### c- Population, family and marriage and types of community in India.

- 14. NURSING ADMINISTRATION AND WARD MANAGEMENT
  - 1. Administration and management process
  - 2. Administration of Hospital department, Units, Wards
  - 3. Management of equipment supply
  - 4. Cost and financing of Health care
  - 5. Vital statistics

# (B) <u>पाठ्यक्रम - फार्मासिस्ट ग्रेड-2</u>

#### PHARMACEUTICS

Introduction to different dosage forms, their classification with examples—their relative applications. Familiarization with new drug delivery systems. Introduction to Pharmacopoeias with special reference to the Indian Pharmacopoeia. Size reduction, Size separation, Metrology—system of weights and measures. Calculations including conversion from one to another system. Percentage calculations and adjustment of products. Use of alligation method in calculations. Isotonic solutions. Mixing and homogenization. Packaging of pharmaceuticals Extraction and galenicals, Clarification and filtration, Heat processes, Introduction to drying processes, Distillation, Sterilization—concept of sterilization and its differences from disinfection—thermal resistance of microorganisms. Detailed study different sterilization processes. Study of immunological products like sera, vaccines, toxoids and their preparations., Processing of tablets, Processing of capsules

#### PHARMACEUTICAL CHEMISTRY

Acids, bases and buffers, Gastrointestinal agents, Acidifying agents, Antacids, Protectives and adsorbents, Saline cathartics. Antioxidants, Topical agents — (i) Protectives (ii) Antimicrobials and astringents (iii) Sulphur and its compounds (iv) Astringents—alum and zinc sulphate. Dental product, Inhalants, Respiratory stimulants, Expectorants and emetics, Antidotes. Major intra and extracellular electrolytes, Inorganic official compounds of iron, iodine and calcium; ferrous sulfate and calcium gluconate. Radio pharmaceuticals and contrast media radioactivity, Identification tests for cations and anions as per Indian Pharmacopoeia. Quality control of drugs and pharmaceuticals

#### PHARMACOGNOSY

Definition, history and scope of pharmacognosy including indigenous system of medicine. Various systems of classification of drugs of natural origin. Adulteration and drug evaluation; significance of pharmacopoeial standards. therapeutic effects and pharmaceutical applications of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins. Occurrence, distribution, organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic efficacy of (a) Laxatives (b) Cardiotonics (c) Carminatives & G.I. regulators catechu. hyoscyamus, belladonna, aconite, ashwagandha, ephedra, opium, cannabis, nux vomica. rauwolfia. vasaka, tolu balsam, tulsi. guggal, colchicum, vinca. chaulmoogra oil. pterocarpus, gymnema sylvestro. gokhru, punarnava. ipecacuanha. benzoin, myrrh, neem, curcuma. cinchona. ergot. shark liver oil and amla. papaya, diastase, yeast. Collection and preparation of crude drugs from the market as exemplified by ergot, opium, rauwolfia, digitalis, senna. Study of source, preparation and identification of fibres used in sutures and surgical dressings—cotton, silk, wool and regenerated fibres.

# BIOCHEMISTRY AND CLINICAL PATHOLOGY

Introduction to biochemistry. Brief chemistry and role of carbohydrates, proteins, lipids, their classification and related diseases. Role of minerals and water in life processes. Brief chemistry and role of vitamins and coenzymes. brief concept of enzymatic, Introduction to pathology of blood and urine.

# HUMAN ANATOMY AND PHYSIOLOGY

Definition of various terms used in anatomy, physiology, Structure of cell, unction of its components with special reference to mitochondria and microsomes. Elementary tissues of the body, Composition of blood, blood group and coagulation of blood, Name and functions of lymph glands. Anatomy and physiology of different body systems in Brief.

# HEALTH EDUCATION & COMMUNITY PHARMACY

Concept of health—definition, indicators of health, concept of disease, prevention of diseases. Environment and health. First aid—emergency treatment in shock, snake bite, burns, poisoning, heart disease, fractures and resuscitation methods. Elements of minor surgery and dressings. Fundamental principles of microbiology, organisms of common diseases. Non-communicable diseases—causative agents, prevention, care and control. Cancer, diabetes, blindness, cardiovascular diseases. Communicable disease—causative agents, modes of transmission and prevention. (a) Respiratory infections—chicken pox, measles, influenza, diptheria, whooping cough and tuberculosis. (b) Intestinal infections—poliomyelitis, hepatitis, cholera, typhoid, food poisoning, hookworm infection. (c) Arthropod borne infections—plague, malaria, filariasis. (d) Surface infections—rabies, trachoma, tetanus, leprosy. (e) Sexually transmitted disease—syphilis, gonorrhoea, AIDS. Nutrition and health, vitamins and minerals. Demography and family planning, natural family planning methods, chemical methods, mechanical methods, hormonal, contraceptives, population problem of India. Epidemiology —I mmunity and immunisation, immunological products and their dose schedule. Principles of disease control and prevention, hospital acquired infection, prevention and control.

#### DISPENSING PHARMACY

Prescriptions : Reading and understanding of prescription; Incompatibilities in prescriptions, Posology: Dose and dosage of drugs, Dispensed Medications: (i) Powders (ii) Liquid oral dosage (b) Biphasic liquid dosage forms: • Suspensions • Emulsions (iii) Dental and cosmetic preparations:

(iv) Semi-solid dosage forms: (a) Ointments (iv) emulsification. (v) Sterile dosage forms: (a) Parenteral dosage forms (b) Sterility testing, (c) Ophthalmic products—study of essential characteristics of different ophthalmic preparations.

# PHARMACEUTICAL CHEMISTRY II

chemistry of pharmaceutical organic compounds covering their nomenclature, chemical structure, uses and the important physical and chemical properties. The stability and storage conditions and the different types of pharmaceutical formulations of the drugs.

### Pharmacology and Toxicology

Introduction to pharmacology, scope of pharmacology. Routes of administration of drugs, their advantages and disadvantages. Various processes of absorption of drugs and the factors affecting them. Metabolism, distribution and excretion of drugs. General mechanism of drugs action and the factors which modify drugs action. Pharmacological classification of drugs. (i) Drugs acting on the central nervous system: (a) General anaesthetics, intravenous anesthetics. (b) Analgesic, antipyritic, sedatives and hypnotics, anti-convulsants, (ii) Local anaesthetics. (iii) Drugs acting on autonomic nervous system. (iv) Drugs acting one eye, (v) Drugs acting on respiratory system (vi) Antacids, (vii) Cardiovascular drugs, (viii) Drugs acting on the blood and blood forming organs. (ix) Drugs affecting renal function (x) Hormones and hormone antagonists (xi) Drugs acting on digestive system

#### Pharmaceutical Jurisprudence

# (C) <u>पाठ्यक्रम - लेबोरेट्री टेक्नीशियन, टेक्नीशियन, टेक्नीशियन असिस्टेंट, सी.एस.एस.डी. टेक्नीशियन, लैब</u> टेक्नीशियन, लैब असिस्टेंट

<u>APPLIED ANOTOMY & PHYSIOLOGY</u> - Study of the structure of a cell. - Normal anatomical Structure, Histology and Functions, (Physiology) of the all Human Body Systems,

**<u>BIOCHEMISTRY</u>** - Biochemical structure of the Carbohydrates Proteins, Lipids Enzymes, Clinicial Biochemistry - Kidney function tests, Liver function Test, Cardiac Profile, Lipid Profile

<u>HEMATOLOGY</u> - Composition of blood, collection of blood and anticoagulants, Hb estimation, TRBC count - ANAEMIAS, Preparation & staining of blood films, Leukopoiesis), TWBC & DWBC Count, Absolute values, ESR, PCV, Reticulocyte count, Platelet count, BT & CT LE cell preparation, Sickling test, Osmotic fragility Bone Marrow Examination.

**<u>BLOOD BANKING</u>** - Blood Groups, Cross Matching, Coomb's test, Donor Screening, Blood Transfusion, & transfusion reactions, Blood Components <u>**CLINICIAL PATHOLOGY</u></u> - Physical chemical & microscopic examination of urine, stool examination, Semen examination, CSF exam.</u>** 

PARASITOLOGY - Parasites in Blood, stool & urine

**<u>MICROBIOLOGY</u>** - Morphology of Bacteria, Culture and isolation of bacteria, Gram positive and gram negative cocci and bacilli, Anaerobic spore bearing bacilli.

**SEROLOGY** - Antigen & Antibodies, Diagnosis of syphilis - VDRL & RA test., Widal test, ELISA test.

<u>HISTOLOGY</u> - Fixatives, Tissue processing, impregnation, Block making, Section Cutting, Basic staining of sections, Collection of tissues for histology, Method of Decalcification.

<u>CYTOLOGY</u> - Techniques & equipments required, Fixatives and staining procedure

# (D) <mark>रेडियोग्राफर, डार्क रूम असिस्टेंट, रेडियोग्राफर/रेडियोग्राफिक टेक्नीशियन</mark>

# Anatomy and Physiology of Human Body

Introduction to the body as a whole. The cells, Tissues, Epithelium: Simple: Compound, Connective Tissues, Muscles, Cell regeneration, Membranes: mucous, serous, synovial Osteology (including whole skeleton, bones and joints) Development of bone (osteogenesis): cells involved Types and function of bone, Types of joints and various movement. Axial Skeleton: Skull, Vertebral Column, Appendicular skeleton, Healing of bones.The respiratory system: Organs, Functions, Pharynx Larynx – Functions, lungs: lobes, lobules, pleura.

# Radiographic, Photography

Photographic process, Photographic emulsions, Film materials in x-ray department. History, structure of an x-ray film, single sided films, types of films, Spectral sensitivity of film material, graininess of film material, speed and contrast of photographic material, **Sensitometry:** photographic density, characteristic curve features of the characteristic curve, **The storage of film materials and radiograph:** Storage of unprocessed films, storing of radiographs, **Intensifying screens and cassettes. Luminescence:** fluorescence and phosphorescence. Construction of an intensifying screen, The fluorescent materials. Types of intensifying screens. Intensification factor. The influence of KV, scattered radiation. Detail, sharpness and speed, size of the crystals, reciprocity failure, Cassette design, care of cassettes, mounting of intensifying screens, Care of intensifying screens, tests to check screen film contact and light leakage, **Film processing:** Development: The nature of development, manual, automatic. The PH scale, The constitution of developing solutions and properties of development chemicals, The development time, factors in the use of a developer. Developers in processing systems, **Film processing:** fixing and role of a fixing solution. Constitution of the fixing solutions and properties of the Constituents, Fixers used in automatic processors. Factors affecting the use of the fixer, Regeneration of fixing solution. Silver recovery and its various methods, Rinsing, washing and drying. Objects of rinsing and washing, methods employed. Methods of drying films, Preparation of solutions and making stock solution, **Processing equipment:** , **Dark room:** , **Systems for daylight film handling , The radiographic image ,**