"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES
DEPARTMENT OF HEALTH SCIENCES
BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

SLS 200 BLOOD BANK

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER 2018

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	**These are not proteolytic enzymes used in Blood Bank**			
	a	ficin (figs)	T	F
	b	bromelin (pineapples),	T	F
	c	trypsin (lining of a hog's stomach).	T	F
	d	papain (papaya),	T	F
2	**Human blood plasma contains**			
	a	Complement	T	F
	b	Immunoglobulins / Antibodies	T	F
	c	Coagulation factors	T	F
	d	Coagulation factors only	T	F
3	**Laboratory processes of donated blood destined for transfusion encompasses**			
	a	testing for ABO and Rh	T	F
	b	components such as FFPs and cryoprecipitate preparation	T	F
	c	cold chain maintenance	T	F
	d	storage of the prepared blood components	T	F
4	**Blood cellular components exclude**			
	a	Red cell concentrate	T	F
	b	Leucocytes-reduced red cells	T	F
	c	Single donor plasma	T	F
	d	Cryoprecipitate	T	F
5	**Potentiators in Blood Bank**			
	a	Saline enhances sensitisation of an antigen	T	F
	b	Cross-links sensitised cells, resulting in visible agglutination	T	F
	c	Papain and bromelin reduce red blood cell surface charge	T	F
	d	LISS causes red blood cells to take up antibody more rapidly	T	F
6	**The following are IgG subclasses**			
	a	IgA	T	F
	b	IgG3	T	F
	c	IgE	T	F
	d	IgG2	T	F

7		**Red cell mediated ABO anomalies may be due to**		
	a	Subgroups of A or B	T	F
	b	Genetic Chimera	T	F
	c	Artificial chimera	T	F
	d	Polyagglutination	T	F
8		**In the Lewis blood group system**		
	a	Lewis is composed of two antigens Lea and Leb	T	F
	b	Genes Le and le (amorph)	T	F
	c	Se gene must be absent for conversion to Leb	T	F
	d	Lewis blood group system is not related to ABO	T	F
9		**Which of the following are Rh antigens?**		
	a	Xga	T	F
	b	E	T	F
	c	e	T	F
	d	C	T	F
10		**Rbc membrane protein that carry blood group antigens include**		
	a	single-pass proteins	T	F
	b	multi-pass proteins	T	F
	c	glycosylphosphatidylinositol (GPI)-linked proteins	T	F
	d	None of the above is True	T	F
11		**Anti-Fya and anti-Fyb are**		
	a	of the IgG type.	T	F
	b	immune type	T	F
	c	not detected using enzyme treated red cells	T	F
	d	not implicated in haemolytic disease of the new born baby	T	F
12		**Possible Kidd phenotypes include**		
	a	Jk(a-b-)	T	F
	b	Jk(a+b-)	T	F
	c	Jk(a-b+)	T	F
	d	Fya	T	F

13		**Principal subgroups of blood group A are**		
	a	A1	T	F
	b	A2	T	F
	c	ABO	T	F
	d	Rh	T	F
14		**Which blood group antigen is sex linked**		
	a	Xga	T	F
	b	A	T	F
	c	D	T	F
	d	Fyb	T	F
15		**Saline technique**		
	a	Detect IgM antibodies	T	F
	b	Can be done at 4°C	T	F
	c	Can be done at 37°C	T	F
	d	None of the above is false	T	F
16		**In ABO Haemolytic Disease of new born baby**		
	a	Mother is group O, baby A or B or O	T	F
	b	Group O individuals have anti-A, anti -B and anti –A,B	T	F
	c	In group O mothers, the antibodies are predominantly IgG	T	F
	d	All of the above are false	T	F
17		**The following are plasma derived medicinal products**		
	a	anti-D Immunoglobulin or Rhogam	T	F
	b	Factor ix concentrate	T	F
	c	Platelet concentrates	T	F
	d	Leucocytes-reduced platelet concentrates	T	F
18		**In the anticoagulant / preservative; acid, citrate, dextrose (ACD)**		
	a	Citrate is the anticoagulant, chelates calcium	T	F
	b	Dextrose is red blood cell carbohydrate energy source for glycolysis	T	F
	c	Red blood cell shelf life is 35 days	T	F
	d	Red blood cell shelf life is 42 days	T	F
19		**The following are requirements for quality in Blood Bank**		
	a	Quality Policy and Management System	T	F
	b	Documentation	T	F
	c	Records	T	F

	d	Information Communication Technology	T	F
20		**About blood bank lectins significance**		
	a	Dolichos biflorus binds A1 antigen	T	F
	b	Ulex europaeus binds H antigen	T	F
	c	Vicia graminea binds N antigen	T	F
	d	Iberis amara binds M antigen	T	F

Section B

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

1. Fill in the missing details for ABO blood genetics and related antigens and antibodies in table below: [10 marks]

Genotype	**Antigens on red blood cell**	**Phenotype**	**Antibodies in serum / plasma**
AA or AO	A	A	Anti-B
	B		Anti-A
AB		AB	None
OO	None	O	

2. Provide in table below, a patient`s ABO blood group for each first choice blood donor. [4 marks]

Patient's ABO Blood group	**First choice blood donor**	**Other choice blood donors**
	O	None
	A	O
	B	O
	AB	A, O, B only one of the three should be used for a given patient

3. One sex linked blood group is…… [1 mark]

4. Red blood cells stored in saline, adenine, glucose and mannitol (SAGMAN) have a shelf life of……days. [1 marks]

5. The lectin ……. …….. europaeus binds H antigen [1 mark]

6. Briefly describe the preparation of platelets. [3 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. Describe how a Blood Bank Laboratory investigates a transfusion reaction. [20 marks]

2. Discuss either ABO or Rhesus haemolytic disease of the new born baby. [20 marks]

3. List four (4) methods of detecting antibodies and discuss the procedure of detecting alloantibodies in the serum or plasma of a patient. [20 marks]

4. With the aid of diagrams, describe the zone phenomenon in precipitation. [20 marks]

5. Demonstrate your knowledge of **either** the Lewis **or** the Kidd blood group systems.

[20 marks]