



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

BSN 223: IMMUNOLOGY

DATE: 6TH APRIL 2023

Duration: 2 HOURS

Start: 11:15AM

Finish: 1:15AM

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 T cell that expresses the CD8 marker and acts specifically to kill tumours or virally infected cells is: -
 - A. Helper T
 - B. T suppressor
 - C. T cytotoxic
 - D. T inducer/suppressor

2. The following is correct regarding where B and T cells mature, just prior to traveling to lymph nodes: -
 - A. B cells mature in the thymus; T cells mature in the thyroid gland
 - B. B cells mature in the thyroid; T cells mature in the thymus
 - C. B cells mature in the bone marrow; T cells mature in the thymus
 - D. B cells mature in the pancreas; T cells mature in the bone marrow

3. A specific component of the adaptive immune system that is formed in response to antigenic stimulation is: -
 - A. Lysozyme
 - B. Complement
 - C. Commensal organisms
 - D. Immunoglobulin

4. The name of the process by which phagocytic cells are attracted to a substance such as a bacterial peptide is: -
 - A. Diapedesis
 - B. Degranulation
 - C. Chemotaxis
 - D. Phagocytosis

5. Immunoglobulin(s) that help(s) initiate the classic complement pathway is: -
 - A. IgA and IgD
 - B. IgM only
 - C. IgG and IgM
 - D. IgG only

6. Autoimmunity is: -

- A. Increase of tolerance to self-antigens
- B. Loss of tolerance to self-antigens
- C. Increase in clonal deletion of mutant cells
- D. Manifestation of immunosuppression

7. The following immune cells are specialised with phagocytosis: -

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

8. B cells that produce and release large amounts of antibody are called: -

- A. Memory cells
- B. Basophils
- C. Plasma cells
- D. Killer cells

9. The initial complement component that is bound by complement fixing antibodies is: -

- A. C9
- B. C5a
- C. C1s
- D. C1q

10. The following immunoglobulin class crosses the placenta: -

- A. IgA
- B. IgG
- C. IgD
- D. IgM

11. Type IV hypersensitivity is often referred to as: -

- A. Immediate
- B. Delayed
- C. Anaphylactic
- D. Allotypic

12. These cells process a protein antigen, break it into peptides, and present it in conjunction with class II MHC molecules on the cell surface where it may interact with appropriate T cell receptors

A. Antigen Presenting Cells

B. Dendritic cells

C. Antibodies

D. Antigens

13. Di George syndrome results from defect in: -

A. Purine nucleoside phosphorylase

B. Thymic development

C. DNA repair

D. CD3

14. The immune cell responsible for the quickest release of histamine that causes the red itchy welts associated with allergies is: -

A. Mast Cell

B. Lymphocyte

C. Eosinophil

D. Basophil

15. Rhesus haemolytic disease of the New-born involves: -

A. IgE

B. Antibody to cell surfaces

C. Soluble immune complexes

D. Cytokine release from T-Cells

16. The following Autoimmune diseases is organ specific: -

A. Systemic lupus erythematosus

B. Scleroderma

C. Rheumatoid arthritis

D. Type I diabetes mellitus

17. The following is a true definition of cytokines: -

- A. Signalling proteins and glycoproteins that are used extensively in cellular communication.
- B. Cytokines are cells of the immune system
- C. Cytokines are not involved in human infections
- D. Cytokines do not bind to receptors on the plasma membrane and elicit their effects through the activation of an intracellular signalling cascade

18. The following is an autoimmune disorder: -

- A. Sickle cell disease
- B. Severe combined immune deficiency (SCID)
- C. Rheumatoid arthritis
- D. Pernicious anaemia

19. Monoclonal antibodies recognize a single: -

- A. Antigen
- B. Bacterium
- C. Epitope
- D. B cell

20. A living microbe with reduced virulence that is used for vaccination is considered:-

- A. A toxoid
- B. Dormant
- C. Virulent
- D. Attenuated

SECTION B: SHORT ANSWER QUESTIONS (30 MARKS)

1. State five (5) functions of the Complement system (5 Marks)
2. State five (5) factors which affect Antibody production (5 Marks)
3. Briefly describe type II hypersensitivity. (5 Marks)
4. State FIVE organ-specific autoimmune diseases (5 Marks)
5. Outline the function of the following immune cells (5 Marks)
 - (i) Helper T-cells
 - (ii) T-suppressor cells
 - (iii) T-cytotoxic cells
6. Explain the sequences of events in acute inflammation in response to an injury (5marks)

SECTION C: LONG ANSWER QUESTION – (20 MARKS)

1. Differentiate between Active and Passive immunity (10 marks)
2. Describe the determinants of antigenicity (10 marks)