

## Syllabus for Medical Officers

### THEORY SYLLABUS IN THE SUBJECT OF ANATOMY

A course of lectures and lecture demonstration on the :

1. Topographical Anatomy and applied Anatomy of Head and Neck, Brain, Upper Limb, Thorax, Abdomen and Lower Limb.
2. General Embryology :
  - i) Gross and microscopic anatomy of male and female genital organs.
  - ii) Menstrual cycle.
  - iii) Spermato genesis, spermeogenesis and congenesis.
  - iv) Fertilization of ovum.
  - v) Early embryogenesis
  - vi) Tissues and organ changes in mother during pregnancy
  - vii) Placenta and fetal membranes
  - viii) Terato genesis
  - ix) Multiple births
  - x) Family Welfare : Anatomical basis of methods contraception in male and female.
3. Organogenesis with special reference to congenital anomalies.
4. Principles of Genetics including Karyotyping.
5. Basic Anatomy – Skin, superficial fascia, deep fascia, cartilage, Bone, Joints, Muscle, Blood vesseles and Lymphatics.
6. Microscopic study of tissues and organs of the body.
7. Neuroanatomy : Nervous tissue, organization of the nervous system, spinal cord, medulla oblongata, Pons, Cerebellum, Midbrain, Cerebrum, Diencephalon, limbic system, Reticular system, autonomic nervous system, Meninges and blood vessles of the nervous system and applied aspects of the above.

## Syllabus for Physiology

### 1. GENERAL PHYSIOLOGY

Homeostasis, concept of physiological norms, range and variations. Structure of Cell membrane, Active and passive transport, Resting membrane potentials, Cellular receptors, intercellular communication, Cell organelles, inclusions and their functions.

### 2. NERVE AND MUSCLE

Classification and structure of nerve and muscles. Electrical, mechanical properties. Mechanism of muscle contraction and its molecular basis, Neuromuscular transmission, thermal changes, oxygen debt and mechanical efficiency, smooth muscle-electrical and mechanical properties, Neuromuscular disorders and effects of denervation on muscle, E.M.G.

### 3. NERVOUS SYSTEM (Central and Autonomic)

Organization of the central, peripheral and Autonomic, Nervous system, function and neuronal organization at spinal cord level, Synaptic transmission, motor and sensory systems and their lesions. Reticular system in brain stem, sleep, wakefulness, E.E.G. – waves and Physiological changes in E.E.G. Clinical lesions and Experimental sections at spinal cord, brain stem and sub-cortical levels, physiology of basal ganglia, Cerebellum, maintenance of muscle tone, posture and equilibrium, physiology of thalamus, hypothalamus, limbic system and cerebral cortex. Physiology of speech and its disorders, learning and memory, formation and functions of CSF and its composition, Blood brain barrier, Central neurotransmitters, Physiological basis of CNS disorders like Alzheimer's disease, Parkinsonism, Syringomyelia and Tabes dorsalis, Evoked potentials & Autonomic pharmacology.

### 4. ENDOCRINE GLANDS

General principles of regulation of endocrine glands, hormones-functions, regulation of secretion, Experimental and clinical disorders of Anterior and Posterior Pituitary, thyroid, parathyroid, Adrenal Cortex, Adrenal Medulla, Endocrine Pancreas. Endocrine functions of other organs and local hormones e.g. pineal, placenta, thymus, lungs, kidneys, Endothelium, Stress and hormones, Physiology of Growth.

### 5. REPRODUCTION

**MALE REPRODUCTION :** Spermatogenesis, regulation and function of testis, constituents of semen, ejaculation, Testicular hormones, puberty, Physiological basis of sex differentiation and disorders, abnormalities of testicular function, infertility.

**FEMALE REPRODUCTION :** Menstrual cycle-changes in ovary, uterus, cervical mucosa, vagina and hormonal regulation, ovulation and its detection, fertilization, Implantation, Physiological changes during pregnancy and parturition, placenta, physiology of lactation, menopause, Nutritional needs of mother and child during pregnancy and lactation, composition of milk, colostrum.

**FAMILY PLANNING AND WELFARE :** Physiological basis of contraception in males and females principles of use of oral contraceptives, safe period, rhythm and other methods of contraception.

## 6. SPECIAL SENSES

**EYE :** Image formation on retina, Errors of refraction, functions of aqueous humour, intraocular tension and Glaucoma, Mechanisms of accommodation, Dark adaptation, pupillary reflexes, optic pathway and lesions, field of vision, colour vision, structure of Photoreceptors, generator potentials of rods and cones, Electroretinogram.

**AUDITORY APPARATUS :** Function of tympanic membrane, middle ear and cochlea, Auditory receptors and pathway, Deafness and its causes, Theories of hearing, Audiometry.

**VESTIBULAR APPARATUS :** Division, functions, connections and lesions, vestibulo cochlear function, Nystagmus, tests of vestibule function.

**TASTE AND SMELL :** Receptors, pathways and Cortical and limbic areas associated with taste and smell, Disorders of taste and smell.

## 7. BODY FLUIDS AND BLOOD

Body fluid composition and Principles of estimation, oedema, Plasma proteins, cellular elements of blood, their formation and regulation, hemoglobin and functions, Anemias and their classification, jaundice, hemostatic mechanisms and anticoagulants, Blood group and Rh incompatibility, blood transfusion, E.S.R., Basic mechanisms of immunity with respect to lymphocytes, functions of W.B.C. and applied aspects, cell mediated immunity, Lymph.

## 8. G.I.T. AND NUTRITION

Oral cavity-mastication and digestion in mouth and deglutition, functional morphology, functions, regulation of secretion of salivary glands, stomach, small intestine and large intestine, Regulation of G.I. Movements and Physiological basis of abnormalities like vomiting, Diarrhea, constipation, Achalasia, Megacolon and peptic ulcer, Functions of gall bladder, functions of liver, site of production and actions of G.I. Hormone. Defecation, Nutrition-Balanced Diet, Diet in Pregnancy and lactation, malnutrition.

**9. KIDNEY**

Structure and functions of different part of nephron, urine formation, Role of Kidney in water and electrolyte balance and acidification of urine, Renal blood flow, Physiological basis of kidney function tests, Juxtaglomerular apparatus, Renin Angiotensin system, structure and innervation of urinary bladder, Micturition, Cystometrogram and disorders of micturition, composition of urine, Artificial kidney, Dialysis and renal failure.

**10. CARDIOVASCULAR SYSTEM**

Functional anatomy of heart, properties of cardiac muscle, Electrical and mechanical changes in cardiac cycle, Normal E.C.G. Cardiac output, measurement of cardiac output in man and Physiological variations, Regulatory mechanisms of heart rate, cardiac output and blood pressure, Regional circulations-normal value, measurement and regulation of coronary, cerebral, skin and foetal circulation, change in C.V.S. during muscular exercise, postural changes, hypovolemia, Arrhythmia, Pathophysiology of cardiac failure and hypertension, valvular disorders.

**11. SKIN AND BODY TEMPERATURE**

Functional morphology, heat gain and loss mechanisms, role of skin in temperature regulation normal values and variations Hypothermia, fever, heatstroke.

**12. RESPIRATORY SYSTEM**

Functional anatomy of respiratory system, mechanism of normal respiration, Lung compliance, work of breathing, Alveolar ventilation, ventilation perfusion ratio, oxygen and carbon-di-oxide transport, diffusing capacity, pulmonary function tests, regulation of respiration, Respiratory acidosis and alkalosis, pulmonary blood flow, Hypoxia, Cyanosis, Asphyxia and dyspnoea, Respiratory adjustments during exercise Hyperbaric conditions and decompression sickness, High Altitude and aviation Physiology, Pathophysiology of obstructive and restrictive disorders, Hyaline membrane disease, Pulmonary oedema, Hyperbaric therapy, oxygen toxicity, Non-respiratory functions of respiratory system.

**DETAILED SYLLABUS**

- ENZYMES :** Definition and classification of enzymes, co-enzymes, holoenzymes, apoenzymes, isoenzymes and metalloenzyme. Catalytic site : definition, mechanism of action. Factors effecting enzymes action e.g. pH, temperature and substrate concentration, concept of  $K_m$  and enzyme inhibition (No derivation).
- Enzyme regulation (feedback and allosteric regulation). Diagnostic Importance of Enzyme (Emphasis on Liver and Heart).
- VITAMINS AND CO-ENZYMES** Definition of metabolic reactions catalysed by : NAD, NADP, CoA, Lipoic acids, TPP, PLP, FMN, FAD, Folic Acid, Biotin and B12 (only general concept of biochemical reactions without structure).
- Vitamins : Biochemical role of Fat soluble Vitamins A.D.E.K. & Ascorbic Acid.
- BIOCHEMICAL OXIDATION** ETC (Electron Transport Chain along with uncouplers and inhibitors). Concept of High Energy compounds.
- Oxidative phosphorylation, Glycerophosphate shuttle, malate shuttle.
- CARBO-HYDRATES** **CHEMISTRY :** Chemistry of Mono, disaccharides and polysaccharides, Isomerism in carbohydrates (Stereo, optical, epimers, anomers and mutarotation). Concept of glycoproteins, proteoglycans, glycolipids, aminosugars and glycosides (without detailed structure).
- METABOLISM :**
- Digestion and absorption of dietary carbohydrates, Glycolysis, HMP-shunt, TCA-Cycle and Uronic acid pathway and gluconeogenesis, bio-energetics, biomedical importance, metabolic disorders and regulations).
- Glycogen : Synthesis and breakdown (along with glycogen storage disorder and hormonal regulation). Concept of galactose and fructose metabolism.
- G.T.T : Clinical importance of GTT and study of abnormal glucose absorption curves, regulation of blood sugar, glycosurias and diabetes mellitus.

**LIPIDS**

Classification, biomedical importance and functions of saturated, unsaturated and essential fatty acids, Triglycerides, phospholipids, glycolipids, sulfatides and lipoproteins.

Cholesterol :Structure, functions and its derivatives. Prostaglandins, classification, and functions. Concept of prostacyclines, leukotrienes and thromboxanes.

**METABOLISM :** Digestion and asorption of lipids, fatty acids, synthesis, B-oxidation of fatty acids, along with inborn errors.

**CHOLESTEROL :** Synthesis, catabolism, regulation inborn errors and atherosclerosis.

Concept of Apoproteins, lipoproteins, transport and disorders, lipotropic factors and fatty liver, ketosis lipid metabolic disorders (Lipidosis).

Lipid peroxidation and role of Antioxidants.  
Importance of liposomes.

**AMINOACIDS & PROTEINS**

Classification and structures of alpha-aminoacids found in proteins, Zwitterions and iso-electric pH.

Peptides of biological activity like glutathione, insulin. Classification structure and bonds-maintaining structure of proteins.

Functions of plasma proteins.

Structure function relationship with emphasis on haemoglobin and myoglobin.

Structure and functions of Immunoglobulins.

**METABOLISM OF AMINO ACIDS/ PROTEINS**

Digestion and absorption of proteins.  
General reactions of aminoacids like oxidative and non-oxidative deamination, transamination and decarboxylation, transamidation.

Transport and formation of ammonia, urea cycle with inborn-errors of metabolism.

Catabolism including formation of specialised products and inborn errors of glycine, phenylalanine, tyrosine, tryptophan, methionine, cysteine, cystine, and histidine, Minor concept of metabolism of branched chain aminoacid Creatine metabolism.

<b>METABOLIC ACIDS</b>	<p>Basic concept of nucleosides and nucleotides. Common derivatives of purines and pyrimidines. Uric Acid Metabolism.          Structure of ANA and DNA (A, B &amp; Z).          Definitions of Introns : Exons, clone, library, genome plasmid, Fingerprinting, footprinting, vector, probe, hairpin, ligation, splicing, Western blot, Northern blot, Southern blot.</p>
<b>MOLECULAR BIOCHEMISTRY</b>	<p>Replication, transcription, genetic code and translation.          Definition and types of mutations :</p> <ul style="list-style-type: none"> <li>- Point mutations</li> <li>- Frameshift mutations</li> <li>- Missense mutations</li> </ul>
<b>MINERALS</b>	<p>Concept of Recombinant DNA technology.          Gene regulation on the basis of Lac operon concept.</p> <p>Biochemical role of minerals (Sodium, Potassium, Magnesium, Fluorine, Calcium, Phosphorus, Iron, Iodine Chloride, Copper, Zinc, Selenium).</p> <p>Common clinical disorders associated with metabolism of these minerals.</p> <p>Water and electrolyte balance and imbalance.</p>
<b>ACID BASE BALANCE</b>	<p>Definition of pH and Buffers, Henderson Hasselbarr Equation (Excluding derivation).</p> <p>Blood Buffers : Define metabolic and respiratory acidosis and alkalosis along with common causes.</p> <p>Role of lungs and kidneys in pH maintenance.</p>
<b>ORGAN FUNCTION TEST</b>	<p><u>Thyroid Function Tests</u> : (Radioactive iodine uptake, general concept of T<sub>3</sub>, T<sub>4</sub>, TSH).</p> <p><u>Liver Function Tests</u> : General concept and clinical importance of SGOT/SGPT, alkaline phosphatase, LDH, Gamma-GT, Total protein, Albumin and A.G. Ratio. Direct and indirect bilirubin and urinary bile salts and bile pigments.</p> <p><u>Renal Function Tests</u> : Significance of clearance tests (urea, creatinine and inulin).</p>
<b>DETOXICATION</b>	<p>Mechanism of detoxication.</p>
<b>RADIO - ISOTOPES</b>	<p>Diagnostic and therapeutic importance of radio isotopes (Iodine phosphorous cobalt and technetium).</p>

**CHROMATO-  
GRAPHY**

**General concept of paper chromatography, TLC, HPLC & GLC.**

**ELECTRO-  
PHORESIS**

**Definition and minor concept of techniques (PAGE, paper electro-  
phoresis and high voltage electrophoresis).**

## GENERAL PATHOLOGY (PART – I)

### 1. Cellular injury & cellular death

Introduction to Pathology, Cell injury & Necrosis Apoptosis Intra cellular Accumulations of Lipid, Protein Glycogen, pigments, Pathological calcification and Hyaline change.

### 2. Cellular adaptation of Growth and differentiation

Control of cell growth, cellular Adaptations, Hypertrophy, atrophy, Hyperplasia Metaplasia and Dysplasia.

### 3. Inflammation and repair

Acute inflammation - Vascular changes, cellular events, chemical mediators of inflammation. Chronic inflammation including granulomatous inflammation systemic effects of inflammation. Wound healing and repair excluding fracture healing.

### 4. Fluid and Haemodynamic disturbances

Oedema, Hyperaemia and congestion, haemorrhage, Thrombosis, embolism, Infarction and shock.

### 5. Basis of Genetic disorders with few common diseases

Like Down's Syndrome, Turners and Kline Felter's syndrome.

### 6. Diseases of Immunity

Cells of Immune system, cytokines of system, Histocompatibility antigens, mechanism of immune injury (Hypersensitivity Reactions) Autoimmune diseases with special reference to SLE, Rheumatoid – Arthritis, Immunological deficiency syndrome with special reference to AIDS. Transplant – Rejection particularly of kidney. Amyloidosis in detail.

### 7. Neoplasia

Definition, nomenclature, Benign versus malignant, classification of tumours, Features of malignant tumours, spread of tumours, grading and staging of tumours, biopsy of tumour growth, Tumour antigens, Clinical features of

tumours, Paraneoplastic syndrome, Carcinogens and laboratory diagnosis of cancer.

8. Infectious Diseases

Viral Disease :

1. Infectious mononucleosis
2. Mumps
3. Measles
4. Chicken Pox
5. Herpes Simplex & zoster
6. Rabies

Bacterial Diseases :

1. Tuberculosis
2. Syphilis
3. Leprosy
4. Actinomycosis
5. Typhoid
6. Sexually transmitted disease
7. L G V
8. Toxoplasmosis
9. Cat Scratch disease

Fungal Disease :

1. Candidiasis
2. Aspergillosis
3. Histoplasmosis

Miscellaneous :

1. Sarcoidosis

9. Nutritional Diseases

Maramus - Kwashiorkor Vitamins and related disorders.

HAEMATOLOGY (PART - II)

Formation of blood cells, Bone Marrow, Biopsy and Bone Marrow Examination. Anaemia classification, Iron Deficiency Anaemia. Macrocytic anaemia with special reference to Megaloblastic anaemia. Haemolytic anaemias, Pancytopenia, and Aplastic anaemia, Disorders of haemoglobinopathies like sickle cell disease, Thalassemias. Sideroblastic anaemia. Neutrophilia and Eosinophilia, Neutropenia and Agranulocytosis. Leucocytosis, Leucopenia, Leukaemoid Reactions. Leukaemias classification with special reference to FAB classification Acute Lymphoblastic Leukaemia. Acute myeloblastic Leukaemia, chronic lymphocytic Leukaemia, chronic myeloid Leukaemia, Plasma cell disorders (Multiple myeloma) Myelodysplastic syndrome (MDS) Myeloproliferative disorders including myelofibrosis and polycythemia.

Bleeding Disorders - Investigations of Bleeding disorders, ITP and functional platelet disorders.

Coagulation Disorders - Haemophilia and Christmas disease.

# SYSTEMIC PATHOLOGY

## 1. Cardiovascular System

- A. Disease of Blood Vessels : Atherosclerosis Hypertensive vascular disease. Inflammatory disease. Vasculitis (Wegener's Granulomatosis, Polyarteritis nodosa) Raynaud's disease Buerger's disease. Aneurysm, vascular tumours (Haemangioma).

### 1. Heart

Ischaemic Heart disease (IHD), Rheumatic heart disease, Congestive heart Failure. Valvular Heart Disease, Infective Endocarditis Myocardial Heart disease, Pericardial Heart disease (Pericarditis) Cardiomyopathies in brief, Congenital Heart disease with special reference to Fallot's Tetralogy.

### 2. Lymph Node and Spleen

#### Causes

of Lymphadenopathy with special reference to tuberculosis. Malignant Lymphoma, Classification and description of Hodgkin and non Hodgkin's Lymphoma causes of splenomegaly. Infarct spleen and congestive splenomegaly.

### 3. Lungs and Pleura

Atelectasis, Pulmonary congestion and oedema, Chronic obstructive airway disease (emphysema Chronic Bronchitis Asthma and Bronchiectasis), Pulmonary Infections – Pneumonia Lung abscess, Pulmonary tuberculosis diffuse interstitial lung disease, pneumoconiosis, lung tumours, pleuritis with special reference to tubercular pleural effusion mesothelioma.

### 4. G.I.T.

Oral Cavity and Salivary Glands carcinoma of oral cavity, ulcers in mouth, Sialadenitis, tumours of Salivary glands, classification with special reference to pleomorphic adenoma and adamantinoma of Jaw.

Oesophagus Achalasis, oesophagitis and carcinoma of oesophagus.

Stomach Gastritis acute and chronic Peptic Ulcer, gastric carcinoma carcinoids.

Intestine Common ulcerative conditions like amoebiasis bacillary dysentery, typhoid and tuberculous ulcers. Idiopathic inflammatory bowel diseases-Chron's disease and ulcerative colitis, Polyps, carcinoma.

Appendix Acute appendicitis and carcinoid.

5. **Liver and Biliary Tract**

Pathophysiology of Jaundice, L.F.T., Cirrhosis, portal hypertension, hepatic encephalopathy, viral hepatitis, alcoholic liver disease, chronic hepatitis. Paediatric liver disease-Wilson's disease, Indian Childhood Cirrhosis, Antitrypsin deficiency, Neonatal Jaundice. Tumour – hepatocellular, Cholangio carcinoma and secondary deposits.

Gall Bladder - Cholecystitic, Cholelithiasis (Gall Stones) carcinoma of gall bladder.

6. **Pancreas**

Pancreatitis and carcinoma of pancreas.

7. **Kidney**

Aetiopathogenesis, pathological features, clinico pathological co-relation, prognosis and relevant Laboratory investigations of common renal diseases such as Glomerulonephritis, nephrotic syndrome, pyelonephritis, acute tubular necrosis, hypertensive kidney disease, polycystic kidney disease. Renal stones, hydronephrosis.

Tumours – Renal cell carcinoma, nephroblastoma.

Urinary Bladder - Carcinoma and urinary bladder.

8. **Male Genital System**

Carcinoma of penis, infarction testes, Epidydmittis, tubercular epidydmittis.

Testicular : Tumours – classification with special reference to seminoma and teratoma.

Prostate : Benign nodular hyperplasia and carcinoma of prostate.

9. **Female Genital System**

Endometrial pathology including endometrial hyperplasia, adenomyosis, endometriosis and carcinoma of endometrium. Tumours of myometrium – leiomyoma carcinoma of cervix including CIN and ovarian tumours. Classification and special reference to teratoma (Dermoid cyst) Dysgerminoma, Brenners tumour.

Placenta - Hydatidiform mole and chorio-carcinoma.

10. **Breast**  
Fibrocystic disease, benign tumours – fibroadenoma, Phylloides tumour, Carcinoma of breast.
11. **C.N.S.**  
**Meningitis** – viral, pyogenic and tubercular. Tubercular and fungal infection of CNS. Classification of tumours of CNS and brief introduction to common CNS tumours like Meningioma, glioma and medulloblastoma.
12. **Bones and Joints**  
Healing of fracture, osteomyelitis, tubercular osteomyelitis. Classification of Bone tumours with special reference to Chondroma osteochondroma, osteogenic sarcoma, Ewing sarcoma and Giant cell tumour. Causes of arthritis – pyogenic arthritis, tubercular, rheumatoid arthritis, Gout.
13. **Endocrine System**  
**Thyroid** – Hyperthyroidism, hypothyroidism, Grave's disease, Multinodular Goitre, Thyroiditis, Thyroid Tumours (Adenoma and Carcinoma).  
**Parathyroid** - Hyperparathyroidism, parathyroid tumours – adenoma and carcinoma.  
**Endocrine Pancreas** - Diabetes mellitus in detail and islet cell tumours.  
**Adrenal Glands** - Hyperadrenalism, Cushing Syndrome, Conn's Syndrome. Hypoadrenalism - Addison's disease, Tumour of Adrenal Glands.  
**Pituitary Glands** - Hyperpituitarism – Acromegaly, Hypopituitarism, Sheehan's Syndrome and Simmond's disease.
14. **Cytology**  
General aspects and various types – Exfoliative cytology, Fluid Cytology, Sputum Cytology, Cervical PAP Smear and Fine Needle Aspiration Cytology (FNAC).

- I. Historical : Contributions of
- Louis Pasteur
  - Robert Koch
  - Anthony Van Leewenhock
  - Edward Jenner
  - Paul Ehrlich.

- II. General Microbiology :
- Prokaryotes and Eukaryotes
  - Bacterial cell and various staining techniques
  - Cell wall structure – Antimicrobial action
  - Metabolism – Aerobes, anaerobes, capnophilic organisms.
  - Media – common and important media
  - Growth of Bacteria – Growth curve in batch culture.
  - Methods of anaerobiasis.
  - Killing of bacteria – Methods of sterilization
    - Disinfection
    - Asepsis and antisepsis

**Bacterial Genetics :**

- Antimicrobial agents
  - Mode of action
  - Susceptibility tests
  - Resistances - Chromosomal
  - Plasmid Mediated
  - Morphological
- Classification of bacteria
- Source of infection
- Transmission of infections and agents including vectors
- Sites of entry into human host and spread.

### III. Immunology

Host-parasite relationship – Body defence mechanisms  
- Bacterial factor in infection

- Antigen, Antibody, Ag, Ab reactions.  
Complement system
- Lymphoreticular system, HLA system
- Transplantation immunity and GVH reaction
- Hypersensitivity
- Autoimmunity, Tumour Immunity.

### V. Systemic Bacteriology

Systemic Bacteriology will be considered under the following headings :

- i) Collection and transport of samples for laboratory diagnosis
- ii) Interpretation of laboratory reports.
- iii) Rapid bedside diagnosis wherever feasible :
  - Pyogenic cocci - Staphylococci, streptococci, pneumococci, Neisseria, anaerobic cocci.
  - Corynebacterium diphtheriae, diphtheriodes.
  - Mycobacterium tuberculosis, M. Leprae, Atypical mycobacteria.
  - Enterobacteriaceae : General properties, Enterobacteria with reference to urinary tract infections, enteric fevers, diarrhoeal diseases, pyogenic infections.
  - Vibrios : V Cholerae and other important campylobacters including H. pylori.
  - Pseudomonas
  - Bacillus anthracis
  - Clostridia : General properties with reference to tetanus, gas gangrene and food poisoning.
  - Rickettsiae, Chlamydiae, Mycoplasma, Actinomycetes, L. forms.
  - Anaerobes : Bacteriodes, Fusobacteria.
  - Spirochaetes : Treponema, Borrelia, Leptospira.
  - Legionella pneumophila.

### Special Bacteriology

- a) Bacteriological examination of food, air, milk and water. Hospital acquired infections, collection and transportation of samples for microbiological investigations and newly emerging and re-emerging pathogens.
- b) Applied bacteriology : U.T.I. diarrhoeal diseases, P.U.O., Meningitis, wound infections, sore throat.

## 1. VIROLOGY :

General properties : Basic structure and broad classification of viruses. Pathogenesis and pathology of viral infections, Immunity and prophylaxis of viral diseases. Principle of laboratory diagnosis of viral diseases List of commonly used antiviral agents. Bacteriophage with relation to virulence mechanisms and epidemiology.

- a) Herpesviruses : List of viruses included, lesions produced, Pathogenesis and latency, principles of laboratory diagnosis.
- b) Arboviruses : List of arboviruses present in India, general properties, mode of transmission, disease syndromes produced, common diagnostic test, prevention of spread.
- c) Piconaviruses : common infections produced, classification and general properties, pathogenesis of poliomyelitis, immunoprophylaxis of poliomyelitis.
- d) Myxoviruses : General properties, classification according to diseases produced antigenomic variations in influenza virus with relevance to vaccine efficacy, measles, mumps and rubella. Important features and prophylaxis.
- e) Rabies Virus : General properties, antirabies vaccine, antemortem diagnosis in rabies.
- f) Hepatitis Viruses : List of viruses, pathogenesis, mode of infection. List of diagnostic tests and their interpretation, methods of prevention and control.
- g) Human immunodeficiency Viruses : Structure with relevance to laboratory diagnosis and type of infection, laboratory tests and their interpretation universal precautions, specific precautions, recent trends in diagnosis and prophylaxis.
- h) Viral Gastroenteritis : Causative viruses, laboratory diagnosis of rotavirus.
- i) Applied Virology : Viral conjunctivitis, respiratory viruses, viral meningitis/encephalitis. Viral (acute) hemorrhagic fevers, viruses causing fever with rash, viruses causing congenital malformations, oncogenic viruses.

## 2. MYCOLOGY

General mycology, superficial mycoses, deep mycoses, sub-cutaneous mycoses (Mycotic mycetoma, Chromoblastomycosis, Sporotrichosis, Rhinosporidiosis and subcutaneous phycomycosis) Systemic mycoses (Cryptococcosis, Blastomycosis, Paracoccidioidomycosis, Coccidioidomycosis & Histoplasmosis) Opportunistic mycosis. General Properties of fungal diagnosis, rapid diagnosis, methods of collection of samples, antifungal agents.

3. PARASITOLOGY

Intestinal gut protozoan Protozoans in blood : Homoflagellates, Plasmodia, Acanthamoeba-pneumocystis, miscellaneous sporozoa, toxoplasma, genital protozoans. Trematodes, cestodes, Nematodes, medical Entomology with reference in vectors.

4. ENTOMOLOGY

Role of flies, mosquitoes, ticks, mites, lice and fleas in various human infections.

GENERAL REMARKS

a) Deletion :

- 1) Life cycles of parasites which are not found in India e.g. trypanosome.
- 2) Certain exotic fungal infections e.g. coccidioidomycosis.
- 3) Detailed culture and biochemical reactions of bacteria.

b) De-emphasis :

- 1) Parasites not common in India
- 2) Culture and biochemical characteristics of micro-organisms.
- 3) Micro-organisms esp. viruses and fungi which are not found in India.

c) Strengthening :

- 1) Concept of clinical microbiology.
- 2) Tropical disease teaching

d) Addition :

- 1) National programs in infectious diseases.
- 2) Knowledge on AIDS
- 3) Epidemiology of infectious diseases.
- 4) Glimpses of molecular biology and biotechnology.

## Syllabus of Pharmacology

1. Introduction to Pharmacology and general Pharmacology : History, development, branches and scope of pharmacology, Drug action, molecular basis and mechanisms of action, and their modifications due to different factors. Pharmacokinetics, routes of administration, absorption, distribution, biotransformation and excretion of drugs. Principles of loading and maintenance dose rate and therapeutic drug monitoring.  
  
Adverse drug reactions, pharmacogenetics, hypersensitivity, overdose poisoning, drug-dependence and substance abuse and environmental pollutants.  
  
Drug regulations, new drug development, Gene therapy, medico-legal and ethical issues related to drug development and prescribing.  
  
Prescription writing, principles of therapeutic decision making, rational drug use, concept of essential drugs, mass therapy for national programs, community pharmacology, pharmacoeconomics and quality of life.  
  
Drug usage in special populations i.e. extremes of ages, pregnancy and lactation, concurrent liver and kidney disease and drug interactions etc.

2. **Drugs Acting on Autonomic Nervous System**  
General considerations, Cholinergic transmission, Parasympathomimetics, Anticholinergic drugs Adrenergic Neurotransmission, Sympathomimetics, Adrenoceptor blocking drugs, Skeletal muscle relaxants, and Drugs affecting autonomic ganglion and neurones.
3. **Drugs Acting on the General Nervous System**  
Neurohumoral transmission and the central nervous system.  
General and local anesthetics, therapeutic gases.  
Basic and applied pharmacology of alcohol, sedatives and hypnotics.  
Drugs and the treatment of psychiatry disorders.  
Drugs effective in the therapy of epileptic disorders.  
Drugs for the Parkinson's disease, spasticity and acute muscle spasm.  
Drug addiction and drug abuse, Opioids Analgesics and Antagonists.  
Drug Addiction and Drug Abuse.
4. **Autocoids and related Drugs**  
General considerations, Histamine and antihistaminic drugs, 5-hydroxytryptamine receptor- agonists and antagonists, Renin-Angiotensin Systems and related drugs, Eicosanoids, Platelets activating factors and related drugs.  
Analgesis-Antipyretics and Anti-inflammatory Agents, drugs employed in the treatment of rheumatoid arthritis and gout.  
Drugs used in the treatment of bronchial asthma and cough.
5. **Gastrointestinal Drugs**  
Drug therapy of peptic ulcer, emetics and anti-emetics and Drugs affecting gastrointestinal motility.
6. **Toxicology**  
Heavy metals and antagonists General principles of treatment of acute poisoning; environmental and occupational toxicology.
7. **Drugs Acting on the Blood and the Blood Forming Organs**  
Hematopoetic agents, growth factors, minerals and vitamins; mass treatment of anaemias under national programs, coagulants, antico-agulants, thrombolytic, and antiplatelet drugs.

8. Drugs Affecting Cardiovascular System and Kidney

Drugs acting on the renin angiotensin-aldosterone system, basic and applied pharmacology of diuretics and other agents employed in the mobilization of oedema fluid, conservation of water volume and composition of body fluids and inhibitors of tubular transport.

Cardioglycoside and other drugs used for treatment of congestive heart failure.  
 Drugs used for treatment of angina pectoris and myocardial infarction.  
 Antihypertensive agents and drug therapy of hypertension.  
 Drugs used in the treatment of hyperlipoproteinemias.  
 Antiarrhythmic drugs and agents used in shock, stroke and other cardiovascular emergencies.

9. Hormones and Hormone Antagonists

Adenohypophyseal hormones and related substances.  
 Thyroid and anti thyroid drugs, mass therapy in thyroid deficiency areas.  
 Corticoids and related drugs, Diabetes, Insulin, oral hypoglycemia agents and other related drugs.  
 Oestrogens, progestins, androgens, contraceptives and related drugs. Mass therapy and individualization of therapy for contraception. Calcium, Vitamin-D.  
 Parathyroid hormones, calcitonin and related drugs and treatment of endocrinal emergencies.

10. Drugs Affecting Uterine Motility

Oxytocin, prostaglandins, ergot alkaloids, tocolytics and other related drug.

11. The Vitamins

Water soluble and, the fat soluble vitamins; mass therapy and individualization of treatment in Deficiency diseases.

12. Chemotherapy

General consideration and introduction. Sulfonamides, trimethoprim-sulphamethoxazole and related compounds, Quinolones and agents used for urinary tract infection. Penicillins, cephalosporins, and other beta-lactum antimicrobials, aminoglycosides and other agents used for gram negative infections, tetracycline chloramphenicol, erythromycin and other miscellaneous antimicrobial agents.

Drugs used in chemotherapy and leprosy and tuberculosis; Individualization of therapy and mass treatment under the national programs.  
 Agents used for superficial and deep fungal infections.  
 Antiviral agents; and drug treatment of AIDS.  
 Antimalarial agents, individualization of therapy and mass treatment under the national program.

Agents used for the treatment of amoebiasis, trichomoniasis, leishmaniasis, trypanosomiasis and other protozoan infections.

Drugs used in the chemotherapy of helminthiasis with special reference to mass therapy.

Introduction to basic and applied aspects of antineoplastic drugs and related conditions.

Disinfectants, antiseptics and sterilizants.

13. Immunopharmacology

Immunosuppressive, immunostimulants and immunomodulators agents, Vaccines and sera for individual and mass therapy.

14. Miscellaneous Topics

Drugs used in dermatological disorders and ophthalmic diseases etc.

- To observe and interpret the effect of drugs on rabbit's eye.
- To observe and interpret the effect of drugs on the rabbit's gut.
- To observe and interpret bioassay of a given drug on frog's rectus abdominis preparation.
- To observe and interpret effect of C.N.S. active drugs in animals (only 2 experiments).

II. Demonstration in human volunteers : (Two)

Student shall be given two demonstrations in human volunteers.

C. Exercise in Therapeutics

Principles of prescription writing.  
Prescribing for common conditions and emergencies.

D. Problem solving exercises

20 problem-solving exercises shall be given involving different drugs and diseases.

E. Therapeutic follow-up exercises

Therapeutic follow-up case taking exercises related to the primary drug prescribed for a particular disease covering indications, mechanism of action, drug interactions, adverse effect, precautions, contraindications, dose/route and investigations etc. Each student is expected to make record of five such drugs-follow-up from the hospital cases. The primary drugs should be chosen for 5 different diseases :

**SYLLABUS IN THE SUBJECT OF FORENSIC MEDICINE INCLUDING TOXICOLOGY**

1. **INTRODUCTION AND LEGAL PROCEDURES**  
 Definition of Forensic Medicine, Medical Jurisprudence, State Medicine Inquest, Criminal Courts and their powers, Procedure in court, Medical evidence, Witnesses, Doctor in the witness box.
2. **PERSONAL IDENTITY**  
 Definition of personal identification, Corpus delicti, Establishment of identity : Race, religion, sex, age, general development, congenital features (anthropometry and finger prints (in brief), acquired peculiarities, miscellaneous.
3. **MEDICOLEGAL AUTOPSY**  
 Aims and objectives, Essential requirements, Precautions, Preservation of Viscera and other tissues, Procedure including dispatch of viscera, Cause of death/ conclusions.
4. **EXAMINATION OF** : Mutilated bodies, Fragmented remains, Decomposed bodies and Bones.
5. **EXHUMATION**
6. **DEATH AND MEDICOLEGAL ASPECTS**  
 Forensic thanatology, Stages of death, Modes of death, Sudden death, Signs of death, Postmortem interval.
7. **VIOLENT ASPHYXIAL DEATHS**  
 Hanging, Strangulation, Suffocation, Drowning, Traumatic asphyxia.
8. **DEATHS FROM** : Starvation, Cold and Heat.
9. **MECHANICAL INJURIES** : Including firearms.
10. **REGIONAL INJURIES**
11. **TRAFFIC INJURIES**
12. **MEDICOLEGAL ASPECTS OF INJURIES**  
 Examination of the injured person, Nature of injury, kind of weapon, Age of wound, Causes of death from wounds, Volitional acts after injury, Ante-mortem and postmortem wounds, Manner of death.

13. THERMAL INJURIES  
Burns and scalds, electric current injuries, lightning, explosions.
14. IMPOTENCE, STERILITY, STERILISATION & ARTIFICIAL INSEMINATION
15. VIRGINITY, PREGNANCY AND DELIVERY
16. LEGITMACY
17. SEXUAL OFFENCES
18. ABORTION  
Definition, classification, MTP Act of 1971 and MTP Rules, 1975; Criminal abortion, Doctors and criminal abortion, Method of procure abortion, Medico legal aspects, Distinction between natural and criminal abortion.
19. INFANTICIDE  
General aspects, Autopsy of children and stillborns, Medico Legal Aspects, Concealment of birth, Abandoning of children, Violence in home (Domestic violence), Battered baby or Caffey syndrome, Battered wives/elderly, Cot or Crib deaths.
20. MENTAL ILLNESS (FORENSIC PSYCHIATRY)  
Mental Health Act 1987, Definitions of key terms of mental illness: e.g. delirium, hallucinations, psychopath etc.  
Criminal responsibility of mentally ill persons, Restraint of mentally ill patients, Difference between true and false mental illness.
21. MEDICAL LAW & ETHICS  
The Indian Medical Degrees Act, 1916, The Indian Medical Council, The State Medical Councils including Geneva Declaration Public Duties of a RMP, Practitioner & patient, Professional secrets and privileged communication, Medical Examination and consent, Duties of a patient, Medical negligence including CPA, Doctor & anaesthesia, Malingering, Medical Idemnity Insurance.
22. WORKMAN'S COMPENSATION ACT

# FORENSIC TOXICOLOGY

(INCLUDING ENVIRONMENTAL & OCCUPATIONAL POISONING)

1. GENERAL CONSIDERATIONS OF POISONS

Definitions of Toxicology, Poisons and Medicine  
Section of IPC relevant to poisons/poisoning, Human poisoning in India, Broad classification of poisons, Diagnosis of poisoning, Duty of Medical Practitioners in cases of suspected poisoning, General treatment of poisoning.

2. DIAGNOSES, MANAGEMENT, FATAL DOSE, FATAL PERIOD, IDENTITY, POSTMORTEM FINDINGS & MEDICOLEGAL ASPECTS OF THE FOLLOWING POISONS

- a). Corrosives : Mineral acids; Sulphuric acid, Hydrochloric acid, Nitric acid, Organic acids : Carboic acid, Salicylic acid. Vegetable acids : Hyro-cyanic acid.
- b). Irritant Poisons : Organophosphorus compounds, Aluminum phosphide, Metallic poisons : Lead, Mercury, Thallium, Copper, Radioactive substances  
Vegetable Poisons : Ricinus communis, Croton Tiglium, Abrus precautorius.  
Animal Poisons : Snake bite poisoning.  
Food Poisoning.
- c). Somniferous Poisons : Opium and its alkaloids
- d). Inebriant Poisons : Ethyl & Methyl alcohol, Barbiturates, Insecticides, OPC & Chlorocompounds.
- e). Deliriant Poisons : Dhatura, Cannabis, Cocaine.
- f). Spinal Poisons : Strychnine.
- g). Cardiac Poisons : Aconite, Tobacco.
- h). Aphyxiants : Carbon monoxide, Hydrogen sulphide, Carbon-di-oxide.
- i). Miscellaneous : Paracetamol, Tranquilisers.

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**SOCIAL AND PREVENTIVE MEDICINE**  
**SYLLABI AND COURSE**

1. History
2. Positive Health
3. Social Sciences
4. Growth & Development
5. Statistics
6. Personal Hygiene

History of Medicine with special reference to Social & Preventive medicine.

- Introduction
- Evaluation of Medicine
- Causation of Disease-supernatural, Physical, Biological, Social
- History of Preventive and Social Medicine
- Medical Ethics

- Concept and meaning of positive health
- Definition and meaning, evaluation
- Need and Importance
- Factors influencing in the individual and community
- Need of the positive health conscious physician

Social Sciences :

- Definition, Society, Community, Family
- Social Organization
- Social Institutions
- Social Change

- Social Control, Social Law
- Responsibility of Physician to Society
- Socio economic aspects of health & disease
- Doctor Patient relationship
- Hospital and Social Institution
- Social Security
- Social Psychology, Examination, Scope, Methods
- Social Anthropology
- Medico-Social work, methods, importance.

#### Growth & Deveipment

- Introduction, meaning of normal & variation from normal
- Milestone and physical growth
- Growth of organs and systems
- Factors governing growth & development
- Emotional development through various phases of life
- Oral, Anal, Phallic, Potency, Puberty, Adult menopause
- Relationship of sexual growth with physical growth
- Personality Formation, Habits, Discipline.

#### - Statistics

#### Correlation & Regression

- Multivariate analysis (The theoretical basis and practical applicability only).
- Introduction to biostatistics difference between statistics, biostatistics and vital statistics.
- Use of statistical method in medical science.
- Collection, tabulation and presentation of statistical data.
- Interpretation of data, variation, frequency, normal curve, skewed curve.
- Average mean, medium, mode, standard deviation, standard error.

#### Personal Hygiene

- Introduction
- Individual's adjustment to environment
- Personal hygiene at different periods of the formation of habit.
- Sex education
- Dental & Oral Hygiene
- Value of physical exercise, postures and bearing of health
- Clothing and Health
- Effect of Heat, Cold, Light and attitude on health.
- Heredity and Evgenics

## Applied Nutrition

- Nutritive value of some commonly used food stuffs in India (Diets balanced and ill-balanced).
- Diets according to various psychological needs-diets in certain disease.
- Common nutritional deficiency diseases.
- Food adulteration, Fortification legislation.
- Diseases transmitted by food : Food poisoning, Food Hygiene
- Diet Survey, methods and techniques used.
- Nutrition education.
- Applied nutrition programme.
- National Nutrition oil programme.

Environmental Sanitation & Occupational Health. Concept of Ecology. The physical environment in which man lives. Man's dependence on his environment, Physical, Biological dependence. Changes in man and changes in environment.

- Climate and Health
- Air, ventilation and Atmosphere i.e. pollution
- Water Supply (Rural & Urban)
- Excreta disposal (Rural & Urban)
- Refuse disposal (Rural & Urban)
- Housing & Health
- Village & Town Planning
- Rat, Dog, Insect Control.

## Occupational Health :

- Industrial health, Evaluation, Scope, Organization of medical & Health Services in the Industry, E.S.I.
- Problems of Sanitation in industry hazards and accidents and their prevention
- Rehabilitation and Industry.

- Introduction
- Concepts of Epidemiology
- Tools of Epidemiology
- Natural History of disease, Agent, Host and environment.
- Epidemiological Triangle and Balance.
- Ecology
- Levels of prevention : a) Primary b) Secondary c) Tertiary, Rehabilitation
- Research Methodology
- Prospective, Retrospective and Cohort Studies.

#### Public Health Administration in India

- Principles, Evaluation
- National Health set up, Role & Responsibilities.
- State Health set up Role & Responsibilities.
- District Health organisation, Role & Responsibilities.
- Local Health Organization, Role & Responsibilities.
- Voluntary Health Agencies; Role & Importance.
- International Health Agencies.
- Primary Health Centre complex, History, Functions, Functionaries.

#### Family Welfare Programme

- Demography/ Population Dynamics
- Need for Family Planning for Mother, Child, Family, Community, Nation.
- Family Planning, Methods/Methodology.
- Organization of Family Planning Services.
- National set up, Rural set up, urban set up.
- Health Education in relation to Family Planning.
- Social Barriers in Family Planning.

#### Maternal & Child Health Programme

- Need & Importance
- Organisation & Component of M.C.H. Programme
- M.C.H. & Primary Health Centre
- Common cause & prevention of Maternal, Neonatal, Infant Mortality & Morbidity.
- Role of L.H.V. & MCH Programme.

### School Health Programme

- Need & Importance
- Importance of regular medical examination/records
- Immunization
- Nutrition/ Mid-day meals
- Environmental Sanitation & School Health
- Health Education
- Involvement of social teacher, community in school health programme.
- Organization of School Health Services in India.

### Immunization

- Basic principles of Immunization.
- Importance of Immunization, Secondary Prevention.
- Common Immunization, their schedule, methods of vaccination, doses, contra-indications, complication.
- BCG, DTP, DT, TT, Anti Vg TAB, Anti Rabic Vaccination, Measles Vaccine and Newer vaccines.
- International Health Certificates.

### Health Education

- Meaning, Scope
- Methods, Media
- Health Education, Stages, Process
- Common Visual Aids
- Role of Health Education in Health Programme.

### Principles of Epidemiology & Control of common communicable & Non-communicable diseases.

- Chain of causation, common diseases, preventable disease.
- Importance of Isolation, Quarantine, Disinfection & Disinfectants.
- Epidemiology & Control of common communicable & non-communicable diseases to stress the role of social environmental factors in their causation and the need of e.g. Diabetes, I.H.D., Hypertension, Peptic Ulcer, R.H.D., Rheumatic fever, Dysentery, Hepatitis, Polio, Small Pox, T.B., Malaria, Rabies, Tetanus, Diphtheria, Whooping cough, Chicken Pox, Mumps, Cholera.

### Community Medicine.

### National Control/ Eradication Programme.

- N.M.E.P., N.S.E.P.
- N. Filaria Control Programme.
- N.T.B. Control Programme.
- N.Trachoma Control Programme.
- N.S.T.D. Control Programme etc.

### Vital Statistics

- Introduction about practice of vital statistics especially B.R., D.R., in India, I.M.R., M.M.R., N.M.R., Perinatal mortality.
- Collection of vital statistics – rural & urban area.
- Importance of cause & control of I.M. and M.M.
- Importance of vital statistics in Health assessment of Community.

**MEDICINE - SYLLABUS**

General Medicine, History of Medicine, Diseases of CVS, Digestive System including Hepatobiliary System and Pancreas, Diseases of Blood, Musculoskeletal System including Joints, Connective Tissue, Locomotor System, Nervous System, Endocrine System, Metabolic Disorders, General Principles of Immunology and Genetics. Poisoning.

Diseases of Kidney, Infectious Diseases, Tropical Diseases, Tuberculosis, Respiratory System Diseases, Dietetics and Nutritional Deficiency Diseases, Malignant Disorders, Fluid & Electrolyte Disorders due to Physical Agents and Miscellaneous Diseases.

Dermatology, STD, Leprosy, Psychiatry including Drugs used in Psychiatry, Radio-diagnosis.

**SYLLABUS IN GENERAL SURGERY**  
**AND ALLIED SPECIALITIES**

1. Principles and practice of surgical asepsis, sterilisation, dressings, operation theatre technique, wounds and wound healing, haemorrhage, blood transfusion, immune response and immune deficiency states and organ transplantation etc.
2. Physiological responses and management of trauma, shock, burns, fluid and electrolyte balance, and nutritional deficiency states.
3. Common surgical problems related to arteries, veins and lymphatics.
4. Common surgical problems related to skin subcutaneous, connective tissues and other soft tissues including benign and malignant disorders.
5. Surgical disorders, including trauma, related to head and neck and thorax including salivary glands, thyroid, parathyroid, larynx, pharynx, chest wall, lungs, pleura, heart, major vessels, mediastinum, oesophagus and diaphragm etc.
6. Disease of the stomach, duodenum, small and large intestine, liver including biliary tract, spleen, pancreas, abdominal wall, mesentry, omentum, peritoneum and retroperitoneum.
7. Diseases of the kidney, supra renals, ureters, urinary bladder, urethra and external genitalia.
8. Common pediatric surgical, neurosurgical, plastic and reconstructive and dental surgical disorders, anaesthetic techniques and there problems and pain relief. Applied radiodiagnostic and imaging and radiotherapy techniques and applications.
9. Detection and management of accidental trauma, disaster related and other surgical emergency problems.
10. Recent advances in diagnosis and management of common surgical problems.
11. Common/ routine general surgical operative procedures/ techniques.
12. Common orthopaedic problems and there management including congenital, inflammatory, traumatic, degenerative and neoplastic disorders of bones and joints.

## CURRICULUM IN OBSTETRICS & GYNAECOLOGY

1. outline the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it;
2. detect normal pregnancy, labour, puerperium and manage the problems he/she is likely to encounter therein;
3. list the leading causes of maternal and perinatal morbidity and mortality, identify the use, abuse, side effects of drugs in lactation also.
4. understand the principles of contraception and various techniques employed, methods of medical termination of pregnancy, sterilization and their complications;
5. identify the use, abuse and side effects of drugs in pregnancy, pre-menopausal and post-menopausal periods;
6. describe the national programme of maternal and child health and family welfare and their implementation at various levels. should know the routine post operative management soon after surgery and till the time the patient is discharged from the hospital;
7. identify common gynaecological diseases and describe principles of their management, should identify the importance of breast feeding;
8. state the indications, techniques and complications of surgeries like Caesarian Section, laprotomy, abdominal and vaginal hysterectomy, Fothergill's operation and vacuum aspiration for Medical Termination of Pregnancy (MTP).
9. Should be conversant specifically with the resuscitation of the new born and care of the new born and the diseases of new born during perinatal period.
10. Should be well versed with the problems of the adolescents counselling the adolescents and the role of sex education.
11. Should also be conversant with the problems of Geriatrics and the specific diseases of this age group and therapeutic approach to their problems (with special reference to malignancies, osteoporosis and coronary disease).

- a) that the student has been present during the course of labour and personally conducted each case, making the necessary abdominal and other examinations under the supervision of the certifying officer who shall describe his official position.
- b) That satisfactory written histories of the cases conducted including wherever possible antenatal and postnatal observations, were presented by the student and initiated by the supervising officer.

5. **FAMILY WELFARE PLANNING**

Training in Family Welfare Planning shall be emphasized in all the three phases and during internship as per guidelines provided in Appendix A.

6. **Community Medicine**

The teaching and training of community medicine will continue during the first two semesters of phase III

### III. NUTRITION AND RELATED DISORDERS

1. Normal nutritional requirements : protein, carbohydrates, fats, vitamins, trace elements.
2. Various aspects of infant feeding : breast feeding, weaning and nutrition in preterm babies.
3. Nutritional disorders :
  - i) Protein Energy Malnutrition.
  - ii) Causes and Management
  - iii) Vitamin deficiency diseases
    - a) Rickets
    - b) Scurvy
    - c) Vitamin A deficiency
4. National nutritional programme.

### IV. IMMUNISATION

1. Principles of immunisation, vaccine preservation and cold chain.
2. National and IAP immunisation schedules
3. Newer vaccines

### V. COMMON INFECTIOUS DISEASES

1. Enteric fever, polio & AFP surveillance, measles, chicken pox, diphtheria and mumps.
2. Childhood tuberculosis - difference between primary and adult tuberculosis, various types of childhood tuberculosis.
3. HIV infection in children.

### VI. DISORDERS OF BLOOD

1. Anaemia :
  - i) Iron deficiency
  - ii) Megaloblastic
  - iii) Aplastic
  - iv) Hemolytic : acute & chronic
  - v) Thalassemia
2. Leukaemia (ALL etc.)
3. Bleeding disorders :
  - i) ITP
  - ii) Hemophilia

## CURRICULUM IN PAEDIATRICS

### OBJECTIVES

The objectives of training the undergraduate students in paediatrics is to ensure that at the end of the training he/she will be able to:

- Diagnose and appropriately treat common paediatric and neonatal illness.
- Identify paediatric and neonatal illness and problems that require secondary and tertiary care and refer them appropriately.
- Advise and interpret investigations.
- Counsel and guide patient's parents and relatives regarding the illness, the appropriate care, the possible complications and the prognosis.
- Provide emergency cardio-pulmonary resuscitation to newborns and children.
- Participate in the National Programmes effectively.
- Diagnose and effectively treat acute paediatric and neonatal emergencies.
- Perform routine investigative and therapeutic procedures.
- Motivate parents to consent for a diagnostic autopsy.

### COURSE CONTENTS

#### I. VITAL STATISTICS

1. Introduction to paediatrics with special reference to population explosion problem and age related morbidities.
2. Definition of mortality rates and ratios, perinatal, neonatal, infant, under five children and maternal.
3. National programmes on maternal and child health.

#### II. GROWTH AND DEVELOPMENT

1. Fetal (1<sup>st</sup> - 3<sup>rd</sup> trimester)
2. Neonatal
3. Infancy
4. Early & late childhood
5. Adolescence
6. Deviation in growth and development, with special reference to stunted growth.

**VII. RESPIRATORY SYSTEM**

1. Acute URI
2. Lower respiratory tract infections : bronchopneumonia, bronchiolitis, asthma.

**VIII. CARDIOVASCULAR SYSTEM**

1. Classification of congenital heart disease
  - a) Cyanotic (TOF etc)
  - b) Acyanotic (VSD, PDA, ASD etc)
2. Acute Rheumatic fever and rheumatic heart disease
3. Congestive heart failure
4. Hypertension.

**IX. CENTRAL NERVOUS SYSTEM**

1. Meningitis (Pyogenic & Tuberculous)
2. Encephalitis
3. Seizures (Including neonatal)
4. Mental retardation, cerebral palsy, hydrocephalus.

**X. GASTROINTESTINAL SYSTEM**

1. Acute & chronic diarrhoea disease with fluid and electrolyte therapy and complications.
2. Hepatic disorders (hepatitis, hepatic coma)
3. Gastro - esophageal reflux
4. Helminthiasis.

**XI. ENDOCRINE DISORDERS**

1. Hypothyroidism - congenital & acquired, early recognition and treatment.
2. Juvenile diabetes and its management.

**XII. RENAL DISEASE**

1. Acute glomerulonephritis - diagnosis, investigation and treatment.
2. Nephrotic syndrome.
3. Urinary tract infection - acute recurrent
4. Renal failure - acute & chronic.

### **XIII. GENETIC DISORDERS**

1. General clinical principles in genetics
2. Common genetic disorders like Down's syndrome
3. Genetic counselling.

### **XIV. METABOLIC DISORDERS**

1. Common metabolic disorders like phenylketonuria, albinism, mucopolysaccharidoses.

### **XV. NEONATOLOGY**

1. Foetal physiology of normal pregnancy. Identification of antenatal, intrapartum and immediate postnatal risk factors.
2. Definition, identification and classification of high risk neonate, neonatal resuscitation, gestational age assessment and care of the normal newborn in the hospital and home.
3. Care of the preterm and low birth weight infant, temperature maintenance, feeding, prevention of complications, appropriate method of transfer to tertiary centre.
4. Management of neonatal problems, transient metabolic disorders, infections, minor developmental defects of diabetic mothers, haemorrhagic disease of newborn, respiratory distress, feeding difficulties, birth injuries, anaemia and jaundice.
5. Management of meconium aspiration syndrome.
6. Identification and referral of neonates with congenital malformations like cleft lip, cleft palate, tracheo-esophageal fistula, diaphragmatic hernia, anorectal anomalies.

### **XVI. PAEDIATRIC EMERGENCIES**

1. Management of shock, cardiac failure, hyperpyrexia, drowning, foreign body aspiration.

### **XVII. COMMON POISONING AND ACCIDENTS**

1. Kerosene, organophosphorus, rat poison, acid ingestion, opium, barbiturates, dhatura, alcohol, naphthalene.
2. Insect and snake bites.
3. Road and fire accidents.
4. Food poisoning.
5. Lead poisoning.

### **XVIII. MISCELLANEOUS**

1. Juvenile rheumatoid arthritis.
2. Behavioural disorders.

VACCINES

- DPT
- DT
- Oral polio vaccine
- Measles vaccine
- MMR vaccine
- BCG
- Old tuberculin
- H. Influenza type B vaccine
- Hepatitis B vaccine
- Pneumococcal vaccine

NUTRITION TRAY

- Milk
- Feeding bottle
- Rice, raw-parboiled
- Wheat
- Red gram dal
- Black gram dal
- Green gram dal
- Bengal gram – whole and dal
- Groundnut
- Jaggery
- Sugar
- Green leafy vegetables
- Tomato
- Egg, fish, meat
- Banana

ORAL REHYDRATION SALT PACKETX-RAYS

- Rickets
- Scurvy
- Pneumonia
- Hair on end appearance – haemolytic anemia
- Skull X-ray – sutural separation
- Epiphyseal dysgenesis (hypothyroidism)
- Congenital heart disease
  - Pulmonary plethora
  - Pulmonary oligemia
  - Cardiomegaly.