AFRICA UNIVERSITY
A United Methodist-Related Institution

"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

SLS 406 BLOOD BANK II

END OF SECOND SEMESTER FINAL EXAMINATIONS

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

Section A

1		**In quality assurance and quality control, Standard Operation Procedures are:**		
	a	Step by step instructions	T	F
	b	Kept in the office of the Manager	T	F
	c	Used by students only because they lack experience	T	F
	d	Validated to ensure the desired outcome is achieved	T	F
2		**Which of the following is a cause of primary immunodeficiency disease?**		
	a	Abnormalities caused by infection after birth.	T	F
	b	Developmental abnormalities.	T	F
	c	Genetic abnormalities.	T	F
	d	Inherited abnormalities.	T	F
3		**The following clinical features are not associated with immunodeficiency:**		
	a	Chronic inflammation.	T	F
	b	Skin rashes.	T	F
	c	Diarrhoea	T	F
	d	Signs and symptoms of autoimmune disease	T	F
4		**Which of the following is NOT a B cell abnormality reported to be associated with X-linked agammaglobulinaemia?**		
	a	Reduced pre-B cell proliferation.	T	F
	b	Failure of pre-B cells to thrive	T	F
	c	Low levels of circulating immature B cells	T	F
	d	Expression of Bruton's tyrosine kinase	T	F
5		**In certain circumstances, maternal antibody is not beneficial to the foetus, e.g. haemolytic disease of the newborn. This disease is due to incompatible blood groups in the mother and foetus. In which of the following combinations does the disease most usually occur?**		
	a	A blood group O mother carrying a foetus of blood group A or B.	T	F
	b	A blood group A mother carrying a foetus of blood group O	T	F
	c	A blood group B mother carrying a foetus of blood group O.	T	F
	d	A blood group A mother carrying a foetus of blood group B	T	F

6	**An important complication which affects foetal development involves the Rh antigens which are expressed only on blood cells. Which of the following statements is CORRECT?**			
	a	Cells from a rhesus-positive foetus may cross the placenta and stimulate the production of antibodies which lyses the mother's red cells.	T	F
	b	All rhesus-negative individuals have antibodies to the rhesus antigen and these may cross the placenta and lyses the red cells of a rhesus-positive foetus	T	F
	c	Cells from a rhesus-positive foetus may cross the placenta, stimulating the production of anti- Rh antibodies which, in subsequent pregnancies, may destroy the red cells of any Rh-positive foetus.	T	F
	d	Anti-Rh antibodies may be formed in the foetus if there is transplacental haemorrhage at birth.	T	F
7		**The following are antibody detection / screening techniques**		
	a	Albumin	T	F
	b	Saline	T	F
	c	Two stage bromelin	T	F
	d	One stage pepsin	T	F
8		**Plasma fractionation can be sourced from**		
	a	Recovered plasma from whole blood donations	T	F
	b	Aphaeresis donation	T	F
	c	Platelets	T	F
	d	Packed red blood cells	T	F
9		**Which reaction requires complement?**		
	a	hemagglutination	T	F
	b	haemolysis	T	F
	c	precipitation	T	F
	d	toxin neutralisation	T	F
10		**An example of an in vivo serological test is**		
	a	Indirect immunofluorescence	T	F
	b	Radioimmunoassay	T	F
	c	Tuberculin test	T	F
	d	Complement fixation	T	F

11		**The Western blot test can be used to identify**		
	a	Unknown antibodies and unknown antigens	T	F
	b	Hemolytic disease of the new born	T	F
	c	specific Deoxyribo-nucleic acid	T	F
	d	Paroxymal nocturnal hemoglobinuria	T	F
12		**In agglutination reactions, the antigen is a…..; in precipitation reaction, it is a……..**		
	a	soluble molecule, whole cell	T	F
	b	whole cell, soluble molecule	T	F
	c	bacterium, virus	T	F
	d	protein, carbohydrate	T	F
13		**Rheumatoid arthritis is an……..that affects the……**		
	a	Primary immunodeficiency disease, muscles	T	F
	b	autoimmune disease, nerves	T	F
	c	allergy, cartilage	T	F
	d	autoimmune disease, joints	T	F
14		**Contact dermatitis can be caused by**		
	a	pollen grains	T	F
	b	chemicals absorbed by the skin	T	F
	c	microbes	T	F
	d	protein found in foods	T	F
15		**The direct, immediate cause of allergic symptoms is the action of**		
	a	the allergen directly on smooth muscle	T	F
	b	the allergen on B Lymphocytes	T	F
	c	allergic mediators released from mast cells and basophils	T	F
	d	IgE on smooth muscle	T	F
16		**Which disease would be most similar to AIDS in its pathology?**		
	a	X-linked agammaglobulinaemia	T	F
	b	SCID	T	F
	c	ADA deficiency	T	F
	d	DiGeorge syndrome	T	F
17		**Production of autoantibodies may be due to**		
	a	emergence of forbidden clones of B cells	T	F
	b	production of antibodies against sequestrated tissues	T	F
	c	infection induced change in receptors	T	F
	d	All of these are possible	T	F

18		**The following complement deficiency are correctly matched**		
	a	C1 esterase inhibitor----------hereditary angioedema	T	F
	b	C1q----------hypogammaglobulinemia	T	F
	c	C2 and C4----------SLE	T	F
	d	C3----------Neisseria meningitidis	T	F
19		**Risk factors for HIV infection include**		
	a	Sexual contact with an infected person	T	F
	b	Perinatal exposure	T	F
	c	Parenteral exposure to infected blood through transfusion	T	F
	d	Parenteral exposure to infected blood through needle sharing	T	F
20		**The following are signs and symptoms of delayed haemolytic transfusion reaction**		
	a	Fever	T	F
	b	Anaemia	T	F
	c	Jaundice	T	F
	d	occassionally haemoglobinuria	T	F

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

1. How does Rh factor incompatibility result in red blood cell lysis? [5 marks]

2. Briefly describe the pathogenesis of immune complex disease such as Serum Sickness [5 marks]

3. A child receives half of his or her genetic material (……..…….) from the biological ……, and half from the biological…… [3]

4. List three (3) primary immune deficiencies (genetic) due to B-cell defects (low levels of B cells and antibodies) [6 marks]

5. Name any two types of autologous blood transfusion [1 mark]

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. Demonstrate your understanding of type II hypersensitivity by discussing either Rhesus Haemolytic disease of the new-born. [20]

2. Describe the adverse effects of blood transfusion in Zimbabwe. [20]

3. Select any **one** autoimmune disease and describe its pathogenesis, laboratory diagnosis, treatment and prevention. [20]

4. Demonstrate your understanding of delayed type hypersensitivity reactions and give two examples of a clinical condition that can result from the delayed type hypersensitivity reaction. [20]

5. Write short notes on the following

    a. Paternity testing [10]

    b. Acquired immunodeficiency syndrome [10]

End of Paper