"Investing in Africa's future"

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS DEGREE

NSLS 406: BLOOD BANK II

END OF FIRST SEMESTER FINAL EXAMINATIONS

NOVEMBER 2022

LECTURER: Mrs E. Govore

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

INSRUCTIONS

Answer all questions

Mark each statement T for True and F for False

1. The following statements are true concerning Rhesus Hemolytic Disease of the new born
    a. T.F Is caused by paternal IgG antibodies
    b. T.F Paternal blood is helpful in determining fetal antigen status
    c. T.F Maternal blood is used for the Kleihauer–Betke test
    d. T.F Fetal blood (or umbilical cord blood) is tested for Bilirubin (total and indirect)
    e. T.F Exchange transfusion can be used if the neonate has moderate or severe disease

2. The following is true about ABO Hemolytic Disease of the new born
    a. T.F occurs almost exclusively in infants of blood group O who are born to group A or B mothers
    b. T.F Produced in response to previous pregnancy with antigen positive fetus OR exposure to red blood cells
    c. T.F Reticulocyte count is very low
    d. T.F Patients present with neutropenia and thrombocytopenia
    e. T.F Bilirubin levels are low

3. The following facts are considered when doing a mother baby crossmatch
    a. T. F ABO antigen is fully developed at birth
    b. T. F the newborn baby does not produce ABO antibodies until 3 to 6 months of age
    c. T. F ABO antibodies present in the serum of newborn babies are derived from mother's blood due to placental transfer
    d. T. F blood group of the newborn baby is done by ABO antigen grouping (forward grouping) only
    e. T. F antibody grouping (reverse grouping) is not required

4. The following statements are true concerning paternity testing using blood grouping
    a. T. F No blood group can be present without being present in the parents
    b. T. F Blood groups are not an example of Mendelian genetics at work
    c. T. F Blood group studies cannot be used to prove paternity
    d. T. F if the child in question belongs to group A and both the mother and the putative father are group O, the man is the father
    e. T. F scientists almost always work backwards from the child to the potential parent

5. Concerning Delayed Adverse effects of transfusion

a. T.F occur within 24 hours of transfusion
b. T.F haemolysis is primarily extravascular
c. T.F Blood group antibodies implicated include those of the Kidd, Duffy, Kell, and MNS
d. T.F Patients have unexplained anaemia and show no increment in hemoglobin following transfusion
e. T.F alloimmune red cell antibody is identified

6. The following can cause Transfusion transmitable infections (TTIs)
    a. T.F Bacteria
    b. T.F Viruses
    c. T.F parasites
    d. T.F Protozoal organisms
    e. T.F Prions

7. The following statements are true concerning the Innate (natural) immunity
    a. T.F require prior exposure to an antigen
    b. T.F can respond immediately to an invader
    c. T.F recognizes molecular patterns that are broadly distributed rather than an antigen specific to one organism or cell
    d. T.F Phagocytic cells (eg, neutrophils, monocytes, macrophages) are components of the innate immune system
    e. T.F Polymorphonuclear leukocytes are components of the innate immune system

8. The following statements are true concerning the Acquired (adaptive) immunity
    a. T.F requires prior exposure to an antigen to be fully effective
    b. T.F remembers past exposures and is antigen-specific
    c. T.F Humoral immunity is part of the system
    d. T.F Involves Cell-mediated immunity
    e. T.F Tissue-based antigen-presenting cells are needed to present antigens to most types of T cell
9. Characteristics of successful haemovigilance systems include
    a. T.F an efficient, adequately resourced and sustainable national system, involving all relevant stakeholders
    b. T.F A punitive environment based on a learning culture
    c. T.F confidentiality (the source of submitted data being protected)
    d. T.F A non-traceability system - from the blood donor and blood unit to recipient and vice versa
    e. T.F feedback reporting to the stakeholder community

10. Hemovigilance programs are linked to International Hemovigilance Network. Systems, depending upon the country, are governed by
    a. T.F regulators
    b. T.F blood manufacturers
    c. T.F medical societies

d. T.F public health authorities
e. T.F Donors

SECTION B

INSTRUCTIONS

Answer one (1) question

1. With the aid of diagram briefly explain the following immunological assays

    a. Direct assay
    b. Indirect assay
    c. Sandwich assay
    d. Competitive method

2. Hypersensitivity is an undesirable immune reaction produced by the normal immune response. Briefly discuss the four types of hypersensitivity