REV-01
BMLT/57/29/34

2025/11

SET A

BACHELOR OF MEDICAL LABORATORY TECHNOLOGY
FIFTH SEMESTER
PATHOLOGY V
BMLT - 505

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

Objective

Time: 30 min. **Marks: 20**

Choose the correct answer from the following: ***1X20=20***

1. Which of the following is considered a blood group antigen?
   a. IgG
   b. ABO antigens
   c. Albumin
   d. Fibrinogen

2. Which immunoglobulin is the most abundant in serum?
   a. IgA
   b. IgG
   c. IgE
   d. IgM

3. The first human blood transfusion was successfully done in:
   a. 1901
   b. 1940
   c. 1818
   d. 1650

4. Which is a primary function of antigens in blood?
   a. Transport oxygen
   b. Clot blood
   c. Trigger immune response
   d. Store iron

5. The gene for Rh antigen is located on:
   a. Chromosome 9
   b. Chromosome 12
   c. Chromosome 4
   d. Chromosome 1

6. Which antibody is naturally occurring in ABO system?
   a. IgG
   b. IgM
   c. IgE
   d. IgA

7. RBC concentrate is prepared by:
   a. Filtration only
   b. Warming blood
   c. Centrifugation and removal of plasma
   d. Freezing

8. All of the following are indications for platelet transfusion except:
   a. Thrombocytopenia
   b. Hemophilia A
   c. Platelet function defects
   d. Polycythemia vera

9. All of the following are used to detect antibodies in serum except:
   a. Reverse grouping
   b. Antibody screening
   c. Forward grouping
   d. Indirect Coombs test

10. Both RBC and platelet concentrates are prepared by:
    a. Filtration
    b. Separation from whole blood
    c. Heating
    d. Centrifugation

11. Which needle gauge is most commonly used for whole blood donation?
    a. 18 G
    b. 20 G
    c. 16 G
    d. 22 G

12. All of the following are true about Rh antibodies except:
    a. Mostly IgG
    b. Produced only after antigen exposure
    c. Cause HDN
    d. Naturally occurring in Rh-negative individuals

13. Both RBCs and platelets can develop storage lesions due to:
    a. Oxidative stress
    b. Membrane changes
    c. Decreased ATP
    d. All of the above

14. Both recent vaccination and mild febrile illness:
    a. Temporarily defer donation
    b. Prevent immediate donor eligibility
    c. Require waiting period (usually 2–4 weeks
    d. All of the above

15. Which antigen is responsible for hemolytic disease of the newborn?
    a. Rh D
    b. Kell
    c. MNS
    d. ABO

16. None of the following are required for major crossmatch except:
    a. Recipient serum
    b. Recipient WBCs
    c. Donor RBCs
    d. Coombs reagent

17. Direct Coombs test detects:
    a. Hematocrit
    b. Antibodies bound to RBCs in vivo
    c. Blood sugar
    d. Free antibodies

18. The ABO blood group system is controlled by:
    a. Two alleles
    b. Y-linked gene
    c. X-linked gene
    d. Three alleles (IA, IB, i)

19. All of the following are functions of anticoagulants in blood storage except:
    a. Increase hemoglobin concentration
    b. Prevent clot formation
    c. Provide nutrients to RBCs
    d. Maintain pH

20. None of the following statements about cryoprecipitate are false except:
    a. Contains fibrinogen
    b. Stored frozen at -30°C
    c. Contains factor VIII and XIII
    d. Contains significant platelets

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(Descriptive)

Time : 2 hrs. 30 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. Discuss the different classes of immunoglobulins. Explain a brief overview of the history and development of transfusion medicine. **5+5=10**

2. Explain the different blood components. Discuss the steps of their preparation along with their clinical indications. **3+4+3 =10**

3. Describe the procedure for blood collection and outline the common adverse reactions in blood donors along with their management. **5+5=10**

4. Explain the inheritance of blood groups and their subgroups. **7+3=10**

5. Explain the different types of blood donation and the standard eligibility requirements followed in donor selection. **3+7=10**

6. Explain the importance of the Rh blood group system and describe the MNS blood group system along with its clinical relevance. **5+5=10**

7. Explain the various anticoagulants used for blood storage and their role in preserving blood. Describe the principle and procedure of the Antiglobulin test. **4+6=10**

8. Discuss the Rh blood group system. Explain the role of compatibility testing. **5+5=10**

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