



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES
DEPARTMENT OF MEDICAL SCIENCES
UNIVERSITY EXAMINATION FOR:
BACHELOR OF MEDICAL LABORATORY SCIENCE
AML 4306 : BLOOD TRANSFUSION I
END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2016
TIME: 2 HOURS
DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **TWO** Section(s). Attempt ALL questions.

Circle the correct answer in section A.

Section A

1. The following is true of ancient roman practices
 - a. Blood baths were not used for spiritual restoration
 - b. Bloodletting was used for recuperation
 - c. The fossa sanguinis was a gladiators pit
 - d. They drank gladiators blood to cure epilepsy
 - e. Bloodletting was used as a source of self-punishment
2. The circulatory system was discovered by?
 - a. Galen
 - b. Erasistratus
 - c. Harvey
 - d. Pope Benedict VIII
 - e. Ancient Romans
3. Animal blood was favoured in the 15th century transfusion. Why?
 - a. Moods were associated with blood
 - b. Animal blood had impurities
 - c. Human blood was hard to obtain
 - d. There were too many animals
 - e. Animal blood was associated with purity

4. The crossmatch before transfusion was exhaustively advocated for by the following scientists
 - a. Felix Bernstein
 - b. Ludvig Hektoen
 - c. Karl Landsteiner
 - d. Dr. Richard Weil
 - e. Galen et al
5. The concept of storage of blood in a bank (blood bank) was developed in Chicago by?
 - a. The American red cross
 - b. The Spanish republican army
 - c. Fantus
 - d. Nightingale
 - e. Mollison
6. Elution processes mainly used to achieve the recovery of bound antibodies include the following except?
 - a. Neutralization of Ag-Ab bonds
 - b. Reversal of Ab-Ag gene activities
 - c. Reversal of Ab-Ag attraction forces
 - d. Disruption of Ab-Ag complementarities
 - e. Antigen binding
7. The use of a cork to stopper tuber during ether agitation is mainly for?
 - a. Preventing the volatile ether from gushing out
 - b. Preventing the red cells from touching the gloves
 - c. Locking out air from the tube
 - d. Making sure the water does not affect the elution
 - e. None of the above
8. The availability of blood for transfusion today is constrained by?
 - a. Lack of surveillance of blood donors
 - b. Haemovigilance
 - c. High demand for zero risk during transfusion
 - d. Disease in donated blood
 - e. None of the above
9. Blood group system antigens maybe inherited due to the presence of the following genes
 - a. Non-linked genes
 - b. Mutated genes
 - c. Allelic genes
 - d. Linked genes
 - e. All of the above
10. Hazards associated with blood donation include the following
 - a. Transfusion associated lung injury
 - b. Iron overload
 - c. Low haemoglobin
 - d. Fainting
 - e. Haemolysis

11. Contamination of antisera with blood may result in the following except?
- Antibody sensitization
 - Antibody neutralization
 - False positive results
 - Correct results
 - Neutral results
12. Advantages of the 6-tube ABO and Rh technique are?
- Detection of weakly reacting antigens
 - Inaccuracy in ABO grouping
 - Detection of regular and irregular antigens
 - Time consuming
 - Detecting Bombay blood type
13. The concentration of red cells recommended for tube tests include?
- 2 – 5% cells in saline
 - 20 – 40% cells in “O” serum
 - 2 – 10% cells in albumin
 - 20 – 40% cells in saline
 - 10 – 20% cells in saline
14. The term avidity refers to?
- The number of binding sites
 - The specificity of the antibody
 - The amount of antibody
 - The amount of antigen
 - None of the above
15. Cord serum contains the following immunoglobulins
- Maternal IgM
 - Maternal IgG
 - Foetal IgG
 - Foetal IgA
 - Foetal IgD
16. In serum grouping the following is true
- Haemolysis does not imply reaction
 - Haemolysis implies the presence of Anti-A or –B
 - Serum grouping does check for anti-D
 - Serum grouping is a waste of time
 - Serum grouping does not check weak A
17. The two fold dilution of serum in anti-D titration is done using
- Serum
 - Albumin
 - Antihuman globulin
 - Saline
 - All of the above

18. The ABO blood group system genes are mapped on the following chromosome
- 9
 - 10
 - 11
 - 21
 - X
19. The following is not a blood type of the ABO blood group system
- AB
 - O
 - B
 - A
 - D
20. The multi-valent combination of Natural anti-A (IgM) with glycoproteins in solution has the following effects
- Makes it easier to sterilize
 - Makes it easier to neutralize
 - Makes it a low affinity agglutinin
 - Reacts the same as anti-B
 - No effect
21. The concentration of IgM in serum is approximately ____
- 1.0gms/dL
 - 2.2gms/dL
 - 11.0gms/dL
 - 22.2gms/dL
 - 0.2gms/dL
22. Chimerism is a term used to explain the following
- When antigens stimulate antibody production
 - Antigen competition
 - Immunological tolerance
 - Immunological therapy
 - Adjuvant activity
23. The following statements are true concerning genes A_1 and A_2 except?
- Gene A_1 is dominant over gene A_2
 - They are allelic
 - They are dominant over gene O
 - They are dominant over B
 - They are codominant with B
24. The highest proportion of RhD negative individuals is found in the following populations
- Black
 - Germanic
 - Asian
 - Mongol
 - Caucasians

25. The following are nomenclature that have been applied in classification of blood group antigens except?
- Rosenfield's
 - Fischer and Race
 - Jansky and Moss
 - Weiner Notation
 - ISBT Numerical
26. Who introduced the Rh-Hr system of nomenclature?
- Weiner
 - Landsteiner
 - Fischer
 - Race
 - Dr. Moss
27. The Rh_{null} phenomenon was discovered by studies especially involving the following population
- Indians
 - Aborigines
 - Malays
 - Africans
 - Caucasians
28. The following statement is correct concerning Rh antibodies
- They are predominantly Natural antibodies
 - They are mostly IgM
 - Rh antibodies are only IgA
 - They react best in saline
 - They are produced after sensitization
29. Rh antigens have the following properties
- Transporters and channels
 - Enzymes
 - Adhesion molecules
 - Receptor molecules
 - Ligands
30. A crossmatch is a trial transfusion. It can only do the following
- Detect antibodies in patients' blood after transfusion
 - Detect antibodies present in patients serum at that moment
 - Introduce antibodies in the patient
 - Detect antibodies in the donor after transfusion
 - None of the above

Section B

Question 31: Using the chart below, Identify the antibodies present in the given serum. (Show your identification pattern/steps) (20mks)

Cell Number	D	C	E	c	e	f	M	N	S	s	P1	Lea	Leb	K	k	Fya	Fyb	Jka	Jkb	IS	37	AHG
1	0	+	0	+	+	+	+	+	+	+	+	+	0	0	+	+	+	+	0	2+	0	0
2	+	+	0	0	+	0	+	+	0	+	+	0	+	0	+	0	+	+	0	0	0	0
3	+	+	0	0	+	0	+	0	+	+	+	0	+	+	+	+	+	0	+	0	0	1+
4	+	0	+	+	0	+	+	+	0	+	+	+	0	0	+	0	+	+	+	0	0	0
5	0	0	+	+	+	+	0	+	+	0	+	0	+	0	+	0	+	+	+	2+	0	0
6	0	0	0	+	+	+	+	0	0	+	+	0	+	0	+	+	0	+	+	0	0	0
7	0	0	0	+	+	+	+	+	+	+	+	+	0	0	+	0	+	0	+	2+	0	0
8	0	0	0	+	+	+	+	+	0	+	+	0	0	+	+	0	0	+	0	0	0	1+
9	0	0	0	+	+	+	+	0	+	0	0	+	0	0	+	0	+	+	+	2+	0	0
10	0	0	0	+	+	+	+	0	0	+	0	0	+	+	+	+	0	+	0	0	0	1+
11	0	0	0	+	+	+	0	+	0	+	0	0	+	0	+	+	+	+	+	0	0	0
Patient Typing																				0	0	0
INTERPRETATION:																						

Question 32

- a. Discuss the storage of sera that has been certified fit for blood grouping 10mks
- b. Outline the procedure for ABO and RhD 6-tube blood grouping technique 10mks