2023/08

SET A

B.Sc. MICROBIOLOGY
FIFTH SEMESTER (SPECIAL REPEAT)
IMMUNOLOGY
BMB-502

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. Full Marks: 70

Objective

Time: 30 mins. Marks: 20

Choose the correct answer from the following: ***1×20=20***

1. Which type of hypersensitivity reaction causes rapid anaphylaxis in response to an allergen?
   a. Type I
   b. Type IV
   c. Type II
   d. Type III

2. Type I hypersensitivity involves:
   a. IgG
   b. IgE
   c. IgA
   d. IgM

3. Which category of hypersensitivity BEST describes hemolytic disease of the newborn caused by Rh incompatibility?
   a. Immune complex
   b. Cytotoxic
   c. Atopic or anaphylactic
   d. A and B

4. If you have an autoimmune disease, what happens with the immune system?
   a. Antibodies from your immune system mistakenly attack tissues in the body
   b. Your immune cells die
   c. Your immune system makes too many immune cells
   d. a and b

5. Complement component C3 is cleaved by:
   a. Factor B
   b. C3b
   c. C3bBb
   d. Factor D

6. ELISA (Enzyme-Linked Immunosorbent Assay) allows for rapid screening and quantification of the presence of _____ in a sample.
   a. Protein
   b. DNA
   c. Antibody
   d. Amino Acid

7. A tissue graft between two people who are not genetically identical is termed:
   a. Allograft
   b. Endograft
   c. Xenograft
   d. Isograft

8. The transfer of individuals own tissue to another part of the body is called:
   a. Xenograft
   b. Repair and replacement
   c. Autograft
   d. a and b

9. Which sentence is not true about RIA?
   a. Centrifugation rpm is 1200-2500
   b. This techinque is very sensitivity it can detected 0.01 µg/ml
   c. This techinque is very sensitivity it can detected 0.001 µg/ml
   d. The most commonly used radiolabels in RIA are tritum and iodine

10. Rheumatoid arthritis is an .....disease that affects the.....
   a. Immunodeficiency/muscles
   b. Allergic/cartilage
   c. Autoimmune/nerves
   d. Autoimmune/joints

11. Interferons are:
   a. Antiviral proteins
   b. Antigen proteins
   c. Antibiotic proteins
   d. All of the above

12. Name the cytokines which released in response to virus infection.
   a. Lymphokines
   b. Interleukins
   c. Monokines
   d. None of the above

13. Which of the following immunity is obtained during a lifetime?
   a. Passive immunity
   b. Acquired immunity
   c. Innate immunity
   d. Active immunity

14. The branch of biology, which involves the study of immune systems in all organisms is called:
   a. Zoology
   b. Microbiology
   c. Immunology
   d. Biotechnology

15. IgM is a:
   a. Monomer with 2 antigen binding site
   b. Tetramer with 8 antigen binding site
   c. Dimer with 4 antigen binding site
   d. Pentamer with 10 antigen binding site

16. B Cells that produce and release large amounts of antibody are called:
   a. Killer cells
   b. Neutrophils
   c. Basophil
   d. Plasma cells

17. Globulins of the blood plasma are responsible for:
   a. Antigen
   b. Oxygen transport
   c. Defence mechanisms
   d. Blood clotting

18. Antibodies are:
   a. Steroids
   b. Prostaglandins
   c. Lipoproteins
   d. Glycoproteins

19. Antigen binding sites are present in:
   a. Fc regions of an antibody
   b. Only in the heavy chain
   c. Only in the light chain
   d. None of the above

20. The class of antibodies, which can cross placenta is:
   a. IgM & IgE
   b. IgA
   c. IgG
   d. IgE

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Descriptive

Time : 2 hr. 30 mins. Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. a) Define antigens. Briefly describe about antigenicity, haptens and adjuvants. 2+3+5=10
   b) Briefly describe the genetic diversity of antibody class.
2. Define ELISA. Briefly describe the principle, method and application of indirect ELISA. 10
3. What is Radio Immunoassay? Write the basic principle, method and application of Radio Immunoassay. 2+2+3+3=10
4. a) What is hypersensitivity? What are the types of hypersensitivity? 2+3+5=10
   b) Explain details about type IV hypersensitivity with example.
5. a) What is complement system? Briefly describe the classical pathway of complement system. 1+4+5=10
   b) What is autoimmune disorder? Describe the causes and treatment of autoimmune diseases.
6. a) Describe the forces that encourage primary antigen-antibody interactions. 5+5=10
   b) Distinguish between agglutination and precipitation reaction.
7. Write short notes on the following: 5+5=10
   a) Innate Immunity
   b) Acquired Immunity
8. Write short notes on the following: 5+5=10
   a) Allograft and xenograft
   b) Transplant graft rejection

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