All India Institute of Medical Sciences, Kalyani

B.Sc. MLT First Year Final Examination, August 2024

Time: 3 Hrs. **Pathology** **Marks: 100**

INSTRUCTIONS:

- Answer all questions.
- Illustrate your answers with well labelled diagram wherever necessary.
- Answer Pathology Section A & B in separate answer booklets.

SECTION – A (40 MARKS)

Short or Brief Answer Questions: **[8×5=40]**

1. Define necrosis. Write the differences between necrosis and apoptosis. (1+4)
2. Mention the various types of anticoagulants used in a medical laboratory and give example of various test performed with each anticoagulant? (2+3)
3. Discuss the various tests performed in urine routine and microscopic examination? (3+2)
4. Define ESR? Briefly mention about the various stages of the ESR? (1+4)
5. Mention differences between benign and malignant tumours with examples. (5)
6. Protein energy malnutrition. (5)
7. Explain the inheritance pattern of Haemophilia. (5)
8. Prothrombin Time & INR. (3+2)

SECTION – B (40 MARKS)

Long Answer Questions: **[4×10=40]**

1. What is microcytic hypochromic anemia? Enumerate the four causes of microcytic hypochromic anemia? Mention the lab tests and peripheral smear findings in a case of iron deficiency anemia. (2+3+5)
2. Define inflammation? What are the differences between acute and chronic inflammation? Give four examples of granulomatous inflammation. (2+4+4)
3. Discuss different laboratory investigations for evaluating primary and secondary haemostasis. (5+5)
4. Define Meningitis? Mention various types of meningitis? Tabulate the CSF findings in different types of meningitis? (2+3+5)

B.Sc. MLT First Year Final Examination, August 2024

Enrollment No. _____ Invigilator sign:

- Section C (Pathology) should be answered in first 20 minutes of the Exam duration and handed over to the invigilators.
- Put one Tick (✓) mark to only one answer that you consider correct for each question.
- Mark your Tick (✓) in pen.

SECTION C (PATHOLOGY)

Multiple Choice Questions: **[20×1=20]**

1. The change of one mature cell type into another mature cell type is known as?
   a. Hyperplasia
   b. Hypertrophy
   c. Atrophy
   d. Metaplasia
2. Which of the following is a hemoparasite
   a. Plasmodium Vivax
   b. CMV
   c. Actinomycosis
   d. Nocardia
3. The anticoagulant used in complete blood count analysis is
   a. Flouride
   b. Citrate
   c. EDTA
   d. Heparin
4. Loss of blood supply to bowel can give rise to
   a. Fibrinoid necrosis
   b. Liquefactive necrosis
   c. Gangrenous necrosis
   d. fat necrosis
5. The predominant cell involved in acute inflammation is
   a. Neutrophils
   b. Eosinophils
   c. Lymphocytes
   d. Monocytes
6. Microcytosis in CBC can be identified by
   a. Increased MCH
   b. Increased MCV
   c. Decreased MCV
   d. Increased MCHC
7. Condition associated with increased MCV is
   a. Iron deficiency anemia
   b. Leukemia
   c. Anemia of chronic disease
   d. Folate deficiency anemia
8. The urine sample of choice for urine routine & microscopic examination\
   a. 24 hour urine sample
   b. First morning urine sample
   c. Freshly voided urine sample
   d. Random urine sample
9. Lumbar puncture is done to perform
   a. Urinalysis
   b. Semen analysis
   c. CSF analysis
   d. Complete haemogram
10. What is the primary component of amyloid deposits in amyloidosis?
    a. Collagen
    b. Fibrin
    c. Protein
    d. Lipid
11. Which of the following is an autosomal recessive disorder?
    a. Huntington's disease
    b. Cystic fibrosis
    c. Marfan syndrome
    d. Neurofibromatosis
12. Which vitamin deficiency is associated with bleeding disorders?
    a. Vitamin A
    b. Vitamin B12
    c. Vitamin C
    d. Vitamin K
13. Which stain is used for reticulocyte count?
    a. Wright's stain
    b. Romanowsky stain
    c. Supravital stain
    d. Gram stain
14. Which coagulation test evaluates the extrinsic pathway of coagulation?
    a. Activated Partial Thromboplastin Time (aPTT)
    b. Prothrombin Time (PT)
    c. Thrombin Time (TT)
    d. Bleeding Time

15. What does the term 'anisocytosis' refer to in haematology?
    a. Variation in cell colour
    b. Variation in cell shape
    c. Variation in cell size
    d. Variation in cell count
16. Which test is used to diagnose sickle cell anaemia?
    a. Haemoglobin electrophoresis
    b. Complete blood count (CBC)
    c. Bone marrow biopsy
    d. Osmotic fragility test
17. What is the primary pathology of chronic myeloid leukaemia (CML)
    a. Presence of blasts
    b. Increased basophils
    c. Increased eosinophils
    d. Presence of Philadelphia chromosome
18. Which of the following findings in urine is indicative of a urinary tract infection?
    a. Glucose
    b. Bilirubin
    c. Nitrites
    d. Urobilinogen
19. Which condition is associated with a decreased glucose concentration in CSF?
    a. Viral meningitis
    b. Bacterial meningitis
    c. Multiple sclerosis
    d. Subarachnoid haemorrhage
20. Which microscopic finding in urine is most commonly associated with glomerulonephritis?
    a. Red blood cell casts
    b. White blood cell casts
    c. Epithelial cell casts
    d. Hyaline casts