



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2019/2020 CONTINUING EDUCATION
PROGRAMME (CEP) AUGUST 2019 SESSION EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE IN NURSING

HNS 192: IMMUNOLOGY

DATE: Monday, 9th December 2019

TIME: 2.00 pm -4.00 pm

SECTION A: MULTIPLE CHOICE QUESTIONS (20X1 = 20 MARKS)

1. The body's immune system does not provide protection against:
 - a. Microbial pathogens
 - b. Microbial toxins
 - c. Tumor cells
 - d. Leukopenia
2. The following is not an acute phase protein:
 - a. Mannose-binding lectin
 - b. Complement components like C3, C4 and C9
 - c. C-reactive protein
 - d. Pepsin
3. ONE the following events comes first during the inflammation process:
 - a. Secretion of cytokines by the resident effector cells
 - b. Vasodilation and increased vascular permeability
 - c. Movement of fluid, proteins and inflammatory cells to the site
 - d. Redness, heat, swelling and pain
4. Active immunity is:
 - a. Can be induced by breast-feeding
 - b. Results from natural infection or vaccination
 - c. Can be induced in the foetus by maternal transplacental Ig G
 - d. Can result in immunological memory needed for effective protection in subsequent contact with antigen
5. Innate immunity:
 - a. Is the second line of defense after adaptive immunity fails
 - b. Is the first line of defense preceding adaptive immunity fails
 - c. Is specific and its responses increase and improve as it is being mounted
 - d. Is handled by B cells and T cells
6. One of the following statements is wrong:
 - a. Mast cells are derived from basophils
 - b. Macrophages are derived from monocytes
 - c. Plasma cells are derived from B cells
 - d. Microglial cells are macrophages found in the brain
7. The CD marker found present on granulocytes, monocytes and T lymphocytes is:
 - a. CD45
 - b. CD15
 - c. CD 14
 - d. CD3
8. ONE of the following is an example of primary lymphoid organ in an adult human being:

- a. Thymus gland
 - b. Spleen
 - c. Lymph node
 - d. Payer's patches
9. Haptens are:
- a. Low molecular weight substances that are too small to be immunogenic on their own
 - b. Sites on or within the antigen molecule with which the antibody reacts
 - c. The antigen-binding sites on the antibody molecule
 - d. Substances that increase the ability of the antigen to stimulate the immune system
10. The following are bacterial superantigens. Which one is not?
- a. Staphylococcal enterotoxin
 - b. Staphylococcal TSS1-1
 - c. Streptococcal pyrogenic exotoxin
 - d. Botulinum toxin
11. The immune cells do not use _____ as receptors to recognize foreign antigens:
- a. Ig M and Ig D on B cells
 - b. α and β chains on T cells
 - c. MHC antigens on nucleated cells
 - d. MHC antigens on non-nucleated cells
12. The site (or domain) on the antibody for binding of the complement component C1q is:
- a. C12 (IgE) and C13 (Ig A)
 - b. CH2 (IgG) and CH3 (Ig M)
 - c. C12 (IgD) and C13 (Ig A)
 - d. CH2 (IgD) and CH3 (Ig G)
13. Immunoglobulin molecules are divided into distinct classes (eg α , γ , μ , δ and ϵ) based on differences in amino acid sequence of the _____ regions of the _____ chains.
- a. Variable, light
 - b. Variable, heavy
 - c. Constant, heavy
 - d. Constant, light
14. Both the J chain and secretory piece of the antibody are found in:
- a. IgA monomer
 - b. Ig G monomer
 - c. Ig M pentamer
 - d. Ig A dimer
15. The antigen-antibody interaction cannot lead to the formation of:
- a. Hydrophobic bonds
 - b. Ionic bonds
 - c. Phosphodiester bonds
 - d. Hydrogen bonds
16. In quantitative agglutination tests:
- a. Absence agglutination indicates positive result
 - b. The molecular size of the antigen-antibody complex is quantified
 - c. The amount of antibody involved in agglutination is quantified

- d. There is no lattice formation
- 17. The routine ABO blood grouping test is an example of:
 - a. I haemagglutination test
 - b. Haemagglutination inhibition test
 - c. Precipitation test
 - d. Neutralization test
- 18. Identify the wrong statement with respect to the functions of the complement system:
 - a. Formation of intravascular immune complexes
 - b. Attraction of neutrophils to the site of microbial attack
 - c. Opsonization
 - d. Immune clearance
- 19. Examples of C3 convertase include:
 - a. **C4b2a and C3bBb**
 - b. **C4a2b and C3aBa**
 - c. **C1qrs and C3bBb3b**
 - d. **C4b2a3b and C3bBb3b**
- 20. Diapedesis refers to:
 - a. Movement of phagocytes through the capillary endothelium during inflammation
 - b. Accumulation of fluid at the affected site during inflammation
 - c. Dilation of the blood vessels due to secretion of cytokines
 - d. Engulfment and subsequent destruction of the foreign antigens by the phagocytes

SECTION B: SHORT ANSWER QUESTIONS (8X5 = 40MARKS)

- 1. Enumerate five characteristics of adaptive immunity (5 marks)
- 2. State five differences between the typical lesions of chickenpox and smallpox (5 marks)
- 3. Describe the mechanisms responsible for CD4+ T cell destruction in HIV/AIDS patients (5 marks)
- 4. Explain the biological role of the complement (5 marks)
- 5. Explain how pathogens evade the immune system (5 marks)
- 6. State five molecular diagnostic methods citing the infectious diseases they are used to confirm (5 marks)
- 7. Explain the mechanism of myasthenia gravis (5 marks)
- 8. Explain the mechanism of type 1 hypersensitivity (5 marks)

SECTION C: ESSAY QUESTIONS (20X2 = 40MARKS)

- 1. Describe the Lectin Pathway of complement activation (20 marks)
- 2. Describe the features of Ig A, Ig M, Ig G, and Ig E. (20 marks)