

**Syllabus for the post of**  
**Pathologist (Specialist Service), Class-I (Advt-No-24/2024-25)**

**Marks – 200**

**Questions - 200**

**Medium - English**

**1. Microbiology:**

- Stool examination
- AFB staining of sputum
- Bacterial culture

**2. Clinical Biochemistry:**

- Renal function tests, Liver function tests, Sugar estimation in blood and urine
- principles and methodology of quality control in laboratory.

**3. Pathology:**

**A) General Pathology:** Normal cell and tissue structure and function. The changes in cellular structure and function in disease. Causes of disease and its pathogenesis. Reaction of cells, tissues, organ systems and the body as a whole to various sub lethal and lethal injuries.

**B) Systemic Pathology:** The study of normal structure and function of various organ systems and the aetiopathogenesis, gross and microscopic alterations of structure of these organ systems in disease and functional correlation with clinical features.

**C) Haematology:** Principles of Haematology, Haematology tests, interpretation and diagnosis of diseases of the blood and bone marrow. Various equipments used in the Haematology laboratory, automation and quality assurance in Haematology.

**4. Transfusion Medicine (Blood Banking) Knowledge:**

Basic immunology, ABO and Rh groups, Clinical significance of other blood groups, Transfusion therapy including the use of whole blood and RBC concentrates, Blood component therapy, Rationale of pre-transfusion testing. Infections transmitted in blood. Adverse reactions to transfusion of blood and components, Quality control in blood bank

## 5. Basic Sciences (in relation to Pathology)

- a) **Immunopathology:** ELISA techniques, Radioimmunoassay, HLA typing Interpret simple immunological tests used in diagnosis of diseases and in research procedures: Immunoelectrophoresis, Immuno fluorescence techniques especially on kidney and skinbiopsies, Anti-nuclear antibody (ANA) Anti-neutrophil cytoplasmic antibody (ANCA)
- b) **Electron Microscopy:** Principles and techniques of electron microscopy and the working of an electron microscope (including Transmission and Scanning Electron microscope: TEM and SEM
- c) **Enzyme Histochemistry:** Principles, use and interpretation of common enzyme histochemical procedures (Alkaline Phosphatase, Acid Phosphatase, Glucose-6-Phosphate Dehydrogenase, Chloroacetate Esterase).
- d) **Immunohistochemistry:** Principles and exact procedures of various immune histochemical stains using both PAP (Peroxidase-antiperoxidase) and AP-AAP (Alk. Phosphatase-anti-Alk. Phosphatase) ABC (Avidin-Biotin Conjugate) systems; employing monoclonal and polyclonal antibodies. Be aware of the limitations of immuno-histochemistry.
- e) **Molecular Biology:** Molecular biology especially related to the understanding of disease processes and its use in various diagnostic

tests. Principle and steps and interpretation of Polymerase Chain Reaction (PCR), Western Blot, Southern Blot, Northern Blot and Hybridisation) procedures.

**f) Cytogenetics:** Methods of Karyotyping and Fluorescent in-situ Hybridisation (FISH).

**g) Tissue Culture:** Methods of tissue culture.

**h) Principles of Medical Statistics:** Importance of statistical methods in assessing data from patient material and experimental studies.

## **6. Current Trends and Recent Advancements in Pathology.**