

Candidate Number.....



"Investing in Africa's Future"

**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL
SCIENCES
DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES**

NSLS 200: TRANSFUSION SCIENCE AND IMMUNOLOGY I

END OF SEMESTER FINAL EXAMINATIONS

NOVEMBER 2022

LECTURER: MR S. BANHWA

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. 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

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SECTION A : MULTIPLE CHOICE [40MARKS]

- **Answer all questions by encircling the correct response T for TRUE or F for FALSE for each statement in all the questions**
- **Each correct response is allocated half mark**

1. In Duffy blood group system

- (a) Fya+b+ are resistant to malaria infection. T. F.
- (b) 65% of blacks are Fya-b- T. F.
- (c) The antibodies are not involved in HDNB T. F.
- (d) Fya is not destroyed by enzyme treatment T. F.

2 lewis blood group system

- (a) The antibodies cause HDNB since they cross the placenta T. F.
- (b) Le a-b- individuals can form Lewis antibodies T. F.
- (c) Le a-b+ individuals form Lewis antibodies T. F.
- d) antibodies are common in pregnancy T. F.

3 Concerning autologous blood transfusion

- (a) Welcomed by children of religious sects T. F.
- (b) Babies can donate own blood T. F.
- (c) Patients are transfused someone's blood T. F.
- (d) There is limited recovery compared to heterologous T. F.

4. In P blood group system

- (a) Donath Landsteiner antibody (DL) is biphasic T. F.
- (b) Discovered by Landsteiner in 1927 T. F.
- (c) Discovered by Murant in 1946 T. F.
- (d) DL antibody is always IgG T. F.

5) . The following statements are true concerning preparation of blood components

- a) Preparing packed red blood cells and fresh frozen plasma (FFP) is by centrifugation or sedimentation of the whole Blood T.F
- b) Preparing platelet concentrates, needs blood which is has been put in refrigerator T.F
- c) Preparing platelet concentrates , needs the use of liquid nitrogen T. or F
- d) Cryoprecipitate concentrate, is rich in extrinsic factors T . or F

6) . Concerning Kell Blood Group system

- a) Discovered by Coombs, Mourant and Race in a woman called Mrs Kellcher. T or F
- b) In 1946 antibody causing HNDB was discovered by Coombs. T or F
- c) K antigen is 90% frequency in Europeans and less frequent in blacks. T or F
- d) K antigen is immunogenic T or F

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7) Lutheran blood group was discovered by Calender in 1945. The following is true about Lutheran blood group.

- a) Lu³ Antigen is present in all rbc's except those of Lu^{Null} phenotype T or F
- b) The antigens are found on wbc's T or F
- c) Lu^a is a low frequent antigen as opposed to Lu^b which is of high frequency T or F
- d) The genes to Lutheran blood group system are not linked to the ABO blood group system T or F

8) The Ii blood group was discovered in 1956 by Weiner and colleagues. The following is true about Ii blood group.

- a) The blood group is associated with the ABO and Lewis system T or F
- b) I antigen is common in adults whilst T or F
- c) i antigen is common in new-borns T or F
- d) i antigen is increased in adults than in babies T or F

9).The following statements are true concerning Rhesus antibodies

- a) Most are naturally occurring T or F
- b) IgM type T or F
- c) Causes HDN only T or F
- d) Has a dosage effect T or F

10) In Blood Transfusion Pack

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

11) The saline technique for antibody detection

- a) Detects IgM antibodies T or F
- b) Can detect antibodies at 4 degrees Celsius T or F
- c) can detect antibodies at 60 degrees Celsius T or F
- d) Can detect antibodies at 37 degrees Celsius T or F

12) Polyspecific anti-human globulin sera can contain

- a) anti-IgG, anti-C3b and anti-C3d T or F
- b) Blood group A red blood cells T or F
- c) Anti IgG and Anti C3G T or F
- d) Screen cells antigens T or F

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13) In an emergency blood transfusion

- a) There is plenty of time to perform cross-match T or F
- b) The tag must indicate that blood is not cross-matched T or F
- c) Babies without mothers can not be transfused because there is no mothers blood to cross-match T or F
- d) continue with full cross-match after issuing blood T or F

14) Transfusion Transmissible infections screened in Zimbabwe are

- a) Plasmodium species T or F
- b) Treponema pallidum T or F
- c) Hepatitis C virus screening is sometimes not necessary T or F
- d) hepatitis B virus T or F

15) In the event of a transfusion reaction

- a) Stop transfusing blood after one hour T or F
- b) Maintain intravenous line with normal saline T or F
- c) Do not return blood unit and all tubing to the blood bank T or F
- d) Circulation overload is the main cause T or F

16) The following is true in antigen antibody reaction

- a) Ionic Bonds T or F
- b) Hydrogen Bonds T or F
- c) van der Waal's forces is a temporary positive charge that attracts the electrons of a nearby atom. T or F
- d) Hydrophobic bonds / Changes to the ordered hydration of the membrane T or F

17) The following are True for compatibility testing

- a) It is an ICT technique T or F
- b) seven drops of patient serum are added to two drops of donor cells T or F

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- c) it is an DCT technique T or F
- d) patient serum is added to donor serum T or F

18) Concerning Blood Bank Reagents.

- a) Anti- A is prepared from group A people T or F
- b) Anti-D is prepared from Rhesus D blood T or F
- c) Anti- A1 lectin is not a plant extract T or F
- d) Anti- H will give a strong reaction with O blood T or F

19) Enzymes that can enhance antibody reactions include:

- A) Papain from papaya T or F
- b) Ficin from figs cannot be used in One Stage Technique T or F
- c) Bromelin from pineapple T or F
- d) Trypsin from pig stomach increases Zeta potential T or F

20) Concerning The washing stage In Blood Bank

- a) It removes the unwanted antigens from cells they have sensitised T or F
- b) Only done in compatibility testing T or F
- c) Buffered Saline is used T or F
- e) Also done in Enzyme technique after incubation T or F

Section B Answer All Questions

1. What do you understand on Antihuman Globulin (AHG) (5marks)
2. Discuss ABO HDNB (5 marks)
- 3 write short notes on Fresh Whole Blood benefits (5 marks)
4. What do you understand on 20% Albumin (5 marks)

Section C

Answer any Three (3) Each Question Carries 20 marks

- 1) Give an account of Transfusion Reaction Investigation
- 2) Rhesus Blood group has its weaker forms.Discuss them in detail
- 3) Give an account of Autologous Blood transfusion
including its advantages and disadvantages
- 4) How do you Quality Control Reagents in Blood Bank
- 5) Discuss Classical Pathway of Compliment System

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