



## BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(MLT)-2022

Course Name – Histotechnology & Cytotechnology

Course Code - BMLTC502

( Semester V )

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

(i) Which of the following used as Clearing Agent ?

a) Picric Acid

b) Formalin

c) Formic Acid

d) Toluene

(ii) What is Orange Green 6 ?

a) It stains the cytoplasm of mature squamous cells, nucleoli, Red blood cells, and cilia pink.

b) It stains the cell nuclear blue

c) It is an acidic counterstain that stains the cytoplasm of mature keratinized cells

d) None of these

(iii) Select the melting temperature of Paraffin wax.

a) 68-70°C

b) 45-50°C

c) 58-60°C

d) 65-68°C

(iv) Select the adhesive agent used to attach tissue section on a slide.

a) Meyers Egg Albumin

b) Xylene

c) Liquid Paraffin

d) DPX

(v) After Clearing the tissue is transferred to which reagent during tissue processing ?

a) Xylene

b) Melted Wax

c) 70% Alcohol

d) L-Block

(vi) Which cells have a protective and digestive role in the intestinal mucosa?

a) Lamina propria cells

b) Enterocytes

c) Goblet cells

d) Smooth muscle cells

(vii) What is the most common mordant used in Haematoxylin staining?

a) Alum

b) Formalin

- c) Ethanol  
(viii) What is the primary purpose of cryostat sectioning?  
a) To preserve tissue morphology  
b) To enhance staining techniques  
c) To prepare frozen sections for rapid diagnosis  
d) To embed tissues in paraffin
- (ix) What is the primary benefit of using immune cytochemistry over traditional histological staining methods?  
a) Immune cytochemistry is faster.  
b) Immune cytochemistry provides information about specific antigens.  
c) Immune cytochemistry is less expensive.  
d) Immune cytochemistry does not require the use of antibodies.
- (x) What is the significance of primary antibodies in immune cytochemistry?  
a) They produce a visible signal.  
b) They directly bind to antigens of interest.  
c) They amplify the detection signal.  
d) They label cellular structures with fluorescent tags.
- (xi) Which of the following is a common complication associated with aspiration cytology procedures?  
a) Hair loss  
b) Bleeding or hematoma at the site of aspiration  
c) Joint pain  
d) Vision changes
- (xii) What is the primary function of pericardial fluid?  
a) Lubricate the heart  
b) Facilitate lung expansion  
c) Digest food in the stomach  
d) Regulate blood pressure
- (xiii) A high amylase level in ascitic fluid may suggest involvement of which organ?  
a) Heart  
b) Liver  
c) Pancreas  
d) Kidney
- (xiv) Which of the following is NOT a benefit of automation in cytology laboratories?  
a) Improved accuracy and reproducibility of results  
b) Reduced labor costs and workload for cytotechnologists  
c) Faster turnaround time for reporting results  
d) Increased requirement for manual sample processing
- (xv) Which solution can be used for chemical neutralization of decalcified bone?  
a) Concentrated hydrochloric acid  
b) Xylene  
c) Distilled water  
d) Saturated lithium carbonate solution

#### Group-B

(Short Answer Type Questions)

3 x 5=15

2. Write a short note on Cytocentrifuge. (3)
3. Explain the primary function of pleural fluid in the human body. (3)
4. Define aspiration cytology and elaborate on its applications in the field of cytology. (3)
5. Explain the significance of PAS staining in histopathology. (3)
6. Compare automated versus manual H&E staining procedures. (3)

OR

Evaluate the different methods of decalcification. (3)

#### Group-C

(Long Answer Type Questions)

5 x 6=30



7. Explain the functional differences between the four basic types of tissues in the human body. (5)
8. Create a detailed flowchart of the Immunohistochemistry procedure. (5)
9. Design a detailed protocol for a microtomy procedure. (5)
10. What are the essential qualities of an ideal fixative used in histopathology? (5)
11. Assess the implications of using various antigen retrieval methods on the staining quality and accuracy of immunohistochemistry results. (5)
12. Analyze the steps involved in obtaining a cerebrospinal fluid (CSF) sample through a lumbar puncture. (5)

OR

Explain the principle of Papanicolaou stain based on and how does it differentiate between acidic and basic components of cells. (5)

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