



16972

LIBRARY
Brainware University
Barasat, Kolkata -700125



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(MLT)-2022

Course Name – Immuno Hematology, Blood Banking & Blood Transfusion

Course Code - BMLTC601

(Semester VI)

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) The genetic information of Rh antigen present in _____.
 - a) Chromosome 19
 - b) chromosome 1
 - c) Chromosome 9
 - d) Chromosome 16
- (ii) Select the investigation that should be done immediately to best confirm a mismatched blood transfusion reaction.
 - a) Indirect Coombs test
 - b) Direct Coombs test
 - c) Cross match
 - d) Du test
- (iii) The advantage of blood donation to a donor is _____.
 - a) Free health check up
 - b) Reduce iron in body
 - c) Decrease heart disease
 - d) All of these
- (iv) Select the normal range of hematocrit value.
 - a) 55 - 70 %
 - b) 26 - 36 %
 - c) 36 - 54 %
 - d) None of the these
- (v) In which transfusion reaction does hemolysis of donor RBCs occur due to recipient antibodies targeting transfused RBC antigens?
 - a) Febrile non-hemolytic transfusion reaction
 - b) Delayed hemolytic transfusion reaction
 - c) Acute hemolytic transfusion reaction
 - d) Allergic transfusion reaction
- (vi) Which method is used to prepare Platelet Rich Plasma (PRP) from whole blood?
 - a) Heavy spin centrifugation
 - b) Light spin centrifugation
 - c) Filtration
 - d) Freezing and thawing
- (vii) A blood donor experiences mild dizziness after donation. What should be the first step in management?
 - a) Allow the donor to leave immediately
 - b) Sit or lie down immediately, preferably with their feet raised
 - c) Perform an ECG to rule out cardiac issues
 - d) Ask the donor to run for 5 minutes to improve circulation

- (viii) What is the role of dextrose in blood anticoagulant solutions?
- Chelates calcium to prevent clotting
 - Provides energy to maintain RBC metabolism
 - Increases the shelf life of plasma
 - Enhances platelet function
- (ix) Who discovered the ABO blood group system?
- Karl Landsteiner
 - Alexander Wiener
 - Philip Levine
 - James Blundell
- (x) A pregnant woman is Rh-negative, and her husband is Rh-positive. What is the potential risk for their child?
- No risk, as Rh factor is not inherited
 - The child may develop hemolytic disease of the newborn (HDN)
 - The mother will develop antibodies against the ABO system
 - The child will definitely be Rh-negative
- (xi) What is the purpose of the indirect Coomb's test (IAT)?
- Detects antibodies attached to RBCs in vivo
 - Detects free antibodies in plasma
 - Measures clotting factors
 - Identifies WBC abnormalities
- (xii) A cross-match test shows agglutination when donor RBCs are mixed with recipient serum. What does this indicate?
- The blood is compatible
 - The recipient has antibodies against donor RBCs
 - The donor plasma contains antibodies against recipient RBCs
 - The test was performed incorrectly
- (xiii) Which material is commonly used to manufacture blood bags?
- Glass
 - Polyvinyl chloride (PVC)
 - Polyethylene
 - Polycarbonate
- (xiv) What is the shelf life of whole blood stored in CPDA-1 blood bags at 2-6°C?
- 7 days
 - 21 days
 - 35 days
 - 42 days
- (xv) Which parameter is most important for the proper storage of platelet concentrates?
- Temperature of 1-6°C
 - Constant gentle agitation at 20-24°C
 - Freezing at -18°C
 - Anaerobic storage conditions

Group-B

(Short Answer Type Questions)

3 x 5=15

- Briefly discuss about packed RBC (PRBC). (3)
- Write a short note on Apheresis. (3)
- Write the composition of CPDA with their function. (3)
- Why does ABO blood group incompatibility typically not harm the fetus during pregnancy? (3)
- Differentiate between naturally occurring antibodies and acquired antibodies. (3)

OR

- Differentiate between Major and Minor Crossmatch techniques. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

- Define Erythroblastosis fetalis. (5)
- Describe the step-by-step procedures involved in conducting Weak D testing, emphasizing the critical techniques and considerations for accurate and reliable results in blood typing. (5)
- What are the main functions of a blood bank? (5)
- Create a set of criteria to determine the suitability of a donor for blood donation. (5)
- Explain the concept of Coombs control cells and outline the procedures involved in their preparation for use in the laboratory. (5)

12. Evaluate and prioritize the adverse effects associated with blood transfusions, considering (5)
both immediate risks and potential long-term complications.

OR

Examine the concept of autologous blood transfusion, detailing its purpose and outlining (5)
both its benefits and limitations.

LIBRARY
Brainware University
Barasat, Kolkata -700125