



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

SECOND YEAR, FIRST TRIMESTER EXAMINATION

**FOR THE DEGREE IN BSC. CLINICAL MEDICINE, SURGERY
AND COMMUNITY HEALTH**

COURSE CODE: HCI 201

COURSE TITLE: CLINICAL IMMUNOLOGY AND IMMUNOPATHOLOGY

DATE: Thursday 13th January 2022

TIME: 2:00 -5:00Pm

INSTRUCTIONS TO CANDIDATES

Answer All Questions

Section A: Multiple Choice Questions (MCQ)

20 Marks.

Section B: Short Answer Questions (SAQ)

40 Marks.

Section C: Long Answer Question (LAQ)

40 Marks

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of ~~17~~ Printed Pages. Please Turn Over.

HCI 201: Clinical Immunology and immunopathology

Section A: Multiple Choice question

20 Marks

- 1) One of the following is part of the innate immune, which one is not?
 - a) Th I Lymphocytes
 - b) Th2 Lymphocyte
 - c) Th3 lymphocyte
 - d) T regulatory cells
 - e) Neutrophil
- 2) Which a component adaptive immune system?
 - a) Specificity of immune responses
 - b) Recognition offending microbes
 - c) Specialized immune responses
 - d) Memory of previous encounter with an antigen.
 - e) Diversified immune response
- 3) Th2 Lymphocytes are essential in the immune response.
 - a) In allergic conditions
 - b) In response to viruses
 - c) In responses to intracellular bacteria
 - d) In response to fungi
 - e) In response to allergic conditions and parasites
- 4) Which of these cells is responsible for Type IV hypersensitivity reaction?
 - a) Antigen presenting cells
 - b) Eosinophil
 - c) Macrophages
 - d) Basophil
 - e) Activated macrophages
- 5) Which immunoglobulin predominantly confer immunity at the mucosal epithelium?
 - a) IgG2
 - b) IgM
 - c) IgE.
 - d) IgD
 - e) IgA2

- 6) MHC Class II restriction applies to which of these cells?
- a) CD4 +Tells
 - b) CD8 + T celles
 - c) CD20 B cells
 - d) CD19+ B Cells
 - e) CD21/22+Tcells
- 7) MHC Class II is expressed on which of these cells?
- a) CD4 Cells
 - b) Macrophages
 - c) Dendritic cells
 - d) A, B, C
 - e) Stem cell
- 8) Cell mediated cytotoxicity is associated with which group of cells?
- a) T-helper cells
 - b) CD8+Tand CD4 + T helper cells
 - c) Natural Killer cells (NKCs)
 - d) B & C
 - e) Monocytes
- 9) Which one of these is under non-specific immune defence against pathogens?
- a) Helper T cells
 - b) Neutrophil
 - c) Cell-mediated immunity
 - d) Cytotoxic T cells
 - e) Stem cells
- 10) Binding of B cells immunoglobulin by an epitope may result into which of the following:
- a) Plasma cells and T cytotoxic cells
 - b) Memory cells and T cytotoxic cells
 - c) Plasma cells for antibody production and memory cells for primary response
 - d) Plasma cells for antibody production and memory cells for secondary response
 - e) Activation of platelets
- 11) What is the role of C3b immune response to pathogens?

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- a) Is chemotactic
 - b) Is an anaphylatoxin
 - c) It is an opsonin
 - d) Is the inactive form of C3
 - e) Immune regulator
- 12) Which of the listed immune cells below gets activated the earliest?
- a) Killer T cells
 - b) Plasma cells
 - c) Helper T cells
 - d) Cytotoxic T cells
 - e) CD 34+ bearing cells
- 13) Which of the following statements is true about immunization?
- a) Rapid response and memory
 - b) It cannot lead to host death
 - c) It uses only dead pathogens
 - d) Must not be boosted with the same antigen
 - e) Only adjuvant mixed with immunogens are delivered safely
- 14) Which combination constitute antigen presenting cells?
- a) B-cells, Monocytes, Dendritic cells
 - b) Reticulocytes, phagocytes and endothelial cells
 - c) Leucocytes and basophils
 - d) Eosinophils and monocytes
 - e) Neutrophils, Macrophages and Dendritic cells
- 15) Which cell population is commonly elevated in allergic responses?
- a) Mast cells and IgE
 - b) IgE and reticulocytes
 - c) IgM and mast cells
 - d) Mast cells and anti-histamine
 - e) Erythrocytes
- 16) Which of the following is CORRECT in reference to complement activation?
- a) Complement plus Red blood cells leads to lysis

- b) Complement plus specific antibody on red blood cells leads to lysis
 - c) Complement plus red blood cells leads to formation of complexes
 - d) Antibody plus antibody causes lysis of Red blood cells
 - e) Leucocytes are resistant to complement lysis
- 17) Which of the following proteins causes **increased** anaphylaxis?
- a) C5a
 - b) C4b
 - c) C4a
 - d) C6a
 - e) C7a
- 18) Which of the following conditions require Cytotoxic T lymphocyte (CD8+ Cell responses)?
- a) Intracellular viral infection
 - b) Nematode infections
 - c) Gastrointestinal infection due to Staphylococcal disease
 - d) Parasitic infection
 - e) Malaria pathogens
- 19) Which of the following cells is a part of MHC Class II antigen presenter?
- a) Hepatocytes
 - b) B lymphocytes
 - c) Monocytes
 - d) Erythrocytes
 - e) Pronormoblasts
- 20) Which of these is the main reason why anti-tetanus serum is given to injured victims?
- a) For inhibiting the growth of the pathogen
 - b) For neutralization of toxins
 - c) For neutralization of complement proteins which may cause hypersensitivity
 - d) For enhancing antibody reactions
 - e) Active immunization

Section B: Short Answer Questions

(40 marks)

1. Classify the disorders of the immune system with 2 examples in each case (10 marks)
2. Write short notes on
 - a. The role of T-helper cells (5marks)
 - b. Role of infections in autoimmunity listing at least 3 pathogens associated with autoimmunity (5marks)
3. Define the term hypersensitivity and outline the classification of hypersensitivity reactions with one example in each case (10 marks)
4. Write short notes on
 - a. Immunoglobulins (5marks)
 - b. Autoantibodies in systemic lupus erythematosus (5MARKS)

Section B: Long answer Questions

20 Marks

- 1) A 37-year-old female presented with hemiparesis for 2 days. She has been sick on and off with tiredness, butterfly rash and joint pains. Anti dsDNA was found to be positive.
 - a) What is the most likely diagnosis (1 mark)?
 - b) Briefly explain the pathogenesis of the conditions above (4 mark)
 - c) Outline the principles of management of the condition above (10 marks)
 - d) List 2 complications that can occur (2 mark)
 - e) What selfcare precautions should the patient be advised on? (3 marks)
- 2) Discuss the complement system under the following subtopics
 - a) Definition (2 marks)
 - b) Pathways (16 marks)
 - c) Functions (2 marks)

