



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

REGINA PACIS INSTITUTE OF HEALTH SCIENCES

MAIN EXAMINATION

AUGUST – DECEMBER 2017 TRIMESTER

FACULTY OF SCIENCES

DEPARTMENT OF NURSING

REGULAR PROGRAMME

UNUR / NUR 200: IMMUNOLOGY

P.O. Box 62157
00200 Nairobi - KENYA
Telephone: 891601-6
Fax: 254-20-891084
E-mail: academics@cuea.edu

Date: DECEMBER 2017

Duration: 3 Hours

INSTRUCTIONS: Answer ALL Questions

PART -I: MULTIPLE CHOICE QUESTIONS (MCQs) 20 MARKS:

- Q1. The cell-mediated immune response is performed by:
- B-lymphocyte
 - Macrophage
 - T-lymphocyte
 - Plasma cell
- Q2. The following cell type is involved in antibody production:
- Mast cells
 - Reticulocytes
 - Fibroblasts
 - Plasma cells
- Q3. Regarding the immune system:
- Activated T cells differentiate into plasmablasts.
 - Helper T cells are responsible for secondary immune response.
 - Each lymphocyte recognises several specific antigens.
 - Lymphokines enhance the action of macrophages.
- Q4. Allergy is a consequence of the release of histamin and heparin from:
- Mast cells, which induces bronchoconstriction.
 - Plasma cells, which induces antibody release.
 - Eosinophil, which induces proliferation of basophils.

- d) Epithelial cells, which induces hyposecretion.
- Q5. Concerning B cells:
- a) They can differentiate into plasma cells.
 - b) They must interact with macrophages before they can produce antibody.
 - c) They are derived from thymus.
 - d) They are more common than T cells in the peri arterial lymphatic sheaths in the spleen.
- Q6. One principal function of complement is to
- a) inactivate perforins
 - b) mediate the release of histamine
 - c) Bind antibodies attached to cell surfaces and to lyse these cells
 - d) phagocytize antigens
- Q7. One principal function of the Class I and Class II major histocompatibility complex S proteins is to:
- a) Transduce the signal to the T-cell interior following antigen binding
 - b) Mediate immunoglobulin class switching
 - c) Present antigen for recognition by the T-cell antigen receptor
 - d) Stimulate production of interleukins
- Q8. Which of the following immunoglobulins is present normally in plasma at the highest concentration?
- a) IgG
 - b) IgM
 - c) IgA
 - d) IgD
- Q9. Which is principal immunoglobulin found in secretions such as milk?
- a) IgG
 - b) IgM
 - c) IgA
 - d) IgD
- Q10. Individuals unable to make the J protein found in certain immunoglobulins would be expected to have frequent infections of the:
- a) brain.
 - b) blood.
 - c) pancreas.
 - d) intestinal tract.
- Q11. Which of the following statements best characterizes an antibody?
- a) An antibody contains high molecular weight RNA as its basic structure.

- b) An antibody is composed of protein and cannot be distinguished from the albumin fraction of the serum proteins.
- c) An antibody is composed of four identical protein subunits which may be caused to dissociate by treatment with urea.
- d) An antibody contains protein as its major chemical component and its synthesis may be elicited by the administration of a foreign protein or polysaccharide.

Q12. The class of an immunoglobulin is determined by

- a) Class I and Class II major histocompatibility complex proteins
- b) is determined by the carbohydrate attached to the light chain is
- c) is determined by the heavy chain type
- d) Is determined by the J-chain

Q13. Antibodies react with antigens

- a) because both are made by lymphocytes
- b) because of complementary of molecular fit of both with antigen
- c) because both have light chain and heavy chain polypeptides
- d) cause histamine release

Q14. A receptor for the human immunodeficiencyVirus (HIV) is

- a) CD2
- b) CD3
- c) CD4
- d) CD8

Q15. The major role of the complement system is to work in conjunction with

- a) antibodies to lyse cells via the C8 and C9 components
- b) the major histocompatibility complex for cell recognition
- c) antibodies to opsonize cells
- d) the T-cell receptor for production of lymphokines

Q16. An immunodeficiency in a 5 year old boy with chronic granulomatous disease is

- a) Inability of polymorphonuclear leukocytes (PMN) to ingest bacteria
- b) Reduced levels of the fifth component of complement (C 5a)
- c) Dysgammaglobulinemia
- d) Inability of PMNs to kill already ingestedBacteria

Q17. Which of the following binds to class II histocompatibility antigens

- a) CD2
- b) CD3
- c) CD4
- d) CD8

Q18. Which immunoglobulin has the highest level in a normal 1 day old infant?

- a) IgA

- b) IgG
- c) IgM
- d) IgD

- Q19. What autoimmune disease is characterized by antibodies against intrinsic factor?
- a) Congenital agammaglobulinemia
 - b) Pernicious anemia
 - c) Wiskott-Aldrich syndrome
 - d) Graves' disease
- Q20. Wairimu has been HIV positive for the past 6 years. His disease has been slowly progressing. Mutiso, his only partner for the past 3 years, is free of the disease. A plausible explanation for Mutiso lack of infection would be:
- a) His CD4/CD8 ratio is probably greater than 2
 - b) He has a high concentration of NK cells that kill the virus
 - c) He lacks the co-receptor CXCR4
 - d) He has built up a high titre of anti-GP160 antibody

PART-II: SHORT ANSWER QUESTIONS (SAQs)

(40 MARKS):

- Q1. Define the following terms (1marks each)
- a) Immunology
 - b) Immunosuppression
 - c) Immune response
 - d) Human leucocyte antigen
 - e) Autoimmune
- Q2. Draw a well labelled diagram and indicate structure of antibody (5marks)
- Q3. Outline 5 functions of immune system (5marks)
- Q4. Outline the alternative pathway of complement system (6marks)
- Q5. Outline 5 typesgraft rejection (5marks)
- Q6. Outline 4 the types of grafts (4marks)
- Q7. Outline 5 lymphoid organs in human body (5marks)
- Q8. Draw a well labelled diagram of HIV virus (5marks)

PART III: LONG ANSWER QUESTIONS (LAQs)

40 MARKS:

- Q1. Regarding the immune system:
- a) Compare and contrast innate and adaptive immunity (10marks)

b) Compare and contrast primary and secondary immune cells **(10marks)**

Q2. Discuss HIV/AIDs under the following topic

a) Mode of transmission **(4marks)**

b) Lifecycle of HIV virus **(6marks)**

c) The effects of HIV and AIDS on individuals, families, communities and the nation **(5marks)**

d) preventive and rehabilitative measures of HIV/AIDS **(5marks)**

END