Candidate number.....

"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

SLS 406 BLOOD BANK II

END OF SECOND SEMESTER EXAMINATIONS

APRIL/MAY 2018

LECTURER: Menard Mutenherwa

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
2. Answer **all** questions in sections A on the question paper.
3. Answer **all** questions in section B on separate answer sheets provided.
4. Answer any **3** questions in section C on separate answer sheets provided
5. The mark allocation for each question is indicated at the end of the question
6. Credit will be given for logical, systematic and neat presentations in sections B and C

Section A: Multiple Choice
Answer all questions by encircling the correct response T for TRUE or F for FALSE for each statement in all the questions

1	**Rhesus haemolytic disease of the new born baby**			
	a	Develops when maternal IgG antibodies specific for fetal blood-group antigens cross the placenta and destroy fetal red blood cells	T	F
	b	Develops when foetal IgG antibodies specific for maternal blood-group antigens cross the placenta and destroy fetal red blood cells	T	F
	c	Is not preventable	T	F
	d	Has no known fatalities	T	F
2	**Concerning adverse effects of transfusion**			
	a	Febrile non-haemolytic are immediate immune-mediated	T	F
	b	Anaphylaxis is delayed non-immunological	T	F
	c	Haemolysis is caused by an anamnestic antibody to red blood cell antigen	T	F
	d	Iron overload is a delayed non-immune mediated	T	F
3	**The following antibodies are clinically significant**			
	a	Anti-A	T	F
	b	Anti-D	T	F
	c	anti-C	T	F
	d	Anti-c	T	F
4	**The following may cause transfusion transmissible infections**			
	a	Hepatitis B surface antigen antibodies	T	F
	b	Anti-HCV	T	F
	c	Hepatitis B Virus	T	F
	d	Cytomegalovirus	T	F
5	**The following are special requirements for neonatal transfusion**			
	a	Freshest blood (less than 5 days after collection), free of relevant alloantibodies	T	F
	b	White blood cells depleted components	T	F
	c	Small dose unit (paediatric pack from a single donation) to minimize exposure to different donors	T	F
	d	Irradiated cellular components to avoid graft versus host disease.	T	F

6		**Graft-versus-host disease**		
	a	A rare and potentially fatal complication of transfusion.	T	F
	b	Occurs in such patients as Immunodeficient recipients of bone marrow transplants	T	F
	c	Occurs in such patients as Immunocompetent patients transfused with blood from individuals with whom they have a compatible tissue type (HLA: human leucocyte antigen), usually blood relatives.	T	F
	d	All the above correct	T	F
7		**What questions should be considered prior to transfusion?**		
	a	Is blood transfusion really necessary?	T	F
	b	What is the patient's particular need?	T	F
	c	Did the transfusion result in the anticipated benefit for the patient?	T	F
	d	Does the prospective benefit justify the risks of transfusion?	T	F
8		**Concerning paternity:**		
	a	Proof of infertility or sterility is a ground for challenging paternity	T	F
	b	DNA tests are the least accurate way of determining paternity	T	F
	c	Red blood cell antigen of the ABO blood group system can be used for paternity testing	T	F
	d	Human leukocyte antigen was introduced in the 1970s as a more powerful test to ABO blood group antigens	T	F
9		**The following are not types of autologous transfusion**		
	a	preoperative autologous donation	T	F
	b	Intra-operative cell salvage	T	F
	c	Post-operative cell salvage	T	F
	d	Acute nomorvolaemic haemodilution	T	F
10		**The following are signs and symptoms of delayed haemolytic transfusion reaction**		
	a	Fever	T	F
	b	Anaemia	T	F
	c	Jaundice	T	F
	d	occasionally hemoglobinuria	T	F
11		**An example of a type III immune complex disease is**		
	a	Serum Sickness	T	F
	b	Contact dermatitis	T	F
	c	Graft rejection	T	F
	d	Atopy	T	F

12 **Production of IgE and degranulation of mast cells are involved in**

a	contact dermatitis	T	F
b	anaphylaxis	T	F
c	Arthus reaction	T	F
d	both a and b	T	F

13 **Autoimmune diseases due to antibody may occur as a result of all of the following actions EXCEPT**

a	formation of antigen-antibody complexes	T	F
b	antibody blocking a cell receptor	T	F
c	antibody induced phagocytosis	T	F
d	antibody induced complement mediated lysis	T	F

14 **Each disease is matched with the most appropriate treatment**

a	Chronic granulomatous disease-Transfusion of neutrophils	T	F
b	Chronic granulomatous disease-fetal thymus transplant	T	F
c	DiGeorge Syndrome-fetal thymus transplant	T	F
d	DiGeorge Syndrome-injection of killed virus vaccine	T	F

15 **The Donath-Landsteiner antibody is characteristic of**

a	warm-antibody hemolytic anaemia	T	F
b	cold antibody hemolytic anaemia	T	F
c	paroxysmal cold hemoglobinuria	T	F
d	idiopathic thrombocytopenic purpura	T	F

16 **All of the following statements about "warm" antibodies involved in autoimmune hemolytic disease are correct EXCEPT**

a	cause agglutination at 37°C but not at 4°C	T	F
b	Primarily consist of IgG	T	F
c	Fix complement poorly	T	F
d	can be detected by Coombs` antiglobulin reagent	T	F

17 **The pathogenesis of immune complex disorders involves interplay of antigen, antibody, neutrophils, and which of the following complement - derived factors**

a	C1s	T	F
b	C1a4b	T	F
c	C3b inactivator	T	F
d	C5a	T	F

18 **The radioimmunosorbent test (RIST) is a technique used to measure**

a	cellular antigens	T	F
b	both antigen and antibody activity	T	F
c	allergens in food	T	F
d	total IgE concentration	T	F

19 **Transplantation of the thymus gland from an aborted fetus to an immunodeficient neonate has been beneficial in which of the following immunodeficiency disorders**

a	Chediak-Higashi syndrome	T	F
b	DiGeorge Syndrome	T	F
c	Bruton`s hypogammaglobulinemia	T	F
d	Hereditary angioedema	T	F

20 **Bruton`s hypogammaglobulinemia is indicative of what type of cell?**

a	B cell	T	F
b	Macrophage	T	F
c	T cell	T	F
d	Neutrophil	T	F

Section B
Answer all questions on separate answer sheets provided.

1. For each of the characteristics listed below, select the immunodeficiency disorder that is most closely associated with it

Characteristics
Selective IgA deficiency plus variable T-cell deficiency
Marked lymphopenia associated with reversal of helper: suppressor T cell ratio (Th: Ts)
Clinical features similar to those of systemic lupus erythematosus
Defective development of all bone marrow stem cells
Normal numbers of circulating B cells but defective synthesis or secretion of immunoglobulin

Immunodeficiency disorders

a. Acquired immune deficiency syndrome----------
---------- [2 marks]

b. Common variable hypogammaglobulinemia----------
---------- [2marks]

c. C2 deficiency
.....
.....[2marks]

d. Ataxia telangiectasia.....[2marks]

e. Reticular dysgenesis.....[2marks]

2. List 4 acute immunologic transfusion reactions [4marks]
3. A child receives half of his or her ABO blood group antigen genetic material (.....)
from the biological ....., and half from the biological.....[1mark]
4. Why do people carry antibodies against other blood types even when they have never been sensitised by prior contact with that blood? [2marks]
5. How does a person become sensitised to Rh factor [3 marks]

SECTION C

Answer any 3 questions on separate answer sheets provided.

1. Demonstrate your understanding of type II hypersensitivity by discussing ABO Haemolytic disease of the new-born. [20]
2. Display your knowledge of blood banking by describing the adverse effects of transfusion. [20]
3. Select any **one** secondary immunodeficiency disease and describe its pathogenesis, laboratory diagnosis, treatment and prevention. [20]
4. Describe the mechanism of immune complex diseases (type III hypersensitivities). [20]
5. Write short notes on the following
    a. Paternity testing [10]
    b. Types of autologous blood transfusion [10]