



AMREF INTERNATIONAL UNIVERSITY

SCHOOL OF MEDICAL SCIENCES

DEPARTMENT OF REHABILITATIVE MEDICINE

BACHELOR OF SCIENCE IN PHYSIOTHERAPY

END OF JANUARY-APRIL 2023 SEMESTER EXAMINATIONS

UNIT CODE: PHT 122 UNIT NAME: IMMUNOLOGY

DATE: Wednesday 5th April 2023

TIME: TWO HOURS

START: 9:00 AM **STOP:** 11:00AM

INSTRUCTIONS

1. This exam is marked out of 70 Marks
2. This Examination comprises THREE Sections
Section A: Compulsory Question (30 Marks)
Section B: Short Answer Questions (20 Marks)
Section C: Long Answer Questions (20 Marks)
3. All questions in Section A and B are compulsory and Answer any TWO questions in Section C
4. Do not write on the question paper

SECTION A: Multiple Choice Questions (MCQs)
Answer all Questions (20 Marks)

- 1 **Which of the following immunoglobulin is the most abundant immunoglobulin in newborns?**
 - a. IgA
 - b. IgM
 - c. IgG
 - d. IgD

- 2 **Which of the following immunoglobulin is produced early in the primary response to infection?**
 - a. IgE
 - b. IgA
 - c. IgG
 - d. IgM

- 3 **Which of the following immunoglobulin is the primary host defense against parasitic infections?**
 - a. Secretory IgA
 - b. IgG
 - c. IgM
 - d. IgE

- 4 **The antibody which is found in secretions is:**
 - a. IgD
 - b. IgE
 - c. IgG
 - d. IgA

- 5 **Which of the following antibodies directly participate in the opsonization process?**
 - a. IgM
 - b. IgG
 - c. IgA
 - d. IgE

- 6 **Naturally acquired active immunity would be most likely acquired through which of the following processes?**
 - a. vaccination
 - b. drinking colostrum
 - c. natural birth
 - d. infection with disease-causing organism followed by recovery

- 7 **Which of the following conveys the longest-lasting immunity to an infectious agent?**
 - a. Naturally acquired passive immunity
 - b. Artificially acquired passive immunity
 - c. Naturally acquired active immunity

- d. All of these
 - e. None of these
- 8 **Which substances will not stimulate an immune response unless they are bound to a larger molecule?**
- a. Antigen
 - b. Virus
 - c. Hapten
 - d. Miligen
 - e. Antibody
- 9 **B and T cells are produced by stem cells that are formed in:**
- a. Bone marrow
 - b. The liver
 - c. The circulatory system
 - d. The spleen
 - e. The lymph nodes
- 10 **B cells mature in the..... while T cells mature in the**
- a. Thymus/bone marrow and gut-associated lymphoid tissue (GALT)
 - b. Spleen/bone marrow and GALT
 - c. Bone marrow and GALT/thymus
 - d. Liver/kidneys
- 11 **Which of the following immune cells/molecules are most effective at destroying intracellular pathogens?**
- a. T helper cells
 - b. B cells
 - c. Antibodies
 - d. Complement
 - e. T cytolytic cells
- 12 **A living microbe with reduced virulence that is used for vaccination is considered:**
- a. A toxoid
 - b. Dormant
 - c. Virulent
 - d. Attenuated
 - e. Denatured
- 13 **B cells that produce and release large amounts of antibodies are called:**
- a. Memory cells
 - b. Basophils
 - c. Plasma cells
 - d. Killer cells
 - e. Neutrophils
- 14 **The specificity of an antibody is due to**
- a. Its valence
 - b. The heavy chains

- c. The Fc portion of the molecule
 - d. The variable portion of the heavy and light chain
- 15 **In agglutination reactions, the antigen is a..... and in precipitation reactions, the antigen is a.....**
- a. whole-cell/soluble molecule
 - b. Soluble molecule/whole-cell
 - c. Bacterium/virus
 - d. Protein/carbohydrates
 - e. Protein/antibody
- 16 **Cell-mediated immunity is carried out by..... while humoral immunity is mainly carried out by.....**
- a. B cells/T cells
 - b. Epitopes/antigens
 - c. T cells/B cells
 - d. Antibodies/antigens
 - e. Antibodies/phagocytes
- 17 **The ability of the immune system to recognize self-antigens versus non-self-antigen is an example of:**
- a. Specific immunity
 - b. Tolerance
 - c. Cell-mediated immunity
 - d. Antigenic immunity
 - e. Humoral immunity
- 18 **Which of the following is not an acute phase protein:**
- A. Chondroitin sulfate.
 - B. C-reactive protein.
 - C. Fibrinogen.
 - D. Mannose-binding lectin.
 - E. Serum amyloid P component.
- 19 **Polymorphonuclear neutrophils attack bacteria:**
- A. By phagocytosis.
 - B. By secreting complement.
 - C. By secreting interferon.
 - D. Exclusively by oxygen-dependent mechanisms.
 - E. Exclusively by oxygen-independent mechanisms.
- 20 **After contact with foreign antigens, body produces specific antibody.**
These specific antibodies are readily detectable in serum following primary contact with antigen after:
- A. 10 min
 - B. 1 h
 - C. 5–7 days
 - D. 3–5 weeks
 - E. Only following a second contact with antigen

- 21. The process of introduction of a weakened pathogen into a human body is called**
- A. immunization
 - B. Vaccination
 - C. Attenuation
 - D. None of these
- 22. The first vaccine was developed by**
- A. Louis Pasteur
 - B. Edward Jenner
 - C. Carl Landsteiner
 - a. Joseph Miester
- 25. The concept of vaccination was first developed by**
- A. Louis Pasteur
 - B. Edward Jenner
 - C. Carl Landsteiner
 - D. Joseph Miester
- 26. The process of weakening a pathogen is called**
- A. Vaccination
 - B. Attenuation
 - C. Immunization
 - D. Virulence reduction
- 27. The vaccine developed by Louis Pasteur was against**
- A. Pox virus
 - B. Hepatitis virus
 - C. Rabies virus
 - D. None of these
- 28. A vaccine can be**
- A. An antigen protein
 - B. Weakened pathogen
 - C. Live attenuated pathogen
 - D. All of these
- 29. Passive immunization include: -**
- A. Introduction of antibodies directly
 - B. Transfer of maternal antibodies across placenta
 - C. Transfer of lymphocyte directly
 - D. All of these

30. Which of the following statements is true regarding vaccination?
- A. Vaccination is a method of active immunization
 - B. Vaccination is a method of artificial passive immunization
 - C. Vaccination is a method of artificial passive immunization
 - D. Vaccination is a method of natural passive immunization

SECTION B: Short Answer Questions (SAQs)

Answer all Questions - (20 marks)

31. Differentiate between Innate and adaptive immunity (6 marks)
32. Outline basic functions of the following blood cells: (5 Marks)
- 1. neutrophils
 - 2. eosinophil
 - 3. basophil
 - 4. lymphocyte
 - 5. Monocyte
33. Outline basic structure of a monomer of immunoglobulin (5 Marks)
34. Describe any TWO organs involved in human system (2 Marks)
35. Outline TWO factors that influence immunogenicity. (2 marks)

SECTION C: Long Answer Questions (LAQs)

Answer Any Two Question - (20 marks)

36. With **specific examples**, discuss Classification of vaccine. (10 Marks)
37. i) **Compare** and **contrast** primary and secondary immune responses. (8 Marks)
- ii) Describe **TWO** types of T Lymphocytes (2 Marks)
38. Discuss hemolytic disease of the fetus and newborn (HDFN) also known as erythroblastosis fetalis. (8 marks)
- ii) describe the Landsteiner's Law? (2 Marks)