stains, DLC, TLC, Reticulocytic count, platest count R.B.C. Count, examination of peripheral blood smear, B.T.,CT, ESR by Wintrobe and Westegrans methods, Blood grouping study of anaemies and Leukemis.

   Study of gross specimens with clinics-pathological correlation.

   Various instruments used in clinical practical method of use of instruments, reagent used, normal values of results and conditions in which they are increased or decreased.

Applicable for : Admission year : 1997

Examinations to be held in Jan 2000 and onwards.

Distribution of Marks

(B) SECOND PROFESSIONAL EXAMINATION :
(PARA CLINICAL SUBJECTS) :

(a) Pathology :

Theory-Two papers of 40 marks each (One applied question of 10 marks in each paper)	80 marks
Oral (Viva)	15 marks
Practical	25 marks
Internal assessment (Theory-15; Practical-15)	30 marks
Total	150 marks

MICRO BIOLOGY

1. **General Bacteriology**

Historical Introduction, morphology, growth, nutrition and identification of bacteria, Sterilization and disinfection, chemotherapy bacterial genetics, bacteria in health and disease.

2. **Immunology**

Immunity, antigens, antibody, the complement system, antigen-antibody reactions, architectures of the immune system, immune response, immuno-deficiency disease, hypersensitivity, autoimmunity, histocompatibility system, tumour immunity, immunohaematology.

3. Morphology, classification, cultural characteristics, susceptibility to physical and chemical agents. biochemical reactions, antigenic structure, epidemiology, pathogenicity, virulence factors, laboratory diagnosis, treatment and control of the following bacteria : staphylococci, streptococci, paeumococci, Neisseria, Corynebacterium, Bacillus, clostridium, Mycobacteria, M. tuberculosis, M. leprae, a typical microbacteria Entero bacteriaea, escherichia

Klebsiella, protus, Morganella, providencie, Sahmonella, Shigella, Yersinia, Vibrios : V. Cholerae and other medically important vibrios, Campylobacter, Helicibacter, spirill Mobiluncus, Pseudomonas and Burkholderia, Legionella. Haemophilus Gardnerella, Bordetella, Brucella, Mycoplasm, and Ureaplasma, Rickettsiaceae and Bartonellaceae, Chylamydia, Actinomyces, Listeria, monocytogenas, non sporing anaerobes, spirochaetes, Erysipetothrix chromobacterium, Flavobacterium, Calymmatobactarium, Strepto to bacillus, Eikenella, Cardiobacterium.

Virology

General

General properties : basic structure and broad classification of viruses, replication of viruses, virus isolation and detection of growth in cell culture, viral genetics, virus host integration inclusion bodies, cytocidal infection, latent and persistent infections, cell transformation, transmission of human virus infections, immunity and prophylaxix of viral disease, laboratory diagnosis of viral infections, commonly used antiviral agents and Bacteriophages.

Systematic

Morphology classification, antigenic structure, resistance to physical and chemical agents, lesions produced, pathogenesis, laboratory diagnosis and prophylaxis of the viruses of following families :

Poxviridal, Herpesviridae, Adenoviridae, Parvoviridae and papovaviridae, Hepadnaviridae and Deltavirus, Picornaviridae Rhabdoviridae, Orthomyxoviridae, Paramyxoviridae, Caliciviridae, Astroviridae and Coronoviridae, Arboviruses prevalent in India. Filoviridae, Arenaviridae and Reoviridae, Retroviridae.

5. Mycology

General properties of fungi. Classification based

on disease : superficial, subcutaneous, deep mycoses, opportunistic Infections, Systemic mycoses, miscellaneous mucoses. Generral Principles of fungal diagnosis, rapid diagnosis, method of collection of samples antifungal agents.

6. Parasitology

Definition of key terms : Geographical distribution, morphology, culture, life cycele, pathogenicity, laboratory diagnosis, treatment and prophylaxis of the following parasites :

a) Protozoa : amoebae, flagellates, malaria parasite, miscellaneous sprorozoa.

b) Helminths : Cestodes : Taenia, Echimococcus, Diphyllobothrium, Hymenolepis, Trematodes : prevalent in India.

Nematodes : Intestinal and tissue nematodes.

Clinical/Applied Microbiology

Emerging and seemerging infections diseases normal microbial flora of the human body antimicrobial sensitivity testing, prophylactic immunization, hospital-associated infections. Infective syndromes : Streptococcal infections : rheumatic fever and rheumatic heart disease, meningitis, tuberculosis, enteric fever, dysentery, diarrhoeal diseases, phrexia of unknown origin, eye infections, leprosy, sexually transmitted diseases, polimyelitis, hepatitis, acute respiratory infection, central nervous system infections, urinary tract infections, pelvic inflamnatory disease wound infection, opportunistic infection, HIV infection, malaria, filariasis, zoonotic diseases, bone and joint infections, food poisoning, exanthematous conditions, infective endocarditis, septicaemia and bacteriology of water, milk and air.

MICROBIOLOGY PAPER-A

Max. Mark : 40

Part-I

Syllabus	No. of Questions	Marks
Introduction to microbiology, General microbiology, immunology and cocci.	3	20
Part-II		
1. Systematic bacteriology except cocci	2	10
2. Applied bacteriology	1	10
	Total : 6	40

MICROBIOLOGY PAPER-B

Max. Mark : 40

Part-I

Syllabus	No. of Questions	Marks
1. Medical Parasitology	2	14
2. Medical Mycology	1	6
Part-II		
1. Medical Virology	2	10
2. Applied Microbiology	1	10
	Total : 6	10

Syllabus for practical Examination in 2nd prof. MBBS examination in microbiology

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

1. Plan and interpret laboratory investigations far the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agent;
2. Identify the common infectious agents with the help of laboratory procedures and use antimicrobial

sensitivity tests to select suitable antimicrobial agents ;

3. Perform commonly employed bed-side testsfor detection of infectious agents such as blood film for malaria, filaria, gram staining and Acid fast Bacilli (AFB) staining and stool sample for ova cyst etc.

Integration - The student shall understand infectious diseases of national importance in relation to the clinical, theraputic and preventive aspects.

Distribution of Marks

(B) Microbiology :

Theory-Two papers of 40 marks each (One applied question of 10 marks in each paper)	80 marks
Oral (Viva)	15 marks
Practical	25 marks
Internal assessment (Theory-15; Practical-15)	30 marks
Total :	150 marks

SYLLABUS : PHARMACOLOGY

Teaching of pharmacology to undergraduate students with emphasis to therapeutics will be done in the form of theory lectures, seminars (including clinical problems solving exercises), group discussions and practical classes as follows :-

1. General Pharmacology including pharmacokinetics Pharmacodynamics, interactions adverse effects and toxicity of drugs. Introduction to essential drugs, ethics and modalities in the development and introduction of new drugs. Pharmacokinetic and Pharmacodynamic profiles of drugs during pregnancy, lactation, infancy and old age.
2. Knowledge of drugs acting on various systems including relevant pharmacokinetic and

pharmacodynamic profiles indications, contraindications, interactions and adverse reaction of essential and commonly used drugs :-

a) drugs acting on automatic nervous system - common drugs used in cardiovascular disorders nayasthenia gravia, glaucose, bronchial asthma etc, Pharmacokinetic basis clinical presentations diagnosis and management of poison ing caused by autonomic drugs (AND) e,g, Mashroom Belladomma organonphosphorous etc.

b) drugs acting on central nervous system-sedative hypnotics and the drugs used for sleep disorders. anxiety and their poisonings and addiction liability.

- Analgesics and management of pain, opioi poisoning and addiction problems, opioid antagonists.
- drugs for the treatment of psychiatric disorders.
- Drugs for the treatment of epilopsy and parkinson's diseases.
- Alcohol, its poisoning and addiction liability.
- Drugs for general anaesthesia local anaesthesia and skeletal muscle relaxation.

c) Drugs acting on cardiovascular system-important clinical presentations and rational drug tharapy of common cardiovascular disorders like cogestive cardica failure, hypertension, myocardial ischaemia including myocardial infarction, cardiac arrhythmia, etc; drugs used for hyperlipoproteinemias :

d) drugs acting on renal system-diuretics used for management of oedema and other C.V.S. disorders, their mechanism of actions, drug interactions and side effects.

e) drugs acting on haemopoutic system-drugs for therapy of anaemias, coagulants and anticoagulants.

f) drug acting on gastrointestinal tract-antacids and antiulcerogenic agents and management of peptic ulcer and drugs for constipation.

g. drugs acting on respiratory system-bronchodilators, antitussive and cough suppressants.

h. drugs acting on uterus and locally acting drugs.

3. Chemotherapeutic drugs including treatment of common infective disorders, malignant conditions, viral, fungal, parasitic infestations etc.

4. Indications, contraindications, interactions and adverse reactions of common endocrinal hormones and antihormonal preparations including drugs for contraception.

5. Common environmental and occupational pollutante including heavy metal texicity and management.

6. Pharmacology of autocoids, their antegonists and clinical uses.

7. Vaccines and sora preparations.

Practicals :-

1. Prescription writing of some common diseases.

2. Analysis of written prescriptions with emphasis on drug interactions and adverse drug reactions.

3. Practicals designed to formulate and dispense various pharmaceutical preparations.

4. Experiments designed for study of effects of drugs.

Scheme of Examination/distribution of marks :-

1. Theory	Two papers (A, B) of 40 marks each Each paper containing two parts (I, II) of 20 marks each. Containing one question on Clinical Therapeutics	80
	Oral Viva	15
	Internal Assessment	15
		110
2. Practical		25
3. Internal Assessment		15
		40
Total of theory and practical		110 + 40 = 150

Outline of theory papers

1. Paper-A

Part-I :	General pharmacology, drugs acting on central nervous system, local anesthetics and locally acting drugs.	20
Part-II :	Drugs acting on automatic nervous system, drugs acting on gastre-intestinal tract and drugs acting on respiratory system.	20

2. Paper-B

Part-I :	Drugs acting on cardiovascular system, Hypolipoprotoinemic agents, drugs acting on haemopoitic system coagulants and anticoagulants, Chemotherapeutic drugs specific Chemiotherapy	20
Part-II :	Endocrinal hormones and anti-hormonal agents, drugs acting on renal system, common environmental and occupational pollutants including heavy metal toxicity, drugs acting on uterus, vaccines and sers.	20

EXAMINATIONS REGULATIONS

Examination: Examination shall be held in the 5th semester of Phase-II training in the subject of Pharmacology.

Attendance : 75% of attendance is compulsory for appearing in the subject of Pharmacology in 2nd Prof. MBBS provided he/she has 80% attendance in no-lecture teaching i.e. seminars, group discussion, tutorial etc.

Internal Assessment: Students must secure atleast 50% marks of total marks fixed for internal assessment in the subject of Pharmacology Section in order to be eligible to appear in final examination of Pharmacology.

(c) Pharmacology :

Theory-Two papers of 40 marks each containing one question on clinical therapeutics		80 marks
Oral (Viva)		15 marks
Practical		25 marks
Internal Assessment		
Theory	15 marks	
Practical	15 marks	30 marks
Total marks of the subject		150 marks

FORENSIC MEDICINE

A : Theory Syllabus

Section - A :

1. **Introduction :**

   Brief History of Forensic Medicine, Definition and the scope of Forensic Medicine, Medical Jurisprudence and Toxicology.

2. **Indian legal system :**

   Courts and their powers, Legal procedure, Medical evidence. Conduct of the Doctor in the Court. Inquest (a) Police (b) Magistrate (c) Corner.

Section - B :

1. Personal identity of the living and the dead :

   Race, age. sex, stature, dactylography; scars, deformities etc.

2. Death and its medico-legal aspects :

   Modes of death-clinical diagnosis-causes of sudden death- Postmortem changes-Time since death-presumption of death and survivorship.

3. Medico-legal autopsy :

   Objectives-procedure-Materials to be preserved methods.

4. Examination of Decomposed bodies-Mutilated and Fragmentary remains-skeleton examination-Exhumation.

5. Examination of biological stains-blood, semen, saliva etc., hair & fibres.

   Medico-legal importance.

Section - C :

1. Mechanical injuries :

   Abrasion, Contusion, Incised, Stab and Lacerated wounds.

2. Traffic accidents-pattern of wounds.

3. Regional injuries

4. Firearms and Fire-arm wounds :

   Types of Fire-arms and ammunition-Mechanism.

   Entrance and Exit, Range and Direction.

   Collection of evidence and laboratory examination.

5. Medico-legal aspects of injuries.

   Wound certificate-causes of death age of injury.

6. Mechanical Asphyxial deaths :

   Hanging-strangulation-Drowning-suffocation-Modes of death in the above.

7. Other forms of death :

   Starvation, heat, cold, burns, electricity and lightening stroke.

Section - D :

1. Importance, Sterility and Artificial insemination.

   Certification - Medicolegal importance.

2. Virginity, Pregnancy and Delivery.

   Diagnosis in the living and the dead-Medico-legal aspects.

3. Legitimacy, Disputed paternity :

   Investigation and reporting, legal aspects.

4. Sexual Offences :

   Rape; Examination of the accused and the victim-collection and despatch of materials.

   Unnatural sexual offences : Sex-perversions.

5. Abortion :

   Criminal and legal. Its diagnosis in the living and dead. M.T.P. Act.

6. Infant deaths :

   Infanticide-Proof of live birth-still born and dead born period of survival-acts of commission and omission-concealment of birth-abandoning of infants-Battered baby-cot deaths.

Section-E :

Insanity :

Causes-diagnosis and certification-True and feagned insanity - Restraint of the insane and Discharging-Civil and Criminal responsibility of the insane.

Section-F :

Law relating to medical Practice :

a) Medical Ethics and infamous conduct-warning notices-Indian Medical Council Act, Composition and functions of MCI and State Medical Council, Judicial procedure in Infamous conduct.

b) Rights and duties of Registered Medical Practioner.

c) Medical negligence : Civil and criminal.

d) Consent

e) Miscellaneous : Workmen compensation Act-

Consumer Protection Act-Medical Indentity-Insurance-Employee's State Insurance Act-Laper's Act-Malingering-Euthanasia etc.

Section-G :

Definition of poison-poisoning in India, Manner of death in poisoning-Ideal homicidal and suicidal poisons, classification of poisons, routes of administration and elimination, actions, factors modifying the actions of poisons. Diagnosis in living and dead and treatment of poisoning commonly encountered.

Duties of Medical Practitioners attending a case of poisoning.

Section-H :

Common Provisions of Law as applicable to Medical man and medico-legal practice.

B: PRACTICAL SYLLABUS

1. Clinical Case demonstration :

   a) Age determination case b) Injury case. c) Drunkeness case.

2. Medico-legal autopsies :-

   Poisoning, Traffic accidents, Burns, Drowning, Hanging, Decomposed Mutilated bodies and skeletal examination.

3. Study of dead body at autopsy for :

   Signs of death, time since death and cause of death.

4. Collection, preservation and forwarding of viscera for chemical analysis.
5. Dissection of neck structures, demonstration of antemortem injury in laryngal structures such as Hyoid bone, the Throid cartilage and the cricoid cartilage with accent on artifacts caused by decomposition.
6. Study of Foetus regarding Age, Live-birth and cause of death etc.
7. Study of weapons of offence.
8. Study of Fire-arms and amunition.
9. Examination of Blood stains/Blood by physical, Chemical microscopical and spectroscopical methods.

10. Morbid specimens and slides.
11. Slide demonstration : Sexual offences cases.
12. Study of Photographs and x-rays.
13. Study of Identification methods :
    a) Finger prints b) Tatto-marks c) Deformities
    d) Hair e) Moles f) Scars.
14. Identification of poisons :
    Organic, Inorganic, animal and vegetable poisons by physical methods.
15. Proformas for demonstration :
    a) Summons b) consent form c) Potency certificate
    d) Sexual offences certificate e) Physical fitness certificate f) sickness certificate g) Medico-legal Report h) Postmortem report i) Death certificate.

RECOMMENDE BOOKS :

1. Modi's Medical Jurisprudence and Toxicology Edited by B.V. Subrahmanyam.
2. The Essential of Forensic Medicine and Toxicology by K.S. Narayan Reddy.
3. Forensic Medicine by Keith Simpson & Bernard Knight.

Distribution of Marks :

(d) **Forensic Medicine :**

Theory - one paper : (Two parts of 20 marks each)	40 marks
Oral (Viva)	10 marks
Practical/Clinicals	30 marks
Internal Assessment (Theory-10; Practical-10)	20 marks
Total	100 marks

Pass : In each of the subjects, a candidate must obtain 50% in aggregate with a minimum of 50% in Theory including oral and minimum of 50% in Practicals/ clinicals.