

BOWEN UNIVERSITY, IWO
(Of the Nigerian Baptist Convention)

COLLEGE OF HEALTH SCIENCES
MEDICAL LABORATORY SCIENCE PROGRAMME

2021/2022 FIRST SEMESTER EXAMINATION

MLS 313: BASIC IMMUNOLOGY; TIME: 2HRS

INSTRUCTION: ANSWER QUESTION ONE IN SECTION 'A' AND ANY THREE QUESTIONS IN SECTION 'B'

START EACH QUESTION ON A NEW PAGE

ALL QUESTIONS CARRY EQUAL MARKS

SECTION A

1. a. With a well-drawn and labeled immunoglobulin, describe its general structure (5 marks)
- b. Name the classes of immunoglobulin and state at least **two** properties each. (5 marks)
- c. State **one** function each of antibody binding fragment (Fab) and crystallisable fragment (Fc) of immunoglobulin. (2 marks)
- d. Define the following terms 'epitope', 'paratope', 'antigen', 'hapten', and 'antibody' (10 marks)
- e. Name **one** example of antigen-antibody reactions and its diagnostic importance in clinical chemistry (2 marks)
- f. List two properties of antigens (1 mark)

SECTION B

2. a. Write on 5 cells (**except the T-cells**) of the immune defense (5 marks)
 - b. List the subtypes of T-lymphocytes and explain their specific functions (7 marks)
 - c. Explain the importance of quantitative analysis of T-helper cells (CD4+) in HIV positive individuals (3 marks)
 - d. Describe how T-helper lymphocytes are activated (10 marks)
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4. a. State four (4) types of antigen-antibody reaction and explain one in detail. Your answer should include the type of antigen/antibodies involved and the observable end product of the reaction (10 marks)

- b. Name two (2) phagocytic cells and explain one in detail stating the structure, granule types and constituents, functions and life span. (10 marks)
- c. List five (5) factors affecting antigen-antibody reaction. (5 marks)
5. Discuss in details the two types of immune responses. Your answers should include definitions, components, mode of action, and relevant examples. (25 marks)
6. a) Discuss the term 'complement system.' Your answer should include definitions, types of pathways, and examples. (10 marks)
- b) Mention five (5) factors that affect immunity (5 marks)
- c) Define the following terms:
- i. Pinocytosis (2 marks)
 - ii. Opsonization (2 marks)
 - iii. Cytokines (2 marks)
 - iv. Chemokines (2 marks)
 - v. antigen (2 marks)