



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF MEDICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF
MEDICAL LABORATORY SCIENCES
BMLS 12S REGULAR

AML 4306 : BLOOD TRANSFUSION SCIENCES I

SEMESTER EXAMINATION

APRIL 2014 SERIES

2 HOURS

Instructions to candidates:

This paper consists of **TWO** sections **A** and **B**

Section A -Contains MCQS, Answer **ALL** questions in **Section B**.

SECTION A - MCQs - (30marks)

1. By October 2012 how many blood group systems were recognized by international society of blood Transfusion (ISBT)
 - a) Four major group system plus Rhesus
 - b) Three major group system
 - c) Thirty three major blood group system
 - d) ABO antigen and Rhesus antigen
 - e) ABO antigen and antibodies
2. The ABO antigen and Rhesus antigen are expressed on
 - a) The blood serum
 - b) The plasma of the blood
 - c) The surface membrane of white blood cells
 - d) The surface membrane of red blood cells
 - e) The surface membrane of the platelets
3. Which of the following is not a common venipuncture site for blood collection /donation

- a) Basilic vein
 - b) Bascilic artery
 - c) Median cubital vein
 - d) Cephalic vein
 - e) Both b and c
4. The term avidity refers to
- a) The number of binding sites
 - b) The specificity of antibody
 - c) The amount of antibody
 - d) The amount of antigen
 - e) The specificity of antigen
5. The main aim of preparation of standard sera is to
- a) Test for presence of specific antibody
 - b) Test for presence of specific antigen
 - c) Identify presence of alloantibody
 - d) Describe immune disease
 - e) Test for presence of isoautibodies
6. Hazards associated with blood donation include the following
- a) Transfusion associated lung injury
 - b) Iron overload
 - c) Low Hemoglobin
 - d) Fainting
 - e) Both a and d
7. Blood group antibodies may occur due to
- a) Viral infections
 - b) Bacterial infection
 - c) Specific antigenic stimulus
 - d) Specific antibody stimulus
 - e) Non-specific bacterial antigen
8. Criteria for donor exclusion include the following
- a) Blood group
 - b) Race
 - c) Antibody titers?
 - d) Hemoglobin concentration
 - e) Rh type
9. Which of the following is not countinoly screens before blood transfusion
- a) VDRL
 - b) Hbs Ag
 - c) Anti HIV
 - d) Anti Hbs
 - e) Anti HCV

10. Antigens of the ABO group system are
 - a) Phospholipids
 - b) Glycolipids
 - c) Oligosaccharides
 - d) Sphingolipids
 - e) Transferrases

11. High titered anti-D sera in Rh D negative mothers may result in
 - a) Normal birth
 - b) Pre-eclampsia
 - c) Severe hemolytic disease of the newborn
 - d) Intrauterine growth retardation
 - e) All the above

12. Cell suspensions for use in blood grouping should be
 - a) Haemolysed
 - b) Free from serum protein
 - c) Unwashed
 - d) Free from haemoglobin
 - e) Washed and stored

13. A most significant limitation of cross match is that
 - a) It is not able to prevent sensitization of the recipient
 - b) It will detect antibodies in serum in the donor
 - c) It is able to prevent sensitization
 - d) Most antibodies are detected in many phases
 - e) B and c

14. Clinical manifestations of adverse reactions of blood transfusion are referred to as
 - a) Hemolytic disease
 - b) Non-hemolytic disease
 - c) Side-effects of blood
 - d) Transfusion reaction
 - e) Anemic disease

15. Clinical symptoms associated with adverse reactions in transfusion result from
 - a) Destruction of donor cells
 - b) Destruction of donor serum
 - c) Destruction of patient cells
 - d) Both a and c
 - e) Both b and c

16. Destruction of red blood cells is mediated by antibodies through which process
 - a) Platelet aggregation
 - b) Opsonization and phagocytosis
 - c) Immune adherence
 - d) Exocytosis and phagocytosis
 - e) Complement activation and cell damage

17. Immune clearance of antigen antibody antigen complexes occur in the following sites
- Extravascularly
 - Intracranially
 - Intramuscularly
 - Intravascularly
 - Intraperitoneally
18. Incompatible RBC are normally damaged by
- The liver
 - The lungs
 - The spleen
 - Complement system
 - Monocytes macrophage system
19. Recommended laboratory tests during transfusion reaction include
- Repeat crossmatch
 - Blood pressure check up
 - Pulse rate respiratory rate check up
 - Repeat ABO and Rh testing
 - a and d
20. Antibodies implicated in Extravascular reaction are predominantly
- IgA
 - IgM
 - IgD
 - IgG
 - IgC
21. The most common cause of Rh hemolytic disease is
- Antibody D
 - Antigen D
 - Antibody C
 - Antigen C
 - Antibody E
22. Which of the following statements are true of the occurrence of Rh-hemolytic disease
- Occurs only in first born
 - Rh hemolytic disease does not occur in dark individual
 - Is more common after the first pregnancy
 - Occurs during the first pregnancy in white individuals
 - Both b and c
23. Severe hemolytic disease is characterized by the following
- Indirect bilirubin levels greater than 4-5gm/dh
 - Total bilirubin levels greater than 2gm/dh
 - Direct bilirubin levels less than 8mg/dh
 - Raised liver function test

- e) Both a and c
24. Which of the following statements are true
- a) Reverse D-grouping is done to check rhesus antibodies
 - b) Albumin is used as a positive control in Rh typing
 - c) Auto antibodies may give false positive results in Rh typing
 - d) Anti-D gives a strong agglutination at 37°C
 - e) Both c and d
25. The concentration of red cells recommended for tube test include
- a) 2-5% cells in saline
 - b) 20-40% cells in 'O' serum
 - c) 2-10% cells albumin
 - d) 20 – 40% cells in albumin
 - e) 2-5% cells in albumin
26. Which of the following is due to occurrence of weak D
- a) Expression of altered D proteins
 - b) Missing D epitopes
 - c) Lack of gene D
 - d) Position effect especially when C is in trans to D
 - e) All of the above
27. The purpose of incubation of antibodies for 15min and above is to
- a) Differentiate warm and cold antibodies
 - b) Differentiate warm and cold antigen
 - c) Give the antibodies time to bind the antigen
 - d) Inhibit cold agglutinin
 - e) Inhibit warm agglutinin
28. The two fold dilution of serum in anti D titration is done using
- a) Serum
 - b) Albumin
 - c) Saline
 - d) Globulin
 - e) Antihuman globulin
29. The ABO antibody found in group "O" mothers may be
- a) IgE
 - b) IgG
 - c) IgA
 - d) IgD
 - e) Both IgG and IgM
30. Serum donor exclusion criteria
- a) Maybe ignored from time to time
 - b) Are determined by clinician
 - c) Are the same as other blood donor exclusion

- d) Are different from those of normal blood donors
- e) Are determine by the nurse

SECTION B ESSAY
(ANSWER ALL QUESTION IN THIS SECTION)

- 1. Describe the procedure for heat-ether elution techniques **(20 marks)**
- 2. What is avidity and how do you test for avidity. **(20 marks)**