

SHIVAJI UNIVERSITY, KOLHAPUR
Question Bank for Mar 2022 (Summer) Examination
Course Name -B.Sc. Part-III (Semester-VI)
Subject-ZOOLOGY PAPER-XIV
Immunology (DSE- E-32)
Subject Code - 81687

Q1. Multiple Choice Questions

Unit I Overview of the Immune system

1. Which of the following systems protects our body against disease-causing microbes?
a) Immune system
b) Digestive system
c) Excretory system
d) Respiratory system
2. Which of the following immunity is present from our birth?
a) Innate Immunity
b) Active immunity
c) Passive immunity
d) Acquired immunity
3. The branch of biology involved in the study of immune systems in all organisms is called.....
a) Botany
b) Microbiology
c) Immunology
d) Biotechnology
4. Which of the following cells is involved in cell-mediated immunity?
a) T-cells
b) B-cells
c) Mast cells
d) Both T and B cells
5. Which of the following does not act as a protecting barrier for the body surface?
a) Skin
b) Mucus
c) Gastric acid
d) Salivary amylase
6. Which of the following cells is involved in humoral immunity?
a) T-cells
b) B-cells
c) Mast cells
d) Both T and B cells
7. Which of the following immunity is called the first line of defence?
a) Innate Immunity
b) Active immunity
c) Passive immunity
d) Acquired immunity
8. Which of the following immunity is obtained during a lifetime?
a) Acquired immunity
b) Active immunity
c) Passive immunity
d) None of the above.

9. Which of the following cells is involved in cell-mediated immunity?

a) Leukaemia	b) T cells
c) Mast cells	d) Thrombocytes
10. Which of the following cells of the immune system do not perform phagocytosis?

a) Macrophage	b) Neutrophil
c) Eosinophil	d) Basophil
11. Monocytes differentiate into which kind of phagocytic cells?

a) Neutrophil	b) B cell
c) Macrophage	d) T cell
12. The ability of an organism to resist infections by the pathogens is called.....

a) Infection	b) Hypersensitivity
c) Immunity	d) Allergy
13. Name the cytokines which released in response to virus infection?

a) Interferons	b) Monokines
c) Lymphokines	d) Interleukins

Unit II Cells and organs of Immune system

14. What is haematopoiesis?

a) Formed elements	b) Blood cell formation
c) Erythrocyte formation	d) Developing RBCs
15. Where does haematopoiesis take place?

a) Lungs	b) Pancreas	c) Liver	d) Bone marrow
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16. The hormone erythropoietin stimulates red blood cell production in the red bone marrow. Where in the body is erythropoietin produced?

a) Spleen	b) Kidney	c) Liver	d) Bone marrow
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17. Megakaryocytes give rise to _____

a) Erythrocytes	b) Agranulocytes
c) Granulocytes	d) Thrombocytes

18. Myoblasts give rise to _____

- a) Basophil b) Neutrophil c) Eosinophil d) All of the above

19. Which of the following statements is true about the plasma level of the erythropoietin hormone?

- a) The plasma level of erythropoietin hormone increases with the drop in the level of haemoglobin
b) The plasma level of erythropoietin hormone decreases with the rise in the level of haemoglobin
c) The plasma level of erythropoietin hormone decreases with the drop in the level of haemoglobin
d) The plasma level of erythropoietin hormone increases with the rise in the level of haemoglobin

20. Natural killer cells are found in all of the following except _____

- a) Lymph nodes b) Thymus c) Spleen d) Blood

21. Which of the following is not involved in specific immunity?

- a) Neutrophil b) T cell c) Plasma cell d) B cell

22. B-cells and T-cells are two types of cells involved in _____.

- a) Innate Immunity b) Active immunity
c) Passive immunity d) Acquired immunity

23. Which of the following cells is involved in cell-mediated immunity?

- a) Mast cells b) B-cells
c) T-cells d) Both T and B cells

24. Which of the following cells is involved in humoral immunity?

- a) T-cells b) B-cells c) Mast cells d) Both T and B cells

25. Which of the following cells of the immune system do not perform phagocytosis?

- a) Macrophage b) Neutrophil c) Eosinophil d) Basophil

26. Which one of the following is a primary lymphoid organ?
 a) Lymph nodes b) Spleen c) Tonsil d) Thymus
27. The spleen is largely involved with the response to antigens which are in the:
 a) Tissues b) Blood c) Gut d) Lungs
28. Lymphoid Organs are not responsible for _____
 a) Proliferation of lymphocytes
 b) Differentiation of lymphocytes
 c) Destruction of lymphocytes
 d) Maturation of lymphocytes
29. Which of the following organs is also called as “Graveyard of RBCs”?
 a) Spleen b) Heart c) Bone Marrow d) Liver
30. Which of the following organ is also called as “Throne of Immunity or training school of T-lymphocytes”?
 a) Bone Marrow b) Thymus c) Brain d) Heart
31. Which of the following is NOT a secondary lymphoid organ
 a) Thymus b) Spleen c) Mesenteric lymph node d) Peyer’s patch

Unit III Antigens

32. Any substance or molecule that interacts with antibodies is called _____
 a) Antigen b) Antibody c) Epitope d) Immunogen
33. Antigens can be -----
 a) Proteins b) Carbohydrates c) Nucleic acids d) All of these
34. Any molecule that induces or elicits an immune response is _____
 a) Antigen b) Antibody c) Epitope d) Immunogen
35. Majority of antigens are -----
 a) Proteins b) Carbohydrates c) Nucleic acids d) Lipids

36. A molecule that reacts with specific antibody but is not immunogenic itself is called _____

- a) Carrier b) Antigen c) Hapten d) Immunogen

37. Hapten cannot activate T cell or B cell due to

- a) Its low molecular weight b) Its inability to bind to MHC
c) Both a & b d) None of these

38. Which of the following is hapten _____

- a) Cyanide b) Penicillin c) Paracetamol d) None of these

39. B cells that produce and release large amounts of antibodies are called

- a) Memory cell b) Plasma cells c) Killer cells d) Neutrophils

40. The ability of the immune system to recognize self-antigens versus nonself antigen is an example of

- a) Humoral immunity b) Cellular immunity
c) Specific immunity d) Tolerance

41. A living microbe with reduced virulence that is used for vaccination is considered

- a) Attenuated b) Dormant c) A toxoid d) Virulent

42. A virus vaccine that can activate cytotoxic T cells must contain

- a) High dose of virus particles b) Live virus
c) Virus peptide d) None of these

43. Lymphocytes are activated by antigen in.....

- a) Blood stream b) Bone marrow c) Liver d) Lymph nodes

44. A molecule that can be covalently linked to a non-immunogenic antigen to make it an immunogen is called.....

- a) Adjuvant b) Carrier c) Hapten d) Mitogen

45. In cellular immunity, T cells are responsible for the recognition and killing of foreign invaders. The cells are,

- a) Cytotoxic T lymphocytes
- b) Killer T cells
- c) Both a & b
- d) None of these

46. Plasma cells produce thousands ofthat are released into the blood.

- a) Antigens
- b) Helper T cells
- c) Antibodies
- d) Virus fragments

Unit IV Antibodies

47. Antibodies are produced by _____

- a. T cells
- b. Helper T cells
- c. B cells
- d. Plasma cells

48. Generally the shape of antibody is _____

- a) T shape
- b) H shape
- c) Y shape
- d) B shape

49. Which of the following immunoglobulin is the most abundant immunoglobulin in new-borns?

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

50. Which of the following immunoglobulin is produced early in the primary response to infection?

- a) IgE
- b) IgA
- c) IgG
- d) IgM

51. The order of percent of total immunoglobulin in serum is

- a) IgM, IgA, IgG, IgD, IgE
- b) IgG, IgA, IgM, IgE, IgD
- c) IgG, IgA, IgM, IgE, IgD
- d) IgG, IgA, IgM, IgD, IgE

52. Light chains and heavy chains are joined by_____.

- a) Covalent bond
- b) Hydrogen bond
- c) Di-sulphide bond
- d) Ionic bond

53. Fab region has _____

- a) a hypervariable region that binds with antibody
- b) a hypervariable region that binds with antigen
- c) a hypervariable region that binds with other immune cells
- d) All of these

54. FC region is involved in_____.

- a) Cell surface receptor binding
- b) Complement activation
- c) Determining diffusivity of antibody molecule
- d) All of these

55. Clearance of antigens by antibodies involve_____

- a) Neutralization and agglutination
- b) Opsonisation and complement activation
- c) Precipitation
- d) All of these

56. Antibodies are _____.

- a) Proteins
- b) Glycoproteins
- c) Carbohydrates
- d) Nucleic acid

57. The antigen binding site on an antibody is called _____

- a) Antitope
- b) Epitope
- c) Paratope
- d) Endotope

58. An antibody has _____

- a) 2 Fab regions and an Fc region
- b) An Fab region and an Fc region
- c) 2 Fab regions and 2 Fc regions
- d) Many Fab regions and many Fc regions

59. Which of the following antibody is a prominent antigen receptor expressed on B Cells?

- a) IgG
- b) IgA
- c) IgM
- d) IgE

60. The antibody which is found in secretions is _____

- a) IgD
- b) IgE
- c) IgG
- d) IgA

61. Agglutination reaction is more sensitive than precipitation for the detection of _____

- a) Antigens
- b) Antibodies
- c) Complement
- d) Antigen-antibody complexes

60. Commercially available ELISA kits are used for the detection of _____.

- a) Rotavirus
- b) Hepatitis B surface antigen
- c) Anti-HIV antibodies
- d) All of these

61. Monoclonal antibody production requires _____.

- a) Mouse splenic lymphocytes
- b) Mouse myeloma cells
- c) Both a and b
- d) None of these

62. Monoclonal refers to _____

- a) A single clone of antibody-producing cells
- b) All the antibody molecules which are identical
- c) The binding with same antigenic site with identical binding affinities
- d) All of the above

63. A secondary antibody is an antibody that _____.

- a) has been used in prior experiments
- b) is synthetically produced
- c) binds to another antibody
- d) is produced in boosted animals

64. Natural humoral immune response against a pathogen leads to the production of

- a) Polyclonal antibodies
- b) Monoclonal antibodies
- c) Macrophages
- d) None of these

65. The technology used for the production of monoclonal antibodies is _____.

- a) Mass culture technology
- b) Hybridoma technology
- c) Suspension culture
- d) None of these

66. Hybridoma technology was developed by _____

- a) Kohler and Milstein
- b) Khorana and Nirenberg
- c) Khorana and Korenberg
- d) Beedle and Tatum

67. The hybridomas are made by _____

- a) Fusing T cells with myeloma cells
- b) Fusing B cells with myeloma cells
- c) Fusing T helper cells with myeloma cells
- d) Fusing B memory cells with myeloma cells

68. Which of the following cells is made deficient of hypoxanthine guanyl phosphoribosyl transferase (HGPRT) enzyme?

- a) B cells
- b) Hybrid cells
- c) Myeloma cells
- d) None of these

69. Helper T cells assist in the functions of _____

- a) Certain B cells
- b) Certain T cells
- c) Certain B cells and other T cells
- d) None of the above

70. The primary B cell receptor is _____

- a) IgD
- b) IgG
- c) IgA
- d) IgE

71. The cross linkage of antigen by antibodies is known as _____.

- a) Agglutination
- b) Complement fixation
- c) a cross reaction
- d) All of these

72. Which type of antibody is MOST effective in activating complement?

- a) IgG1
- b) IgG2
- c) IgG3
- d) IgM

73. Some cross reactions with monoclonal antibodies (MAbs) can occur. Unexpected cross reactions occur more frequently with.

- a) Ig MAbs
- b) IgG
- c) IgA
- d) IgE

Q. 2 Long answer questions

1. Describe the process of Haematopoiesis.
2. Give an account of cells of the Myeloid lineage with suitable diagrams.
3. Give an account of cells of the Lymphoid lineage with suitable diagrams.
4. What are antigens? Describe the properties of antigens
5. What are epitopes? Describe 'B' cell epitopes with examples.
6. What are epitopes? Describe 'T' cell epitopes with examples.
7. Describe the structure of antibody.
8. What are antibodies? Explain in detail different classes of antibodies.
9. Explain in detail antigen-antibody interaction.
10. What is hybridoma technology? Explain in detail role of monoclonal antibodies.
11. Give a brief account of the history of immunology
12. Comparison of active immunity and passive immunity
13. What are the principles of Immunity?
14. Explain different organs of immune system
15. Give brief account of history of immunology

Q. 3 Short Notes

1. Granulocytes
2. T-Lymphocytes
3. Haematopoiesis
4. Monocytes
5. B-Lymphocytes
6. Natural killer (NK) cells
7. Properties of antigens
8. B cell epitopes
9. T cell epitopes
10. Difference between B & T cell epitopes
11. Types of epitopes
12. Functions of B & T cell epitopes
13. Antibody structure
14. Explain IgA
15. Explain IgM
16. Explain IgG
17. Explain IgD
18. Explain IgE
19. Functions of Antibodies
20. Types of Antigen-antibody reaction. Explain any one reaction.
21. Properties of antigen- antibody reaction
22. Explain Monoclonal antibodies
23. Functions of monoclonal antibodies.
24. Prophylaxis
25. Interferons
26. Passive Immunity
27. Phagocytosis
28. Primary lymphoid organs

29. Secondary lymphoid organs
30. Humoral immune responses
31. Cell mediated immune responses