MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2019/2020 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DEGREE

OF

BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES

COURSE CODE: **BML 226**

COURSE TITLE: **FUNDAMENTAL OF IMMUNOLOGY**

DATE: 9TH DECEMBER 2020 **TIME: 2.00 -4.00PM**

INSTRUCTIONS TO CANDIDATES

- Answer all questions in this paper

TIME: 2 Hours

SECTION A: 20 MARKS

1. Which of the following is NOT a function of antibody?
   A. Opsonization
   B. Neutralization
   C. Phagocytosis
   D. Complement activation
2. Three of the statements below are true about the human immune system. Which one is not?
   A. It can be affected by chemical compounds
   B. It can train self to react to new threats
   C. It can protect itself
   D. It has no errors
3. Which one of the following diseases is considered completely eradicated world-wide?
   A Measles
   B Smallpox
   C Tuberculosis
   D Cowpox
4. Below are possible causes of autoimmunity. Which one is not
   A. It can be due to sequestered antigens release
   B. It can be due to malnutrition
   C. It can be due to release of self-reactive clones of lymphocytes
   D. It could be due to aberrant expression of genes
5. The cells that are involved in antibody production are
   A. Plasma cells
   B. B cells
   C. Neutrophil polymorphonuclear leukocytes
   D. Basophils
6. Which of the following is the first layer of immune defenses
   A. Induced innate defenses
   B. Adaptive immunity
   C. Immediate innate defenses
   D. Humoral immunity
7. The heavy chain to be assembled first during antibody responses are
   A. IgD
   B. Macrophages
   C. IgE
   D. IgM
8. Innate immune responses depends mainly on:
   A. Granulocytes and Macrophages
   B. B lymphocytes
   C. T lymphocytes
   D. Antibodies
9. The circulation of a two month old breast-fed baby will contain maternal:
   A IgA
   B IgD
   C IgE
   D IgG
10. Specific immune response such as antibody production is known as
   A. Innate immune responses

B. Complement immune responses
C. Adaptive immune responses
D. Cell mediated immune responses

11. The heavy chain to be assembled second during antibody responses are
    A. IgD
    B. Macrophages
    C. IgE
    D. IgM

12. Which of the following statements best describes the major role of NK cells in immunity?
    A. T cell activation
    B. Antigen processing and presentation
    C. Immunosurveillance of cancerous cells and viruses
    D. Natural protection against microbes
13. The first cells to arrive at the site of inflammation during inflammatory responses are:
    A. Plasma cells
    B. Neutrophils
    C. Basophils
    D. Macrophages
14. The C3 convertase of the classical pathway is:
    A. C3bBb
    B. C4b3b
    C. C4bC2b
    D. C4bC3bC2b
15. The mononuclear phagocyte system does not include:
    A. Monocyte
    B. Kupffer cells
    C. Kidney mesangial cells
    D. Endothelial cells
16. The spleen is known to trap pathogens in:
    A. Blood
    B. Lymph
    C. Epithelial tissues
    D. Respiratory organs
17. The innate cells that have high affinity for IgE are:
    A. Monocytes
    B. Mast cells
    C. Neutrophils
    D. Eosinophils

18. HIV binds to:
    A. TNF receptors
    B. NF Kappa
    C. CD4
    D. Reverse transcriptase

19. Which of the following is the earliest site of hematopoiesis in the embryo:
    A Bone marrow

B. Liver
C Spleen
D Yolk sac

20. The cells that present antigens to Naïve T cells are:
    A. Cytotoxic T cells
    B. Dendritic cells
    C. Mast cells
    D. Neutrophils

SECTION B: 40 MARKS

1. As a medical laboratory student, deduce the importance of immunology in your medicine career [5 Marks]
2. Hematopoiesis is an important process in the production of cells, however, like other body processes, it is important that it is controlled. Elucidate the mechanisms of its control [5 Marks]
3. The Common Lymphoid Progenitor population is heterogeneous and represents a continuum of cells with decreasing multipotent potential, outline the continuum [5 Marks]
4. Identify the factors that influence the segregation of T cells and B cells into their zones in the spleen [5 Marks]
5. Jude has been diagnosed with failure of C1 activation in the classical complement pathway. Predict the immunological consequences of this diagnosis [5 Marks]
6. Illustrate the structure of class I MHC molecule [5 Marks]
7. Explain the function of maternally acquired immunity in babies [5 Marks]
8. Describe the four types of grafts [5 Marks]

SECTION C

Answer all questions

1. John has been diagnosed will allergies reactions. Describe the following therapeutic strategies available to him: a) Avoidance b) Desensitization c) Blocking IgE action and d) Inhibiting effector cells [20 Marks]
2. The mother and fetus mostly have different MHCs, explain how the fetus avoids allograft rejection [20 Marks]
3. Discuss the process of the heavy chain locus in B cell development [20 Marks]