



KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

**FIRST YEAR EXAMINATION FOR THE AWARD OF
THE DEGREE OF BACHELOR OF SCIENCE IN MEDICAL LABORATORY
SCIENCES**

**SECOND SEMESTER 2015/2016
(JANUARY-APRIL 2016)**

MELS 245: BASIC IMMUNOLOGY.

STREAM: Y1S2

TIME: 3 HOURS

DAY: FRIDAY 03.00 – 06.00

DATE: 08/04/2016

INSTRUCTIONS

- 1. Do not write anything on this Question paper.***
- 2. Answer All Questions.***

KISII UNIVERSITY
SCHOOL OF HEALTH SCIENCES
DEPARTMENT OF MEDICAL LABORATORY SCIENCES
MELS 245: BASIC IMMUNOLOGY APRIL EXAM SERIES

SECTION A (ANSWER ALL QUESTIONS)-20 MARKS

1. What are peripheral cells called if they have never come in contact with antigen?
 - a) Mature cell
 - b) Immature cell
 - c) Naïve cell
 - d) Plasma cell
 - e) Stem cell
2. Which of the following can induce immunity?
 - a) Bacteria
 - b) viruses
 - c) parasites
 - d) all the above
3. Tears contain...
 - A. IgA
 - B. IgG
 - C. lysozyme
 - D. none of the above
 - E. all of the above
4. Macrophages...
 - A. circulate in the blood stream
 - B. produce nitric oxide
 - C. have receptors for IgM
 - D. are the first leucocytes to arrive at the site of a skin infection
 - E. are the main immune cells for dealing with viruses
5. Phagocytosis...
 - A. is carried out by cells of the adaptive immune system
 - B. is restricted to macrophages
 - C. is important in bacterial infections
 - D. is a process that does not involve energy
 - E. results in division of the cell
6. Which of the following is the correct order of developmental stages for T cells?
 - a) Double-positive (DP) then double-negative (DN) then single-positive (SP)
 - b) Double-positive (DP) then single-positive (SP) then double-negative (DN)
 - c) Double-negative (DN) then double-positive (DP) then single-positive (SP)

- d) Double-negative (DN) then single-positive (SP) then double-positive (DP)
7. In which of the following developmental stages of T cells are surface molecules CD4 and CD8 NOT expressed?
- a) DN cell
 - b) DP cell
 - c) SP cell
 - d) Mature T cell
8. Natural killer (NK) cells are excellent killers of cells infected by some _____. They also have an additional role of stimulating the _____ immune response.
- a. Bacteria; Adaptive
 - b. Viruses; Adaptive
 - c. Bacteria; Innate
 - d. Viruses; Innate
9. Which of the following is NOT true about live vaccines?
- a. They were the first vaccines to be discovered
 - b. They are currently the least effective vaccines
 - c. They replicate and thus deliver sustained doses of antigen
 - d. They deliver antigenic peptides to MHC class I
 - e. They replicate at the infection site, focusing immune response
10. Mucus is a _____ barrier
- a) anatomical
 - b) physiological
 - c) phagocytic
 - d) inflammatory
11. Which among the following is anti-bacterial ?
- a) interferon
 - b) lysozyme
 - c) hormone
 - d) protein
12. Which of the following is anti-viral
- a) lysozyme
 - b) interferon
 - c) protein
 - d) hormone
13. Identify the phagocytic cells from the following combinations
- a) Macrophage and neutrophil
 - b) Lymphocyte and eosinophil
 - c) Macrophage and eosinophil
 - d) Eosinophil and neutrophil
14. Histamine is secreted by

- a) Epithelial cell
 - b) Mast cells
 - c) Red blood cells
 - d) White blood cells
15. Cellular immunity consists of
- a) Normal cells
 - b) pathological cells
 - c) cytotoxic cells
 - d) immunoglobulin molecules
16. MHC genes in mouse is located in
- a) Chromosome 1
 - b) Chromosome 2
 - c) Chromosome 4
 - d) Chromosome 6
17. Which of the following is an auto immune disease?
- a) AIDS
 - b) Multiple sclerosis
 - c) Cancer
 - d) Asthma
18. Which antibody characterizes the allergic reaction
- a) IgG
 - b) IgA
 - c) IgM
 - d) IgE
19. Which of the following is ~~NOT~~ involved in the antigen-antibody interaction?
- a) Electrostatic interactions between charged side-chains
 - b) Hydrophobic interactions
 - c) Van der Waals forces
 - d) Hydrogen bonds
 - e) Peptide bonds
20. Which of the following best describes cross-reactivity?
- a) When one antibody can bind with one antigen
 - b) When one antibody can bind with multiple antigens
 - c) When multiple antibodies can bind with one antigen
 - d) When multiple antibodies can bind with multiple antigens

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

- 1) Explain how the innate immune system function in defense against invading pathogens [5 marks]
- 2) Explain different types of adjuvants with emphasis on their preparation [5 marks]
- 3) With emphasis on type of antibodies account for antibody markers in human immune body system [5 marks]
- 4) Explain the role of Thymus in T cell education [5 marks]

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

- NP/C
- 1) Describe antigen processing and presentation with reference to the type of antigens and immune responses [15 marks]
 - 2) Discuss Leukocyte activation and mechanisms of microbial killing in inflammatory reactions [15 marks]
 - 3) Discuss antibody valency in relation to antibody-antigen interaction and immunoassays [15 marks]