



*(University of Choice)*

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS  
2019/2020 ACADEMIC YEAR**

**SECOND YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
BACHELOR OF MEDICAL LABORATORY SCIENCES  
DIRECT ENTRY/UPGRADING**

**MAIN EXAM**

**COURSE CODE: BML 224**

**COURSE TITLE: BLOOD TRANSFUSION SCIENCE MAIN EXAMINATION**

**DATE: 8<sup>th</sup> DECEMBER 2020**

**TIME: 2.00 -4.00PM**

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**INSTRUCTIONS TO CANDIDATES**

This paper is divided into three sections, **A B** and **C**, carrying respectively: Multiple Choice Questions (**MCQs**), Short Answer Questions (**SAQs**) and Long Answer Questions (**LAQs**).

TIME: 2 Hours

MMUST observes ZERO tolerance to examination  
cheating

**SECTION A: MULTIPLE CHOICE QUESTIONS (20MARKS)**

1. A blood transfusion service aims to
  - A. prepare safe blood from a recipient to a safe donor who gives blood
  - B. prepare safe blood from a safe donor to a recipient who needs blood
  - C. prepare blood from a donor to a recipient
  - D. to prepare blood from coerced donor to a recipient who needs blood
  
2. The recommended systolic pressure for a potential donor is
  - A. between 90 and 100 mmHg
  - B. between 50 and 180 mmHg
  - C. between 90 and 180 mmHg
  - D. between 90 and 100 mmHg
  
3. The following is a transfusion transmissible infection
  - A. Helicobacter pylori
  - B. Hepatitis A virus
  - C. Treponema pallidum
  - D. Cytomegalo bacteria
  
4. Macro sampling technique in transfusion science is performed for
  - A. collection of large volumes of blood from the veins
  - B. collection of large volumes of blood from capillaries
  - C. collection of large volumes of blood
  - D. testing of blood for diseases
  
5. The most preferred vein for venepuncture is
  - A. Basilic
  - B. cephalic
  - C. median cubital
  - D. cubital vein
  
6. Shelf life survival of red cells in CPD 24hrs post transfusion is
  - A. 70 to 85% after 28 days
  - B. 70 to 85% after 21 days
  - C. 80 to 85% after 28 days
  - D. 80 to 85% after 21 days
  
7. Acute hemolytic reactions
  - A. are the most serious and potentially lethal
  - B. the most prevalent type of immediate nonhemolytic reaction
  - C. are commonly caused by leukocytes or platelate antibodies present in the recipient's plasma
  - D. are commonly caused by platelate antibodies
  
8. Which statement is true about heparin?
  - A. absorbed orally
  - B. crosses blood brain barrier
  - C. injected intravenously
  - D. metabolized in spleen by heparinase
  
9. Indications for blood transfusion excludes
  - A. hemorrhage
  - B. purpura
  - C. anemia
  - D. polycythemia
10. Substances that are capable of reacting with antibodies but do not stimulate antibody formation are called:
  - A. Carrier molecules

- B. Haptens
- C. Immunogens
- D. Carbohydrates

11. The best storage temperature for donated blood awaiting crossmatch is:

- A. 0-10<sup>o</sup> C
- B. 18-25<sup>o</sup> C
- C. 20-24<sup>o</sup> C
- D. 2-8<sup>o</sup> C

12. Rhesus null red cells:

- A. React with all rhesus antibodies
- B. React with anti-D only
- C. Are commonly found in Africans
- D. May exhibit stomatocytosis

13. Cells are washed to:

- A. Make them clean
- B. Avoid haemolysis
- C. Remove unwanted proteins
- D. Avoid agglutination

14. Anti H can be prepared from the following phytagglutinin:

- A. Iberis amara
- B. Dolichos biflorus
- C. Vicia graminea
- D. Ulex europeaus

15. The purpose of reverse grouping is to check:

- A. Antigens in red blood cells
- B. Agglutinins in serum
- C. Agglutinins in plasma
- D. Agglutinins in red blood cells

16. The following facts refers to complements:

- A. Can be preserved at -50 for a maximum of 48hrs
- B. Can be destroyed by heating at 56o C or above
- C. Promote inflammatory response
- D. Are not found in fresh normal plasma

17. Indirect Coomb's test detects:

- A. Maternal antibodies in HDNB
- B. Paternal antibodies in HDNB
- C. Foetal antigens
- D. Maternal antigens

18. The most reliable grouping technique is:

- A. Slide method
- B. Micro-well method
- C. Tile method
- D. Tube method

19. Antihuman globulin is obtained from:

- A. Immunized mothers
- B. Bovine
- C. Hybrid rabbit
- D. Lectins

20. Pyrogens are mostly the common causes of:

- A. Toxicity
- B. Allergic reactions
- C. Anaphylactic reactions
- D. Febrile reactions

**SECTION B: SHORT ANSWER QUESTIONS (40MARKS)**

1. List any **FIVE** types of transfusion reactions (5 marks)
2. Describe blood donor selection criteria (10 marks)
3. Describe the copper sulphate method of haemoglobin determination (6 marks)
4. Name the common blood components that can be prepared from a unit of donated blood (5 marks)
5. Write the composition of CPDA with their respective importance (4 marks)
6. List any **FIVE** potential hazards that occur during or after blood donation (5 marks)
7. Describe types of blood bags and their anticoagulants (5 marks)

**SECTION C: LONG ANSWER QUESTIONS (60MARKS)**

**ANSWER ALL QUESTIONS IN THIS SECTION**

1. Discuss the cause, pathophysiology and laboratory diagnosis of erythroblastosis fetalis (20 marks)
2. Discuss how you would investigate a blood transfusion reaction (20 marks)
3. Discuss the organization of blood transfusion services in Kenya (20 marks)