



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

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