



**B.TECH DEGREE EXAMINATIONS: NOV 2015**

(Regulation 2009)

Seventh Semester

**BIOTECHNOLOGY**

BTY123: Basic Immunology

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

- The mononuclear phagocyte system does not include:
  - Monocytes
  - Kidney mesangial cells
  - Kuppfer cells
  - Lymph node medullary macrophages.
- Which of the process lead to the acquisition of 'naturally acquired active immunity'?
  - Vaccination
  - Natural birth
  - Drinking colostrum
  - Infection followed by recovery
- Choose the 'False' statement about an 'antigen'.
  - Contain epitope(s).
  - Can elicit immune response.
  - Will react with antibodies.
  - Contain paratope(s).
- Which of the following immunoglobulin is present normally in plasma at the highest concentration?
  - IgG
  - IgA
  - IgD
  - IgE
- Antibody titer refers to \_\_\_\_\_
  - Absolute amount of specific antibody.
  - Highest dilution of antibody still able to give a positive result in a test system.
  - Affinity of specific antibody.
  - Concentration of specific antibody.
- Affinity of an antibody is measured by
  - Its concentration
  - Amount of antibody bound at various antigen concentrations.
  - Valency of antigen binding
  - Its ability to neutralize bacterial toxins.

7. Complement component C3 is cleaved by
  - a) C3b
  - b) C3bBb
  - c) Factor B
  - d) Factor H
8. Membrane attack complex consists of
  - a) OH
  - b) Colicins
  - c) C3b3b,Bb
  - d) C5b,6,7,8,9
9. The ability of an immune system to recognize self-antigens versus nonself antigen is an example of:
  - a) Specific immunity
  - b) Tolerance
  - c) Cell mediated immunity
  - d) Antigenic immunity
10. An example for autoimmune disease is
  - a) Type I diabetes mellitus
  - b) Type II diabetes mellitus
  - c) Haemophilia A
  - d) Sickle cell anemia

**PART B (10 x 2 = 20 Marks)**

11. Expand the terms GALT and MALT.
12. Define Haematopoiesis.
13. Differentiate the Paratope with an Epitope.
14. What is a Hapten? Give an example.
15. Write the difference between affinity and avidity.
16. Name two enzymes used in ELISA.
17. List the functions of T cells.
18. Write the function of macrophages.
19. List the different types of 'Grafts'.
20. What is delayed hypersensitivity?

**PART C (5 x 14 = 70 Marks)**

21. a) Explain in detail the maturation and activation of T-cells.

**(OR)**

- b) Define Immunity. Explain in detail the properties and functions of different immune organs. (2+12)
22. a) What are antibodies? Explain the structure of IgA and IgM with their functions. (2+6+6)

**(OR)**

b) Write short notes on:

- (i) Freund's complete and incomplete adjuvants (7)
- (ii) Epitope and paratope (7)

23. a) What are monoclonal antibodies? Explain the working mechanism of Hybridoma Technology.

**(OR)**

b) Explain the detailed technique of Immune electrophoresis and agglutination.

24. a) Explain the structure and functions of MHC class 1 and class 2 molecules.

**(OR)**

b) Discuss the classical pathway of complement activation.

25. a) What is hypersensitivity? Explain the types and mechanisms of hypersensitive reactions.

**(OR)**

b) Describe in detail the immunological basis of graft rejection.

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