



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – M.Sc.(MLT)-2023

Course Name – Histopathology & Modern Diagnostic Oncopathology

Course Code - MMTCC03001

(Semester III)

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) Select the proto-oncogene encodes a transcription factor that regulates genes involved in cell growth and differentiation.
 - a) MYC
 - b) BCL2
 - c) ABL
 - d) RAS
- (ii) Identify tumor marker is commonly elevated in patients with ovarian cancer.
 - a) PSA (Prostate-Specific Antigen)
 - b) CA-125
 - c) CEA (Carcinoembryonic Antigen)
 - d) AFP (Alpha-Fetoprotein)
- (iii) Choose the presence of high levels of the tumor marker HER2/neu is most commonly associated with which type of cancer.
 - a) Ovarian cancer
 - b) Lung cancer
 - c) Breast cancer
 - d) Colorectal cancer
- (iv) Analyze which of the following biochemical changes is commonly associated with the epithelial-to-mesenchymal transition (EMT) in cancer progression.
 - a) Increased production of extracellular matrix proteins
 - b) Decreased cellular motility
 - c) Reduced expression of matrix metalloproteinases (MMPs)
 - d) Increased cellular adhesion to neighboring cells
- (v) Select Cryopreservation is
 - a) Freezing in liquid nitrogen at - 196degC
 - b) Freezing in liquid nitrogen at -19degC
 - c) Freezing in liquid nitrogen at -27degC
 - d) Freezing in liquid nitrogen at 196degC
- (vi) Disinfectant used in aseptic room is
 - a) 1% Sodium hypochlorite
 - b) 1% Sulphuric acid
 - c) 1% Nitric acid
 - d) 1% Hydrogen peroxide
- (vii) List the material is commonly used to embed tissues for sectioning?
 - a) Paraffin wax
 - b) Gelatin
 - c) Alcohol
 - d) Formalin

- (viii) The hallmark of acute inflammation is
- Vascular stasis
 - Increased blood flow
 - Increased vascular permeability
 - Increased blood circulation
- (ix) Pap smear of a 30 years old woman is found to have atypical cells suggestive of HPV infection. Which of the following abnormalities describes the characteristic cytologic feature caused by HPV infection in Pap smear?
- Acanthosis
 - Parakeratosis
 - Hyperkeratosis
 - Koilocytosis
- (x) Infer the most common symptoms of tuberculosis?
- diarrhoea
 - Coughing, weight loss, night sweats, and fever
 - Fever, breathlessness
 - None of these
- (xi) Infer the groups of people most at risk for developing tuberculosis?
- diarrhoea
 - Coughing, weight loss, night sweats, and fever
 - Fever, breathlessness
 - Immunosuppressed individuals, people with HIV, and those who have close contact with an infected person
- (xii) Describe the pathogenesis of edema
- decrease hydrostatic pressure of intracapillary fluid
 - lymphatic drainage
 - decrease tissue resistance
 - increase oncotic pressure of intracapillary fluid
- (xiii) Cholecystitis is connected with
- abnormality in bile synthesis
 - bile salt deficiency
 - Pus-filled cavity within the liver
 - Flow of bile is blocked
- (xiv) Illustrate a potential complication of embolism:
- Organ damage
 - Migraine
 - Hypotension
 - Muscle weakness
- (xv) Recognize a common type of paraplegia:
- Spastic paraplegia
 - Traumatic paraplegia
 - Hereditary spastic paraplegia
 - Ataxic paraplegia

Group-B

(Short Answer Type Questions)

3 x 5=15

- Define Warburg's Effect and its clinical significance (3)
- Define the basic principle of immunofluorescence, and how does it differ from traditional microscopy techniques? (3)
- Explain types of samples can be analyzed using the TUNEL assay, and what are the common applications? (3)
- A 43 year old woman has a thyroid lobe removed. It is seen to have a nodular architecture and a lymphoid infiltrate with multifocal Hürthle (oncocyctic) change of follicular cells. The lymphocytes are positive for CD20 and CD79a and negative for CD3.. Identify the clinical manifestation. (3)
- Criticize the FISH be utilized in clinical diagnostics, particularly in cancer detection? (3)

OR

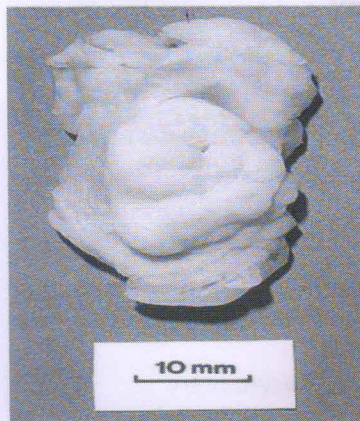
Differentiate the main differences in the color characteristics between H&E and Trichrome staining? (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7.



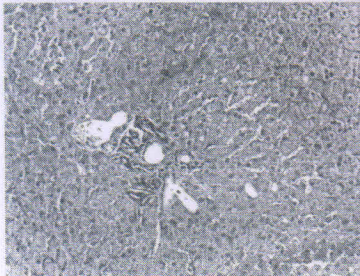
(5)

Interpret the clinical features of carcinoma along with its type.

8. Differentiate between Tissue biopsy and liquid biopsy

(5)

9.



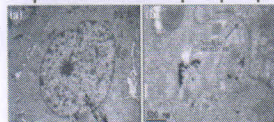
(5)

Interpret the clinical features of viral hepatitis.

10. Explain the sample preparation of SEM before imaging

(5)

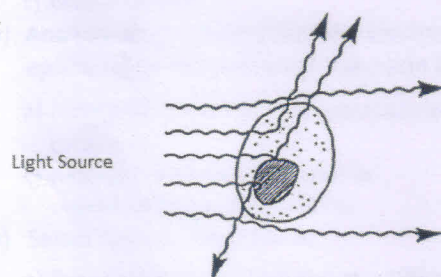
11.



(5)

Interpret the clinical features of TEM micrographs of breast cancer cell.

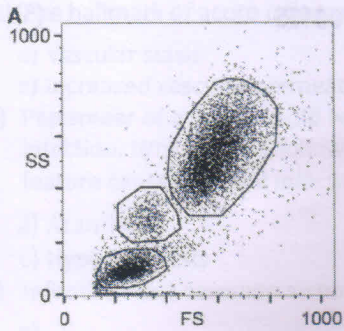
12.



(5)

Predict and describe Forward Scatter(FSC) and Side Scatter(SSC) of light source radiated from that cell

OR



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(5)

Predict lymphocytes, monocytes and granulocytes from this flowcytometry data. Justify the answer.
