Roll No. ..... Total Printed Pages -10

F - 1450

C.B.S. (Sixth Semester)
EXAMINATION, May - June, 2022
IMMUNOLOGY
(B-601)

Time : Three Hours] *[Maximum Marks:40*

Note: Fifteen minutes extra time to be given to examinee for reading question paper. All questions are compulsory.

(Section-A)

(Multiple Choice Questions)

(0.5 marks each)

Note : Attempt all questions :

Choose the correct answer-

1. A specific immune response, involving the production of antibodies against a particular pathogen, which occurs during the lifetime of an individual as an adaptation to infection with that pathogen and confers lifelong protective immunity to reinfection with the same pathogen.

   (A) Innate Immune response

   (B) Acquired immune response

   (C) Passive immune response

   (D) Active immune response

2. Large lymphocytes lacking antigen specific receptors, possessing distinctive cytotoxic granules and ability to recognize and kill tumor cells and virus-infected cells. They are a component of the innate immune system.

   (A) B cells

   (B) T cells

   (C) NK Cells

   (D) PMN

3. Which of these is not an APC-

   (A) PMN

   (B) Macrophage

   (C) B Cell

   (D) Dendritic cell

4. Which of the following is a non-organ-specific (systemic) autoimmune disease:

   (A) Myasthenia gravis

   (B) Systemic lupus erythematosus (SLE)

   (C) Hashimoto's thyroiditis

   (D) Insulin-dependent diabetes mellitus

5. T cell receptor is a heterodimer consisting of-

   (A) Alpha and beta chain

   (B) Gamma and delta chain

   (C) Both of the above

   (D) None of the above

6. Which of the following statement is true regarding the TRC gene organization and rearrangement?

   (A) The alpha & gamma genes consist of multiple variables (V), joining (J), and one constant gene.

   (B) The beta & delta genes consist of multiple variables (V), diversity (D) joining (J) genes and one constant gene.

   (C) Both of the above

   (D) None of the above

7. In addition to the TCR-CD3 complex, the T cell activation requires the engagement of coreceptors with the MHC of the antigen-presenting cells. Which of the following co-receptor binds to MHC-II APC?

   (A) CD4

   (B) CD8

   (C) CD20

   (D) None of the above

8. Endogenous antigens are degraded in the cytoplasm and then displayed with-

   (A) Class I MHC molecules on the cell surface

   (B) Class II MHC molecules

   (C) Both

   (D) None of the above

9. 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) Humoral immunity

10. Which statement regarding antibodies is incorrect?

    (A) They serve as the specific receptors on B cells.

    (B) They are composed of two heavy (H) chains and two light (L) chains.

    (C) Antigen binding sites are composed of constant (C) regions within one H and one L chain.

    (D) The amino acid sequence within the variable (V) regions varies widely from one clone of lymphocytes to another.

11. The three hypervariable loops determine antigen specificity by forming a surface complementary to the antigen and are more commonly termed the-

    (A) Framework region

    (B) Complementarity-determining regions

    (C) Fragment chrystalizable region

    (D) Fragment antibody binding region

12. In MHC class II molecule the two domains forming the peptide-binding cleft are contributed by-

    (A) Different chains and not joined covalently

    (B) Similar chains and covalently joined

    (C) Different chains and covalently joined

    (D) Similar chains not joined covalently

13. All of the following are true of antigen EXCEPT which one of the following?

    (A) They contain epitopes

    (B) They will react with antibodies

    (C) They can elicit an immune response

    (D) They contain paratopes

14. Pollen would most likely evoke which type of hypersentivity response:

    (A) Cytotoxic (Type II)

    (B) Immune complex (Type III)

    (C) Cell Mediated (Type IV)

    (D) Immediate type (Type I)

15. Cytokines are produced by cell of the immune system in response to various physiological stimuli

    (A) Modulate cell function through subsequent cell differentiation or cell proliferation

    (B) Facilitate cell lysis

    (C) Cause glycosylation of immunoglobins

    (D) Cause histamine release

16. What is a graft between different members of the same species termed?

    (A) Autograft

    (B) Isograft

    (C) Xenograft

    (D) Allograft

17. An immune complex is an aggregate of which of the following?

    (A) Antibody molecules

    (B) Antigen molecules

    (C) Antibody and antigen molecules

    (D) Histamine molecules

18. Complement component C3 is cleaved by :

    (A) C3bBb

    (B) Factor B

    (C) Factor D

    (D) Factor H

19. The membrane attack complex consists of:

    (A) Properdin

    (B) Colicins

    (C) C3b3b,Bb

    (D) C5b,6, 7, 8, 9

20. Which of the following is NOT involved in the antigen-antibody interaction?

    (A) Electrostatic interactions between charged side-chains

    (B) Hydrophobic interactions

    (C) Van der Waals forces

    (D) Peptide bonds

(Section-B)

(Very Short Answer Type Questions)

(0.75 marks each)

Note : Define the following in 2-3 lines-

1. Immune tolerance
2. Immune surveillance
3. Invariant chain
4. TAP
5. Cell adhesion Molecules
6. Hypervariable region
7. Framework region
8. Antigen
9. Epitope
10. Hapten

(Section-C)

(Short Answer Type Questions)

(1.25 marks each)

Note : Explain the following (in 75 words approx.) with appropriate diagrams and example wherever needed-

1. Integrated defense mechanism
2. Autoimmunity
3. B cell receptor complex
4. Primary lymphoid organs

5. Antigen antibody reaction
6. Immunoglobulin molecule
7. Proteasome
8. ADCC
9. Vaccines
10. Animal models

(Section-D)

(Long Answer Type Questions)

(2.0 marks each)

Note : Attempt all questions in 150-200 words.

1. Describe the various innate immune mechanisms existing in our body to ward off infection.

OR

What is Acquired immunity? How does it function?

2. Describe in details the structure and functions of secondary lymphoid organs.

OR

Describe the structure and function of the T cell Receptor Complex.

3. Describe in brief the structure of the MHC molecules. What is their role in immune response?

OR

Describe in brief the endogenous pathway of antigen processing and presentation.

4. Discuss Immunodeficiency diseases.

OR

What is hypresensitivity? Describe its various types.

5. Write notes on transplantation immunology.

OR

Plant immunity.