



**AMREF INTERNATIONAL UNIVERSITY  
SCHOOL OF MEDICAL SCIENCES  
DEPARTMENT OF NURSING & MIDWIFERY SCIENCES  
END OF SEMESTER DECEMBER 2023 EXAMINATIONS**

**COURSE CODE AND TITLE: BSN 223 IMMUNOLOGY**

**DATE: 5-DECEMBER-2023**

Duration: 2 HOURS

Start: 9:00AM

Finish: 11:00AM

**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. The fundamental difference between primary and secondary organs of the lymphatic system is: -
  - A. Antibody production occurs only in the primary lymph organs
  - B. Complement production occurs only in the primary lymph organs
  - C. Maturation of lymphocytes occurs in secondary organs, and activation occurs in primary organs
  - D. Maturation of lymphocytes occurs in primary organs, and activation occurs in secondary organs
2. Antibodies produced against two or more epitopes of specific antigen are considered: -
  - A. Monoclonal
  - B. Pleomorphic
  - C. Dimorphic
  - D. Polyclonal
3. Skin testing for exposure to tuberculosis is an example of: -
  - A. Type I hypersensitivity
  - B. Type II hypersensitivity
  - C. Type III hypersensitivity
  - D. Type IV hypersensitivity
4. Lack of a thymus leading to below-normal lymphocyte count and no T cells would most likely be the caused by: -
  - A. Di-George's syndrome
  - B. Wiskott-Aldrich syndrome
  - C. Bare lymphocyte syndrome
  - D. Bruton's agammaglobulinemia
5. Physical symptoms of inflammation like pain, swelling, and redness occurs with: -
  - A. Production of antibody
  - B. Secondary immune response
  - C. Increased blood flow and neutrophils to site
  - D. Activation of NK cells
6. The following components of this system is the most important in chemotaxis: -
  - A. C1q
  - B. C5a
  - C. C3b
  - D. C4a

7. The following best describes an autograft of a burn victim: -
- A. Transplant from one region of a person to another region
  - B. Transplant from one person to a genetically identical person
  - C. Trans plant from one species to the same species
  - D. Transplant from one species to another species
8. The characteristic of the adaptive immune response is: -
- A. Physical barriers
  - B. Chemical barriers
  - C. Clonal expansion of effector cells
  - D. Inflammatory mediators
9. The following would be the best immunogen: -
- A. Protein with a molecular weight of 200,000
  - B. Nylon
  - C. Polysaccharide with a molecular weight of 250,000
  - D. Protein with a molecular weight of 175,000
10. The immunity conferred to individuals upon attack with chicken pox is: -
- A. Artificially acquired active immunity
  - B. Naturally acquired active immunity
  - C. Naturally acquired passive immunity
  - D. Artificially acquired passive immunity
11. Majority of Auto-immune diseases are: -
- A. Cell mediated
  - B. Antibody mediated
  - C. Macrophage mediated
  - D. Mast cells mediated
12. The specificity of an antibody is due to: -
- A. Its valence
  - B. The heavy chains
  - C. The Fc portion of the molecule
  - D. The variable portion of the heavy and light chain

13. Rhesus hemolytic disease of the newborn involves: -
- A. Immunoglobulin E
  - B. Antibody to cell surfaces
  - C. Soluble immune complexes
  - D. Cytokine release from T-Cells
14. B cells that produce and release large amounts of antibody are called: -
- A. Memory cells
  - B. Basophils
  - C. Plasma cells
  - D. Killer cells
15. The following is an autoimmune disorder: -
- A. Sickle cell disease
  - B. Severe combined immune deficiency (SCID)
  - C. Rheumatoid arthritis
  - D. Pernicious anaemia
16. The following is a non-organ specific (systemic) disease: -
- A. Myasthenia
  - B. Systemic lupus erythematosus (SLE)
  - C. Hashimoto's thyroiditis
  - D. Pernicious anemia
17. The following is the "membrane attack complex" of Complement activation: -
- A. C1
  - B. C3
  - C. C4, C2, C3
  - D. C5b, C6, C7, C8, C9
18. The IgG subclass most efficient at crossing the placenta is: -
- A. IgG1
  - B. IgG2
  - C. IgG3
  - D. IgG 4
19. The visible serological reaction between soluble antigen and its specific antibody is: -
- A. Sensitization
  - B. Precipitation
  - C. Agglutination
  - D. Opsonization

20. The following immune cells are specialized with phagocytosis: -

- A. Lymphocytes
- B. Monocytes
- C. Dendritic cells
- D. Macrophages

**SECTION II: SHORT ANSWER QUESTIONS**

**(30 MARKS)**

1. Describe briefly two (2) disease conditions associated with T-cell immunodeficiency (6 Marks)
2. State the two (2) forms of Immunoglobulin A and its functions (6 Marks)
3. Explain the following determinants of antigenicity (6 Marks)
  - (i) Size
  - (ii) Chemical nature
  - (iii) Foreignness
4. Differentiate between helper T cells (CD4) and cytotoxic T (CD8) cells (6 Marks)
5. Describe three (3) mechanisms of Immunological tolerance (6 Marks)

**SECTION III: LONG ANSWER QUESTION**

**(20 MARKS)**

1. Discuss the biologic effects of the Complement system (10 Marks)
2. Describe the mechanism and manifestation of immune complex hypersensitivity (10 Marks)