



**KISII UNIVERSITY**  
**UNIVERSITY EXAMINATIONS**

**FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF  
BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES  
FIRST SEMESTER, 2021/2022  
(FEBRUARY - JUNE, 2022)**

**MELS 143: IMMUNOLOGY**

**STREAM: Y1 S1**

**TIME: 3 HOURS**

**DAY: MONDAY, 2:00 – 5:00 P.M.**

**DATE: 09/05/2022**

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- 1. Do not write anything on this question paper.***
  - 2. Answer ALL the questions in section A and B, in section C answer question ONE (Compulsory) and any other question.***

**SECTION A (ANSWER ALL QUESTIONS)-20 MARKS**

1. Which one of the following immune cells of the myeloid system has multiple projections on its surface?
  - A. Macrophage.
  - B. Neutrophils.
  - C. NK cells.
  - D. Dendritic cells.
2. Which of the following class of immunoglobulin is a monomer?
  - A. IgA
  - B. IgM
  - C. IgD
  - D. IgG
3. \_\_\_\_\_ the portion of an antigen that is recognized and bound by an antibody (Ab) or a T-cell receptor (TCR)?
  - A. Hapten.
  - B. Epitope.
  - C. Fragment cristalizable (FC).

- D. FAB.
4. Which of the following cells would become macrophages when they migrate to tissues?
    - A. Monocytes.
    - B. T-lymphocytes.
    - C. Dendritic cell.
    - D. B-lymphocytes.
  5. Which one of the following is not a family of cytokines?
    - A. Interleukin (IL)
    - B. Interferon (IFN)
    - C. Colony Stimulating factor (CSF)
    - D. Opsonin
  6. Which of the following terminology best describes the ability to induce a humoral (antibody) and/or cell-mediated immune response?
    - A. Immunogenicity.
    - B. Avidity.
    - C. Heterogeneity.
    - D. Heteroimmunization
  7. Which of the following types of transplantation involves the transplantation of organs or tissues from a donor to a non-genetically identical individual of the same species?
    - A. Xenograft
    - B. Autograft
    - C. Allograft
    - D. Heterograft
  8. Which of the following is an organ specific autoimmune disease?
    - A. Multiple sclerosis
    - B. Systemic Lupus Erythromatosus
    - C. Rheumatoid arthritis
    - D. Scleroderma
  9. Which of the following classes of immunoglobulin is the most abundant in serum following a secondary response to an infection?
    - A. IgG
    - B. IgA
    - C. IgM
    - D. IgD
  10. Hemolytic disease of the newborn (HDNB) is an example of which type of hypersensitivity reaction?
    - A. Type I hypersensitivity
    - B. Type II hypersensitivity

- C. Type III hypersensitivity
  - D. Type IV hypersensitivity
11. Which of the following cell does not produce cytokines?
- A. Macrophages
  - B. Neutrophils
  - C. Basophils
  - D. NK cells
12. Which of the following family of cytokines inhibits viral infections?
- A. Interleukin
  - B. Interferon
  - C. Chemokine
  - D. Tumor Necrosis factor
13. Which of the following cells of the immune system are non-leukocytic cells?
- A. Lymphocytes
  - B. Monocytes
  - C. Neutrophils
  - D. Stromal cells
14. The following are secondary lymphoid tissue except?
- A. Spleen
  - B. Lymphonodes
  - C. Thymus
  - D. Tonsils
15. Which of the following lymphocyte is natural killer cell?
- A. B lymphocytes
  - B. T lymphocytes
  - C. Large granulocyte lymphocyte (LGL)
  - D. T-helper cells
16. \_\_\_\_\_ would develop to plasma cell to produce antibodies upon activation
- A. B-lymphocytes
  - B. T-lymphocytes.
  - C. Monocytes.
  - D. Dendritic cells
17. Which of the following statements best explains why CD4 T-cells are also referred to as helper cells (Th)?
- A. They help in the activation of B and other T cells
  - B. They facilitate the maturation of B and other T cells
  - C. They are the most important cell in the inflammatory responses
  - D. They originate from the thymus
18. Which of the following is not a myeloid cell?

- A. B-lymphocytes
  - B. Monocytes
  - C. Neutrophils
  - D. Basophil
19. Which of the following immune cells plays would migrate to tissues to become mast cell?
- A. Basophils
  - B. Eosinophils
  - C. Neutrophils
  - D. Macrophages
20. Which of the following terminology is synonymous to an antigen?
- A. Immunoglobulin
  - B. Immunogen
  - C. Immunocyte
  - D. Hapten
  - E. Receptor

**SECTION B-STRUCTURED QUESTIONS (ANSWER ALL QUESTIONS)-20**

**MARKS**

- 1) Draw a well-labeled structure of an antibody molecule [5 marks]
- 2) Outline the main events involved in an inflammatory response [5 marks]
- 3) Differentiate between the following terminologies: [2 marks]
  - i. Affinity and avidity
  - ii. Phagocytosis and opsonization
- 4) Using a diagram, illustrate the sequential IgM-IgG humoral response [5 marks]
- 5) Highlight the etiology of autoimmunity [3 marks]

**SECTION C (QUESTION ONE IS COMPULSORY THEN CHOOSE ANY OTHER QUESTION)-30 MARKS**

1. Discuss 3 lines of protection against infectious agent [15 marks]
2. Describe the criteria used in transplantation [15 marks]
3. Differentiate the 4 types of hypersensitivity reactions [15 marks]