"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

SLS 200 BLOOD BANK

END OF FIRST SEMESTER FINAL EXAMINATIONS

November / December 2019

LECTURER: Menard Mutenherwa

DURATION: 3 HOURS

INSTRUCTIONS

1. Do not write your name on the answer sheet
2. Use Answer Sheets Provided
3. Begin your answer for Each Question on a New Page
4. Credit is Given for Neat Presentation
5. 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.
6. Section B is compulsory and carries 20 marks. Answer all questions in section B
7. Section C has five questions and each question carries 20 marks. Answer three (3) Questions from section C.

Section A

1		**Which of the following is true regarding the irradiation of granulocytes?**		
	a	It prevents TA-GVHD	T	F
	b	It changes the shelf life to 1 hour	T	F
	c	It prevents alloimmunization to HLA antigens	T	F
	d	It is associated with decreased granulocyte function and should be avoided	T	F
2		**RBC storage times vary with the anticoagulant/preservative used. Which of the following is properly paired?**		
	a	Citrate-phosphate-dextrose (CPD): 35 days	T	F
	b	Acid-citrate-dextrose (ACD): 35 days	T	F
	c	Citrate-phosphate-dextrose-dextrose (CP2D): 21 days	T	F
	d	Citrate-phosphate-dextrose-adenine (CPDA)-1: 21 days	T	F
3		**ABH genes and enzymatic products are correctly paired**		
	a	O-3 N-acetyl- D- galactosaminyl transferase	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		**IgG_1characteristics are:**		
	a	It passes placenta	T	F
	b	It has half life in 22 days	T	F
	c	It fixes serum complement	T	F
	d	It is a pentamer	T	F
5		**These are ABO phenotypes**		
	a	BB	T	F
	b	BO	T	F
	c	AB	T	F
	d	A	T	F

6		**About ABO blood group antigens**		
	a	Group A individual has A antigen on red blood cells	T	F
	b	Group A individual has B antigen on red blood cells	T	F
	c	Group AB individual has A and B antigen on red blood cells	T	F
	d	Group O individual has more H antigen than group A individual	T	F
7		**The common Rh antibodies are**		
	a	anti-Lea	T	F
	b	anti-e	T	F
	c	Anti-E	T	F
	d	Anti-A	T	F
8		**Broad spectrum (polyspecific) anti-human globulin may contain**		
	a	anti-IgM	T	F
	b	anti-IgA	T	F
	c	anti-C3	T	F
	d	anti-C4	T	F
9		**Postnatal laboratory assessment of HDN severity include**		
	a	ABO and Rh typing	T	F
	b	Kleihauer- Betke acid elution test	T	F
	c	Serum bilirubin level on cord serum	T	F
	d	Antibody elution test of cord blood	T	F
10		**The following cross-match choices are correct**		
	a	Group A patient gets Group AB blood as first choice	T	F
	b	Group B patient gets Group A blood as first choice	T	F
	c	Group O blood is crossmatched to Group O patient as 1st choice	T	F
	d	Group AB patient gets Group AB blood as fist choice	T	F
11		**Enzymes that can enhance antibody reactions include:**		
	a	Papain from papaya	T	F
	b	Ficin from figs	T	F
	c	Bromelin from pineapple	T	F
	d	Trypsin from pig stomach	T	F

12 ACD

a	Trisodium citrate- does not bind Calcium	T	F
b	Citric acid:- maintains PH	T	F
c	Dextrose: acts as a nutrient & preservative	T	F
d	Acts as an anticoagulant by binding Calcium	T	F

13 The saline technique for antibody detection

a	Detects IgM antibodies	T	F
b	Can detect antibodies at 4 degrees Celsius	T	F
c	Can detect antibodies at 15 degrees Celsius	T	F
d	Can detect antibodies at 37 degrees Celsius	T	F

14 Polyspecific anti-human globulin sera can contain

a	anti-IgG, anti-C3b and anti-C3d	T	F
b	Blood group A red blood cells	T	F
c	Blood group B red blood cells	T	F
d	Rh D antigen red blood cells from monkey	T	F

15 In emergency blood issue

a	There is plenty of time to perform cross-match	T	F
b	The tag must indicate that blood is not cross-matched	T	F
c	No details are documented	T	F
d	Continue with full cross-match after issuing blood	T	F

16 Transfusion Transmissible infections screened in Zimbabwe are

a	Plasmodium species	T	F
b	Treponema pallidum	T	F
c	Hepatitis C virus	T	F
d	Hepatitis B virus	T	F

17 Laboratory determination criteria for RhIG candidate are

a	The mother is RhD and RhDu negative	T	F
b	Alloantibody screen detects anti-D antibodies	T	F
c	The infant is D or Du positive	T	F
d	DAT on cord or infant cells in negative	T	F

18 Blood bank premises should include separate areas for

a	Donor selection	T	F
b	Blood collection	T	F
c	Blood processing	T	F
d	Auxiliary facilities (supportive facilities)	T	F

19 In the event of a transfusion reaction

a	Stop transfusing blood	T	F
b	Maintain intravenous line with normal saline	T	F
c	Do not return blood unit and all tubing to the blood bank	T	F
d	Alert Physician to evaluate patient and determine clinical care	T	F

20 Concerning Ii blood group system

a	Foetal red blood cells are rich in i antigen	T	F
b	Foetal red blood cells are rich in I antigen	T	F
c	Adult red blood cells react stronger with anti-I than with anti-i	T	F
d	Auto-anti I exists as a cold agglutinin	T	F

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

1. Complete the ABO mating with possible genotype and phenotype of children [10 marks]

Mating		**Children**	
Phenotype	Genotypes	Genotypes	Phenotypes
AxA		AA	A and O
	AAxAO		A and O
	AOxAO	AA, AO and OO	

2. List five (5) blood group systems other than the ABO and Rh [5 marks]

3. AHG in full is
……
…and is one of the reagents used in the IAT which in full is
……
…… [1 mark]

4. Distinguish one stage enzyme cross match technique from the two stage enzyme cross match technique [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. Outline a brief laboratory procedure to classify an individual as RhD positive or RhD negative [20 marks]

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

3. What is the cause of haemolytic disease of the new born (HDN)? What consequences could result from this condition? [20 marks]

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

5. Demonstrate your knowledge of **either** the Lewis **or** the Kidd blood group systems. [20 marks]

End of Paper