



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF NURSING & MIDWIFERY SCIENCES
End of Semester April 2025 Examinations**

COURSE CODE AND TITLE: BSN/BSM 223: Immunology

DATE: 8-APRIL-2025

Duration: 2 HOURS

Start: 9:00 AM

Finish: 11:00 AM

INSTRUCTIONS

1. This exam is out of 70 marks
2. This Examination comprises THREE Sections. Section I: Multiple Choice Questions (20 marks) Section II: Short Answer Questions (30 marks) and Section III: Long Answer Questions (20 marks)
3. Answer ALL Questions.
4. Do Not write anything on the question paper -use the back of your booklet for rough work if need be.

SECTION I: MULTIPLE CHOICE QUESTIONS (20 MARKS)

1. Tissue macrophage are mature:
 - A. B cells
 - B. T cells
 - C. NK cells
 - D. Monocytes
2. The antigen presenting cell;
 - A. May be a dendritic cell in the skin.
 - B. May be a T cell.
 - C. Does not produce cytokines which influence the adaptive response.
 - D. Matures upon antigenic stimulation and becomes a plasma cell.
3. Avidity is important because;
 - A. It amplifies the binding strength of low affinity Fab's.
 - B. Fc receptor binding depends on it.
 - C. G-protein-mediated signal transduction will not occur without it.
 - D. It result in the activation of high affinity antibody-producing clones.
4. Immunologic memory refers to;
 - A. Activation of phagocytic cells to ingest microbial invaders.
 - B. Changes in adaptive immune responses with subsequent encounters with antigen.
 - C. Constancy of the response of the innate immune response to a particular microbe.
 - D. Recognition of pathogen molecular patterns by pattern recognition receptors
5. The following cells are involved in innate immune responses and adaptive immune responses?
 - A. Dendritic cells
 - B. Natural Killer cells
 - C. Macrophages
 - D. Neutrophils
6. Xenografts are grafts exchanged between;
 - A. Close friends
 - B. Identical twins
 - C. Different individuals within a species
 - D. Different species
7. The inability to distinguish between self-cells and non-self-cells may lead to
 - A. Autoimmune diseases
 - B. Hypersensitivity
 - C. Immunodeficiency
 - D. Tolerance

8. The following initiates the classical pathway of the complement system
- A. C1q
 - B. C1r
 - C. C1s
 - D. C3b
9. Immunoglobulin classes must distinguished by the type of:
- A. Light chains they possess.
 - B. Carbohydrate on their light chains.
 - C. Constant regions in their light chains.
 - D. Heavy chains they possess.
10. CD8 is a marker of;
- A. B-cells
 - B. Helper T-cells
 - C. Cytotoxic T-cells
 - D. An activated macrophage
11. The primary lymphoid organs in which immunocompetent cells originate and mature;
- A. Thyroid and Peyer's patches
 - B. Thymus and bone marrow
 - C. Spleen and mucosal-associated lymphoid tissue (MALT)
 - D. Lymph nodes and thoracic duct
12. IgD participates in antigen recognition by;
- A. Immature T cells.
 - B. NK cells.
 - C. Macrophages.
 - D. B cells.
13. Innate host defense mechanisms are critical to the protection of the body because:
- A. They utilize antigen presenting cells already been induced by other immune responses.
 - B. The antibodies from the innate response are critical to neutralize bacterial toxins.
 - C. They are highly specific pathogens that avoid PAMP receptor recognition.
 - D. Provide immediate, continuous protection in absence of a specific immune response.
14. Defect in.....results to Di George syndrome:
- A Purine nucleoside phosphorylase.
 - B Bone marrow.
 - C Thymic development.
 - D DNA repair.

15. A hapten is:
- A. An epitope.
 - B. A paratope.
 - C. A small chemical grouping which reacts with preformed antibodies.
 - D. An immunogen.
16. The correct definition of autoimmunity include;
- A. Loss of tolerance to self-antigens
 - B. Increase of tolerance to self-antigens
 - C. Increase in clonal deletion of mutant cells
 - D. Manifestation of immunosuppression
17. The following Antibodies cross the placenta?
- A. IgA.
 - B. IgE.
 - C. IgG.
 - D. IgD
18. Acute inflammation characteristically involves:
- A. Constriction of arterioles.
 - B. Influx of macrophages.
 - C. Influx of mast cells.
 - D. Influx of neutrophils.
19. The following is a systemic autoimmune disease;
- A. Myasthenia gravis.
 - B. Systemic lupus erythematosus (SLE).
 - C. Hashimoto's thyroiditis.
 - D. Pernicious anemia.
20. The membrane attack complex consists of:
- A. C3a
 - B. C3b3b, Bb
 - C. C5b, 6, 7, 8, 9
 - D. Properdin

SECTION II: SHORT ANSWER QUESTIONS (30 MARKS)

1. State the Five (5) Inhibitors of the complement. (5 marks)
2. State Five (5) applications of Antigen-Antibody reactions (5 marks)
3. Define the following types of tissue transplants;
 - (i) Syngraft (2.5 marks)
 - (ii) Allograft (2.5 marks)
4. State Five (5), T-cell associated immunodeficiency conditions (5 marks)
5. Give Five (5) Comparisons between active and passive types of immunity (5 marks)
6. State Five (5) functions of Helper T-cells (5 marks)

SECTION III: LONG ANSWER QUESTION (20 MARKS)

1. Explain five (5) characteristics for each of the following Immunoglobulin classes
 - (i) Immunoglobulin M (IgM) (5 marks)
 - (ii) Immunoglobulin G (IgG) (5 marks)
 - (iii) Immunoglobulin A (IgA) (5 marks)
 - (iv) Immunoglobulin E (IgE) (5 marks)