AFRICA UNIVERSITY
A United Methodist-Related Institution

"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

SLS 200 BLOOD BANK

END OF SECOND SEMESTER FINAL EXAMINATIONS

APRIL/MAY 2019

LECTURER: Menard Mutenherwa

DURATION: 3 HOURS

INSTRUCTIONS

Do not write your name on the answer sheet

Use Answer Sheets Provided

Begin your answer for Each Question on a New Page

Credit is Given for Neat Presentation

The paper comprises of three sections. Section A, section B and Section C. Section A is compulsory and carries 40 marks. Answer all questions in section A. Each question consists of an incomplete statement or sentence followed by FOUR (4) possible answers. You are required to indicate which answer is true or false by circling either T=true or F=false next to the appropriate answer. If you do not know the correct answer, leave it not circled.

Section B is compulsory and carries 20 marks. Answer all questions in section B

Section C has five questions and each question carries 20 marks. Answer three (3) Questions from section C.

Where a question contains subdivisions, the mark value for each subdivision is given in brackets.

Section A

1		**Cryo contains which of the following?**		
	a	Factor XI	T	F
	b	Protein C	T	F
	c	Protein S	T	F
	d	Factor XIII	T	F
2		**Transfusion of one platelet concentrate (ie the platelets present in one whole blood donation) into a hematologically stable adult of average size with no history of transfusion and/or pregnancy is expected to increase the platelet count by:**		
	a	5000 to 10000/ uL	T	F
	b	1000 to 5000 /uL	T	F
	c	3000 to 12000/ul	T	F
	d	30000 to 40000/ul	T	F
3		**ABH genes and enzymatic products are correctly paired**		
	a	O-none	T	F
	b	H-l-fucosyltransferase	T	F
	c	B-3 N-acetyl- D- galactosaminyl transferase	T	F
	d	A-3-D- galactosyl transferase	T	F
4		**IgG4**		
	a	Fixes complement	T	F
	b	Can cross the placenta	T	F
	c	Is a pentamer	T	F
	d	Is a monomer	T	F
5		**Immune antibodies**		
	a	Are called incomplete antibodies	T	F
	b	React optimally at 4oC	T	F
	c	React optimally at 37oC	T	F
	d	Are so small that they can cross the placenta	T	F

6		**The possible genotype for blood group O is**		
	a	OO	T	F
	b	AO	T	F
	c	BO	T	F
	d	None of the above	T	F
7		**About ABO blood groups**		
	a	Group A individual has anti-B in his / her serum	T	F
	b	Group A individual has anti-A in his / her serum	T	F
	c	Group B individual has anti-O in his / her serum	T	F
	d	Group B individual has anti-A in his / her serum	T	F
8		**The common Rh antibodies are**		
	a	anti-E	T	F
	b	anti-e	T	F
	c	Anti-D	T	F
	d	Anti-C	T	F
9		**The anti-human globulin test**		
	a	Was introduced by Coombs in 1945	T	F
	b	Detects IgM	T	F
	c	Detects IgG	T	F
	d	Detects incomplete antibodies	T	F
10		**Postnatal laboratory assessment of HDN severity include**		
	a	ABO typing	T	F
	b	Rh typing	T	F
	c	DAT on cord or infants blood	T	F
	d	Antibody elution	T	F
11		**The following cross-match choices are correct**		
	a	Group A patient gets Group O blood as first choice	T	F
	b	Group B patient gets Group O blood as first choice	T	F
	c	Group O blood is crossmatched to Group B patient as 1st choice	T	F
	d	Group AB patient gets Group AB blood as fist choice	T	F
12		**One stage enzyme cross match technique involves**		
	a	Enzyme such as bromelin from pineapple	T	F
	b	Patient serum where antibodies may be present	T	F
	c	Donor red blood cells	T	F
	d	All of the above	T	F

13		**The following are anticoagulants for whole blood**		
	a	ACD	T	F
	b	CPD	T	F
	c	CPD-A1	T	F
	d	AHG	T	F
14		**The first line of defense against infection is**		
	a	Phagocytosis	T	F
	b	Antigen recognition	T	F
	c	Antibody production	T	F
	d	Unbroken skin or mucous membranes	T	F
15		**Unexpected antibody detection methods (techniques) include**		
	a	Albumin	T	F
	b	One and two stage enzyme	T	F
	c	Low ionic strength saline	T	F
	d	Saline	T	F
16		**Concerning antibody identification**		
	a	Screening cells are for antibody detection	T	F
	b	Screen cells can be used in 2 or 3 sets of vials	T	F
	c	Panel cells are used for antibody identification	T	F
	d	A set of panel cells usually contain at least ten vials	T	F
17		**The following are phases of a cross-match**		
	a	Immediate spin at around 25 degrees Celsius	T	F
	b	Incubation of donor cells and patient sera at 37 degrees Celsius	T	F
	c	Addition of AHG in the IAT technique	T	F
	d	None of the above is true	T	F
18		**Laboratory determination criteria for RhIG candidate are**		
	a	The mother is RhD and Rh D^u negative	T	F
	b	Alloantibody screen detects no anti-D antibodies	T	F
	c	The infant is D or D^u negative	T	F
	d	DAT on cord or infant cells in positive	T	F

19		**Quality, safety and efficacy of transfused blood is a result of proper**		
	a	Donor selection	T	F
	b	Blood collection	T	F
	c	Component preparation	T	F
	d	Storage, issue and transportation	T	F
20		**If transfusion reaction is observed**		
	a	Continue transfusing	T	F
	b	Stop the transfusion	T	F
	c	Maintain intravenous line with normal saline	T	F
	d	Do not document the transfusion reaction in the patient`s chart	T	F

Section B
Section B is compulsory and carries 20 marks
Answer all questions in section B

1. Complete the table below on Blood Bank reagents [10 marks]

Reagent	**Possible sources**	**Function**
Anti-A	Group B and O individuals	Detects A and A subgroup antigens
Anti-A1		
Anti-B		
Anti-AB		
A cells		
B-cells		
O cells	Red cells of group O donors	Do not detect any antibodies. Control A and B cells.

1. List five (5) conditions that influence agglutination of red cells [5 marks]

2. DAT in full is
   ……
   …and is also known as DCT which in full is
   ……
   …… [1 mark]

3. Briefly, describe the preparation of blood group O Rh positive IgG sensitised red blood cells [4 marks]

Section C

Section C has five (5) questions and each question carries 20 marks
Answer three (3) Questions from section C.
Where a question contains subdivisions, the mark value for each subdivision is given in brackets.

1. Give a brief description of how the classical pathway of complement activation achieves haemolysis in Blood Bank? [20 marks]

2. Discuss how to perform forward and reverse method of ABO blood typing [20 marks]

3. List and discuss the postnatal laboratory investigations to be carried out to know the presence and extent of haemolytic disease of the new born (HDN). [20 marks]

4. With the aid of diagrams, describe the Direct Coombs test. [20 marks]

5. List the phases of cross- match and their respective importance in antibody detection

   [20 marks]

End of Paper