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Barasat, Kolkata -700125

Term End Examination 2025-2026

Programme – M.Sc.(MLT)-2025

Course Name – Applied Hematology & Clinical Pathology

Course Code - MMTC01001

(Semester I)

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 observable physical attribute of urine that can provide insights into a person's hydration level.
- | | |
|----------------|------------|
| a) Temperature | b) Texture |
| c) Clarity | d) Weight |
- (ii) Obstructive jaundice is due to?
- | | |
|-----------------------------|-------------------------|
| a) Increased hemolysis | b) Impaired conjugation |
| c) Obstruction in bile duct | d) Hepatitis |
- (iii) Reliable estimate of red cell production is produced by?
- | | |
|---------------|-----------------------|
| a) EPO levels | b) Reticulocyte count |
| c) RDW | d) Polychromasia |
- (iv) The mean cell volume of the patient is 90 fl and the reticulocyte production index is low. Which of the following is the most possible cause of anemia in this patient ?
- | | |
|---------------------------|---------------------------|
| a) Vitamin B12 deficiency | b) Aplastic anemia |
| c) Sideroblastic anemia | d) Iron deficiency anemia |
- (v) The osmotic fragility test is primarily used to assess the susceptibility of which blood cells to swelling and bursting?
- | | |
|-----------------------------|--------------|
| a) White blood cells (WBCs) | b) Platelets |
| c) Red blood cells (RBCs) | d) Plasma |
- (vi) In the osmotic fragility test, why are red blood cells (RBCs) subjected to solutions with varying salt concentrations?
- | | |
|--|--|
| a) To assess RBCs' ability to fight infection | b) To determine RBCs' oxygen-carrying capacity |
| c) To evaluate RBCs' susceptibility to swelling and bursting | d) To measure RBCs' enzyme activity |
- (vii) When assessing a patient for a coagulation disorder, which test should you choose to specifically evaluate the intrinsic pathway of blood clotting?

Group-C
(Long Answer Type Questions)

5 x 6=30

7. Explain the hemolytic anemia causes, symptoms, diagnosis, and treatment options, considering both hereditary and acquired forms of the condition? (5)
8. How do you analyze the results of the platelet aggregation test conducted through Light Transmission Aggregometry (LTA) utilizing platelet agonists such as ADP, Thromboxane A₂, Collagen, and Ristocetin? (5)
9. Discuss the clinical significance of a positive peroxidase stain in the evaluation of leukemia. (5)
10. Explain the molecular basis of platelet activation and platelet aggregation. (5)
11. Compare and contrast direct and indirect Coombs' tests, highlighting their purposes, methodologies, and clinical applications. (5)
12. A patient came with symptoms of burning sensation during urination with fever and chills. Analyze the possible urine examination report of this patient. (5)

OR

Analyze the difference in the laboratory finding of CSF in bacterial and viral infection. (5)

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