Important instructions:

- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

Write short notes on:

1. a) Role of mast cells in inflammation
   b) Pre-cancerous states

2. Describe in brief cytomorphic features of malignant small round cell tumours of childhood. What ancillary technique would you apply on cytological material for final diagnosis?

3. a) Causes of osteoporosis and laboratory tests for its evaluation
    b) HbA\textsubscript{1c} estimation and its significance in Diabetes Mellitus

4. a) Method of collection and processing of synovial fluid and role of cytological analysis
    b) Fixation techniques and fixatives used in cytology

5. a) Tumour suppressor genes
    b) Chronic renal allograft rejection

6. a) Application of current molecular techniques in diagnostic cytology
    b) DiGeorge syndrome

7. a) Role of electron microscopy in diagnostic pathology
    b) Applications of Hemopoietic stem cell transplantation

8. a) Cytodiagnosis of infections and role of immunocytochemistry
    b) Applications of flow cytometry in fine needle aspirate specimens

9. a) Metabolic PET biopsy
    b) Glandular lesions in cervical cytology

10. a) Telomerase activity in health and disease
    b) Recent tests for diagnosis of tuberculosis and concept of point of care (POC) testing.