

# **Annexure "J"**

## **Syllabus for the post of Junior Laboratory Technician**

**Marks :-120**  
**Time :- 2.00 Hours**

### **Unit – 1: Body Structure & Function (28 Marks)**

#### **1. Anatomy**

- Different Parts of the human body, Common Anatomical Terms, Anatomical Positions and important planes, Tissue of the body, classification and function.
- Structure, function mechanism - Skeletal System, Gastro-Intestinal System, Genito-Urinary System, Respiratory System, Cardio-Vascular System, Nervous System, Loco-Motor System.

#### **2. Physiology**

- Blood- Composition and General function, Blood group, ABO and Rh, basis for classification, basis for determination, importance of Blood Groups.
- Structure, function mechanism - Cardio-vascular System, Respiratory System, Excretory System, Skin, Digestive System, Endocrine Glands, Reproductive System, Cerebrospinal fluid, Formation, composition and functions.

### **Unit - 2: Basic Laboratory Techniques (42 Marks)**

#### **1. Laboratory Management & Ethics**

- Role of the Laboratory in the Health Care Delivery System, Types of Diseases, Process of Diagnosis, Laboratory at different levels, Duties and responsibilities of Laboratory personnel.
- Laboratory Service in the Health care Delivery System in India, Voluntary Health Organizations in India.
- Laboratory Planning, Guiding Principles for planning Hospital laboratory Services, Laboratory Organisation, Components and functions of a laboratory.

#### **2. Cytology & Microbiology**

- Description of cytology in detail, Fixation used in cytology, Dry Fixation and Wet Fixation, Stains used in Cytology, BLF Cytology, Sex Chromatin staining in Cytology.
- Microscope, Classification and Morphology of Bacteria, Staining of Bacteria, Cultivation of Micro-Organisms, Identification of Bacteria, Gram Negative Bacilli, Gram Positive Bacilli, Antibiotic Sensitivity test.

#### **3. Histo-Pathology**

- Sections of Pathology, Chemical used in Tissue Processing, Decalcification, Methods of Decalcification & Decalcification of Bones, Procedure of Embedding tissue in Paraffin Wax, Procedure of Paraffin Wax Tissue Block, Various Instruments used in Microtomy.
- Tissue Processing in Histopathology, Automatic Tissue Processor and its uses in detail, Tissue Staining, Steps of Tissue Staining, Tissue Grossing.
- Autopsy Technique, Assisting in Autopsy, Preservation of organs & Processing of Tissues.
- Waste disposal and safety in Laboratory
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#### **4. Blood Banking**

- Types of Blood Banking, Process of Coagulation, Rh – Factor, Erythroblastosis Foetalis, MN – Group System.
- Human Blood Group Antigens, their inheritance and antibodies
- ABO Blood Group System , Rh Blood Group System
- Techniques of Grouping and Cross Matching
- Blood Collection, Blood Transfusion, Coomb's Test
- Blood Donor/Receptor, Procedure of Blood Collection from a donor
- Precautions to be taken before Blood Collection, Storage of Blood, Anticoagulants used in Blood banks

#### **5. Clinical Pathology**

- Collection of Blood, Composition of Blood, Types of Anti – Coagulant Tubes and their Uses, RBC's and various process of counting, Erythropoiesis, Haemocytometer and its uses, Types of WBC's and process of counting, PBF (Peripheral Blood Film) its preparation, Staining.
- Various Types of Romanowsky Stains and Uses, Leishman's Stains, Platelet Count. Process of counting manually, Absolute Eosinophil count & its estimation, ESR and various methods of estimation, PCV and its procedure for conducting.
- Microscope, Parts and Functions in Laboratory, Haemoglobin in detail, Centrifuge and its uses, Haemocytometer Set.

#### **6. Blood & Urine Examination**

- Urine, composition of Urine in detail, Urine Examination under Microscope, Various methods of sampling Urine for conducting various examinations like Albumin, Sugar, Acetone, Bile pigmentation, Bile Salt, Urobilinogen, Occult Blood, KFT etc, Physical Examination – Colour, Reaction, Odour, Specific gravity Urinary Volume.
- Composition of Blood ,Blood and cerebrospinal Fluid functions of Blood & CSF, Complete blood count, Blood sugar test, Various methods of sampling blood for conducting various examinations.

### **Unit – 3: Basics of Patient Care & Health Assistance (10 Marks)**

#### **1. Public Health & Hygiene**

- Concept of public health, Various Health Committees, Health and Family Planning Organisations setup at the National, the State, the District and Block, Levels.

#### **2. Home Nursing & Health Education**

- Introduction to Nurse, Sick Room, Bed Making, Patient's Toilet, Diet, Medicines, Special Conditions & Treatments.
- Care of the Aged and Long-term Patient, Care of the Mentally ill Healthy Patient, Nursing in Special Diseases.
- Immunity & Infectious Diseases, Special Drugs-their Control & Administration, Shock and Blood Transfusion, The Hospital Services, Childbirth and its Management.
- Principles, ethics, attributes of health educator, essential steps and introduction to the main methods in health education. History development and growth of health education in India, Various methods of Health Education.

### **3. Community Pharmacy and Management**

- Community Pharmacy Practice, Prescription and prescription handling, Patient counselling, Communication skills, Medication Adherence, Health Screening Services, Over the Counter (OTC) medications, Responding to symptoms/minor ailments, Community Pharmacy Management.

## **Unit – 4: Clinical Duties (23 Marks)**

### **1. Sterilization & Disinfection**

- Physical, Chemical and Mechanical Methods, Disposal of Contaminated Media, sterilization of syringes, glass wares, apparatus.

### **2. Examination and Surgical Procedures**

- Procedures - urinalysis, strep tests, blood pressure checks, weight checks, electrocardiograms, venipuncture and injections. Pap smear, mammography, ECG, placing IV's, educating patient about procedure

### **3. First Aid**

- Introduction and history of the Red-Cross, Dressing and Bandages, Cardio-pulmonary resuscitation, Different methods of artificial respiration, Transport of injured persons.
- Procedures during common conditions - Fractures and Dislocation, Epilepsy and Hysteria, Poisons including food, Cramps, Frost – Bite, Bites and Stings, Snake Bite, Dog Bite, Unconsciousness and Fainting.

### **4. Pharmacotherapeutics**

- Drug therapy of various diseases, Medication counselling points, etiopathogenesis, disease management.
- Pharmacological management of the diseases associated with Cardiovascular System, Respiratory System, Endocrine System, CNS, GI Disorders, Hematological disorders, Infectious diseases, Musculoskeletal disorders, Dermatology, Disorders related to Women's Health.

## **Unit – 5: Technical Duties / Administrative Duties (17 Marks)**

### **1. Surgical Instruments**

- Surgical Instruments – name & uses, Instruments for general surgery, Ophthalmic Surgery, Operations on the chest, Gynecological and Obstetric Operations, Orthopaedic Operations, Neuro-Surgical Operations, on the Vascular System, Trauma Surgery.

### **2. Preparation of Instrument Trays**

- Major procedures tray, Basic / Minor procedures tray, Thyroid tray, Long instruments tray, Genitourinary trays, Thoracic trays, Cardiovascular trays, Orthopaedic trays, neurologic procedure trays, ENT trays, Ophthalmic trays, Pediatric trays,

### **3. Protection of patient in surgery**

- Preparation of patient for operation, Pre and Post-operative patient care, Psychological support of the surgical patient.

- Admission Procedure, Transfer Procedure, Environmental Controls, Electro surgery, Operative Records, Counting Procedure, Emergencies and Disasters.

#### 4. **Safety measures in Operation theatre**

- Body mechanic, Fatigue factors, Safety measures – Radiation safety, Infection control, Chemical hazards, Chemotherapy
- Waste disposal and safety in operation theatre.

#### 5. **Record Keeping**

- Introduction to store records, Clerical procedure, Inward section Records and procedures in main stores, classification and codifications, keeping of stocks books, preparation of indent and methods of storing drugs.
- Different types of health care information system, Electronic medical records, Electronic health records, filling patients' medical records, filling insurance form, arranging for hospital admission/ laboratory services, scheduling appointments, bill handling.