

**B. Sc. MEDICAL TECHNOLOGY (LABORATORY) (BMLT)
SEMESTER -VI EXAMINATION, SEPTEMBER- 2026**

HISTOLOGY & CYTOPATHOLOGY - ADVANCED

[Time allotted: Three Hours]

[Max Marks: 100]

Note: Read all the instructions carefully

Answer all questions in serial order. Draw suitable diagrams wherever necessary

Q. 1. Objective type questions: (Attempt All)**(10 x 02 = 20)**

(Very short/ short answer/ MCQ/ One liners/ Fill in the blanks/ True/False)

- a. Name any two special stains for demonstrating nucleic acids. (PO 1, CO 5)
- b. Which fixative is commonly used for cytological pap smears? (PO 1, CO 3,5)
- c. Alcian blue stain is primarily used to demonstrate: (PO 1, CO 5)
 - i. Collagen
 - ii. Neutral fat
 - iii. Acid mucin
 - iv. Amyloid
- d. Cryostat uses paraffin wax to embed tissue before sectioning. (True/False) (PO 1, CO 2)
- e. Name the embedding media used for electron microscopy. (PO 1, CO 2)
- f. Pap smear is used for screening of _____ cancer. (PO 2, CO 3, 5)
- g. The recommended thickness for routine paraffin sections is _____. (PO 2, CO 2)
- h. What is the role of flotation bath? (PO 2, CO 2)
- i. List two dehydrogenase enzymes commonly demonstrated by enzyme histochemistry. (PO 4, CO 5)
- j. Which hormone is specifically detected in pregnancy tests to confirm early pregnancy? (PO 2, CO 9)

Q. 2. Short notes/ Short answer type questions (Attempt any Five)**(05 x 04 = 20)**

- a. Write a note on freeze drying – principle and advantages. (PO 4, CO 2)
- b. Describe the procedure, principle and utility of Schmorl's stain. (PO 1, CO 5)
- c. What is maturation index? What is the clinical utility of hormonal assessment through cytological techniques? (PO 2, CO 10)
- d. What is FNAC? Enumerate the indications and utility of FNAC. What is the role of a cytotechnician in FNAC clinic? (PO 1,3,CO 3)
- e. Write a note on Feulgen stain and its applications. (PO 1, CO 5)
- f. Elaborate the technique of Sudan Black stain. Mention its applications. (PO 1, CO 5)
- g. Describe the processing and staining of serous body fluids. (PO 1, CO 3)

Q. 3. Structured questions (Attempt any Three)**(03 x 10 = 30)**

- a. Describe in detail the steps involved in preserving, mounting and presenting a histopathological specimen for museum. (PO 4, CO 9)
- b. Write a note on the principle, procedure, and diagnostic utility of the following special stains: (PO 2, CO 5)
 - i. PAS stain
 - ii. Alcian blue
 - iii. Mucicarmine
- c. Electron microscopy: (PO 2, 4, CO 4)
 - i. Working principles
 - ii. Components & techniques
 - iii. Utility in pathology
- d. Explain in detail the concept, components and importance of quality assurance in cytopathology. (PO5, CO 11)

Q. 4. Long Answer/ Essay type questions (Attempt any Two)**(02 x 15 = 30)**

- a.
 - i. Describe the process of embedding and block making. (PO 2, CO 2)
 - ii. What is microtomy? What are the types of microtomy? What is bevel angle and clearance angle?
 - iii. What are the common problems during paraffin sectioning and how can they be resolved?
- b. Describe the technique, principle and utility of enzyme histochemistry for : (PO 2, CO 5)
 - i. Phosphatases
 - ii. Oxidases
 - iii. Peroxidases
- c. Explain the sample collection technique, preparation of smears, staining methods, interpretation of results and significance of cervical cytology in detail. (PO 2,3, CO 3, 10)