CANDIDATE NUMBER.....

"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

DEPARTMENT OF HEALTH SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

END OF FIRST SEMESTER EXAMINATIONS

SLS208: IMMUNOLOGY

NOVEMBER 2018

LECTURER: MR G. MALUNGA

DURATION: 3 HOURS

INSTRUCTIONS

Write your candidate number on the space provided on top of each page
Answer **all** questions in sections A on the question paper.
Answer **all** questions in section B on separate answer sheets provided.
Answer any **3** questions in section C on separate answer sheets provided
The mark allocation for each question is indicated at the end of the question
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. Cells involved in cytokine production include

T F a) Macrophages
T F b) Dendritic cells
T F c) Endothelial cells
T F d) Neutrophils

2. The following refers to immunity

T F a) Repeated exposure to an antigen builds a stronger immune response.
T F b) Adaptive immunity only begins during a secondary response.
T F c) Most of the pathogens enter human bodies through mucous membranes
T F d) Innate and adaptive immunity work together to mount an immune response against pathogens.

3. Which of the following is associated with passive immunity

T F a) Exposure to an antigen
T F b) Infusion of weakened viruses
T F c) Movement of IgG antibodies from a pregnant mother to her fetus
T F d) All of the above

4. Cells of the CMI include

T F a) Macrophages
T F b) NK cells
T F c) T_h cells
T F d) Neutrophils

5. The following refers to NK cells

T F a) NK cells are a type of neutrophil cells
T F b) NK cells are T helper cells
T F c) NK cells attack cancer cells and virus-infected body cells
T F d) NK cells attack cells that display abnormal MHC antigens

6. The following are key cells of the acquired active immunity

T F a) Phagocytes
T F b) B cells
T F c) Bone marrow
T F d) T helper cells

7. Mucus-secreting membranes are found in the

T F a) urinary system
T F b) digestive cavity
T F c) respiratory passages
T F d) nervous system

8. Every TCR Complex consists of the following
T F a) CD3 molecule
T F b) CD8 molecule
T F c) Disulphide linkage
T F d) Beta chain

9. Functions of Pathogen Recognition Receptors include
T F a) Opsonisation
T F b) Complement activation
T F c) Antibody production
T F d) Trigger cytokine release

10. The following refers to the lymph node and spleen
T F a) The lymph node filters antigens out of the blood.
T F b) Afferent lymphatic vessels draining the tissue spaces enter the spleen
T F c) Both the lymph node and spleen contain germinal centers
T F d) The paracortex is rich in T cells

11. Which molecules recognize and bind antigens
T F a) T cell receptors
T F b) B cell receptors
T F c) MHC1
T F d) MHC II

12. The following refers to the complement
T F a) C3a and C5a are not anaphylatoxins
T F b) C3b attaches to bacteria during opsonisation
T F c) It is activated by the classical, alternate and lectin pathways
T F d) The alternative pathway can be initiated by a bacterial cell wall

13. Methods of antigen-antibody detection include
T F a) Precipitation
T F b) Radioimmunoassays
T F c) Agglutination
T F d) PCR

14. Helper T cells receive antigens from
T F a) Macrophages
T F b) MHC II
T F c) Viruses
T F d) Bacteria

15. Common manifestations of immune dysfunction include
    - T F a) Autoimmune diseases
    - T F b) Allergy
    - T F c) Arthritis
    - T F d) Graft rejection

16. The following refers to antibodies
    - T F a) IgM participate in antigen trapping
    - T F b) IgG do not activate the complement
    - T F c) IgA participate in phagocytosis
    - T F d) IgD act as antigen receptors on naive B cells

17. The following are cell separation techniques
    - T F (a) Flow cytometry
    - T F (b) Centrifugation
    - T F (c) Immunoaffinity
    - T F (d) Adherence

18. The following are antigen recognizing molecules
    - T F (a) T Cell receptor
    - T F (b) Antibody
    - T F (c) MHC
    - T F (d) PRR

19. Malaria Rapid Test
    - T F a) Detects the malaria antigen in the sample
    - T F b) Detects the malaria antibody in the sample
    - T F c) Uses plasma samples
    - T F d) Uses whole blood samples

20. Samples for immunohistochemistry can be can be used in the following formats
    - T F a) Frozen
    - T F b) Free Floating
    - T F c) Paraffin embedded
    - T F d) Cytological

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SECTION B: [20 MARKS]

Answer all questions on separate answer sheets provided

1. State five functions of the complement system. [5]
2. What are the differences between acute inflammation and chronic inflammation? [5]
3. Compare and contrast a TCR and an immunoglobulin. [5]
4. State any two labelling isotopes and two enzymes which can be used in immunoassays. [5]

SECTION C: [60 marks]

Answer any 3 questions from this section on separate answer sheets provided

1. How are monoclonal antibodies produced in the laboratory? [20]
2. Compare and contrast innate and adaptive immunity. [20]
3. With the aid of diagrams, describe the structure of MHC1 and MHCII molecules. [20]
4. With the aid of diagrams, describe the principle of an indirect ELISA. [20]
5. Describe the processing and presentation of endogenous antigens. [20]