



KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF THE
DIPLOMA OF SCIENCE IN CLINICAL MEDICINE
SECOND SEMESTER, 2021/2022
(JULY, 2022)

CIMS 0124: IMMUNOLOGY

STREAM: Y2 S2

TIME: 2 HOURS

DAY: WEDNESDAY, 8:00 – 10:00 A.M.

DATE: 27/07/2022

INSTRUCTIONS:

- 1. Do not write anything on this question paper.***
- 2. Answer Question ONE and any other TWO Questions.***

PART 1: ESSAY QUESTIONS

SECTION A

SHORT ANSWER QUESTIONS

Answer all questions

1. Define the following terms
 - a. Donor (2 marks)
 - b. Recipient (2 marks)
 - c. Syngeneic (2 marks)
 - d. Xenogeneic (2 marks)
 - e. Allograft (2 marks)
2. Differentiate between innate and adaptive type of immune system (10 marks)
3. a. Differentiate between B- and T- Lymphocytes (5 marks)
b. Describe eosinophils as a cell of the innate immunity. (5 marks)
4. a. List 5 factors that influence immunogenicity (5 marks)
b. Define the following terms

- i. Hapten (1 Mark)
 - ii. Epitope (1 Mark)
 - iii. Antigen (1 Mark)
- c. List two examples of antigen presenting cells (3 marks)
5. a. List any 10 vaccines available for immunization (5 marks)
- b. Classify hypersensitivity reaction citing examples in each. (5 marks)
6. a. List 3 examples of polymorphonuclear leucocytes (PML) (3 marks)
- b. List 3 examples of agranulocyte cells
- c. List 4 T- cell subsets (4 marks)

SECTION B

Answer any two questions

1. With the aid of a well labeled diagram; describe the various parts of a typical immunoglobulin (20 marks)
2. a. Describe the role of antibodies (10 marks)
- b. describe B- lymphocytes (10marks)
3. Discuss the elements of innate immunity. (20 marks)

MULTIPLE CHOICE QUESTIONS

Pick ONLY one correct answer

1. Which of the following does not protect the body surfaces.
 - a. Mucus
 - b. Unintact skin
 - c. Gastric acid
 - d. Epithelial surface cilia
 - e. Commensal flora
2. Basic immunoglobulin contain:
 - a. 2 identical heavy and 2 identical light chains
 - b. 2 identical heavy and 2 different light chains
 - c. 2 different heavy and 2 identical light chains
 - d. 2 different heavy and 2 different light chains
 - e. Non covalently bound polypeptide
3. A Hapten is
 - a. An epitope
 - b. A paratope

- c. A small chemical grouping which reacts with preformed antibodies
 - d. A carrier
 - e. An immunogen
4. Which of the following is a primary lymphoid organ
- a. Lymph node
 - b. Spleen
 - c. Peyer's patches
 - d. Tonsils
 - e. Thymus
5. A graft between members of the same species is termed as:
- a. Autograft
 - b. Isograft
 - c. Xenograft
 - d. Allograft
 - e. None of the above
6. An antigen is;
- a. A highly specific protein produced by the body in response to a foreign body.
 - b. A chemical that inhibits the growth of micro organism
 - c. An antibody produced by the body that stimulates the production of antibodies by the body's immune system
 - d. A chemical substance that stimulates the production of antibodies by the body's immune system
 - e. None of the above
7. Which is the first immunoglobulin class to be produced in primary response to any antigen and is usually passed from the mother to unborn fetus?
- a. Ig A
 - b. Ig M
 - c. Ig E
 - d. Ig D
 - e. Ig G
8. What is the characteristic of early stages of local inflammation?
- a. Fever
 - b. Anaphylactic shock
 - c. Release of histamine
 - d. Attack of cytotoxic T cells
 - e. None of the above

9. Which of the following is the major immunoglobulin in the human serum, accounting for 80% of the immunoglobulin pool?
- Ig A
 - Ig D
 - Ig G
 - Ig M
 - Ig E
10. Which immunoglobulin is least present?
- Ig A
 - Ig D
 - Ig E
 - Ig A
 - Ig M
11. Type 1 hypersensitivity reaction involves;
- Ig E
 - Ig G
 - A Delayed reaction
 - All of the above
 - None of the above
12. The following are examples of autoimmune diseases except;
- Malaria
 - Pernicious anemia
 - Grave's disease
 - Hashimoto's disease
 - None of the above
13. T- Lymphocytes have;
- CD 3
 - CD 19
 - CD 16
 - C 29
 - C 3
14. The following is true about Basophiles
- Comprise < 0.2 % of total leucocytes pool
 - Their granules stain neutral to basic dyes
 - They have lifespan of several months
 - Don't participate in anaphylaxis
 - Nucleus has no granules
15. Which of the statements is correct?
- Antibodies are important as opsonins
 - B -Cells cannot recognize naïve antigen
 - T - Cells can recognize a naïve antigen

- d. T – helper (T – h) cells are not important in the production of cytokine's
- e. All the above

Respond True / False to each

1. Innate immunity ; composes of
 - a. Is specific in nature
 - b. Doesn't confer resistance to re-infection
 - c. Provides the first line of defense
 - d. Involves elements such as mucus, hair, lysosomes.
 - e. All the above
2. Biochemical factors of innate immunity includes
 - a. Lysosomes
 - b. Hydrochloric acid
 - c. spermine
 - d. complement
 - e. gastric juices
3. acute phase proteins
 - a. are mainly produced by the liver
 - b. Their concentration increases following infection
 - c. An example is pyrogens
 - d. Is an example of biochemical factors in innate immunity
 - e. None of the above
4. The following are examples of agranulocytes cells found in ones body:
 - a. Basophils
 - b. Eosinophils
 - c. Neutrophils
 - d. B- Lymphocytes
 - e. T- Lymphocytes
5. Cell mediated immunity ;
 - a. Is an immune response that comes from B- Lymphocytes
 - b. Is an immune response that comes from T- Lymphocytes
 - c. Upon activation leads to the formation of plasma cells and memory cells
 - d. Involves antibodies
 - e. Is normally in response to a particular antigen
6. The following are antigen presenting cells (APC'S)
 - a. Dendritic cells
 - b. Macrophages
 - c. B- cells
 - d. Neutrophils
 - e. Eosinophils

7. The response to foreign substance depends on?
 - a. The route of entry
 - b. The dose
 - c. Age of host
 - d. Size of immunogen
 - e. Degree of foreignness

8. The following are secondary lymphoid organs:
 - a. Tonsils
 - b. Adenoids
 - c. Peyer's patches
 - d. Bone marrow
 - e. Thymus

9. Immediate hypersensitivity reaction:
 - a. Are also called atopy
 - b. May include such conditions as hay fever, food allergy, bronchial asthma, anaphylaxis
 - c. Is mediated by IgE
 - d. Mast cells mediators cause a rapid increase in vascular permeability and smooth muscle contraction.
 - e. All of the above.

10. The following are live attenuated viral vaccines
 - a. Measles
 - b. Mumps
 - c. Oral polio
 - d. BCG
 - e. Typhoid vaccine

11. Recombinant vaccines include
 - a. Hepatitis B vaccine
 - b. Human papilloma virus
 - c. Live typhoid vaccine
 - d. Live attenuated influenza vaccine
 - e. All of the above

12. The following statements are true about monocytes
 - a. Are about 10-18 μ m in diameter
 - b. In a microscope, it has a horse shoe nucleus
 - c. Their nucleus have granules
 - d. Are precursors for macrophages and dendritic cells
 - e. They have a well-developed Golgi apparatus

13. The following cells have a short immune life span within the body
- Basophils
 - Monocytes
 - Dendritic cells
 - Macrophages
 - Eosinophils
14. Which of the following statements about Ig G is false
- It has four sub classes
 - It contains gamma heavy chains heavy chains
 - It contributes about 75% of the total antibody pool
 - Is a major antibody in extravascular
 - None of the above
15. Ig A
- Can occur as a monomer or dimer
 - Common in secretions like tears and mucus.
 - It has an alpha heavy chain
 - It has a J -chain which resists proteolytic damage by the enzyme of GIT
 - None of the above