M.Sc. Semester–I (C.B.C.S. Scheme) Examination

BIOTECHNOLOGY

(Biology of the Immune System)

Paper–1 BTB 4

Time : Three Hours] [Maximum Marks : 100

Note :—(1) All questions are compulsory and carry equal marks.

(2) Draw well labelled diagrams and give suitable examples wherever necessary.

1. Explain the following :

   (a) Avidity of antibodies. 5

   (b) Acquired immunity with suitable example. 5

   (c) Role of Hapten in immunization. 5

   (d) Ag-Ab interactions. 5

OR

   (e) Functions of IgM. 5

   (f) Biochemical characteristics of Ag. 5

   (g) Role of immunity in disease prevention. 5

   (h) Functions of secondary lymphoid organs. 5

2. Explain the following :

   (a) Types of granulocytes and agranulocytes cells. 5

   (b) Functions of Tc cell. 5

   (c) Antigen processing. 5

   (d) Significance of immunological memory. 5

OR

   (e) Role of Suppressor cells. 5

   (f) Activation of B cell. 5

   (g) Role of phagocytic cells. 5

   (h) Structure and functions of neutrophils. 5

3. Write in detail the structure, types of classes and functions of Major Histocompatibility Complex (MHC). 20

OR

Define the complement system and type of complement components associated with it. Add a note on classical complement pathway. 20

4. Describe the Coomb's and Gell classification of hypersensitivity reactions. Discuss type III hypersensitivity reactions and various diseases associated with it. 20

OR

Discuss in detail 'Organ transplantation', their types and time line of successful transplants. Add a note on rules and regulations associated with it in India. 20

5. Describe the following :

(a) Applications of monoclonal antibodies. 5

(b) Structure of AIDS virus. 5

(c) Advantages of synthetic vaccines over conventional vaccines. 5

(d) Differentiate between benign and malignant tumor. 5

OR

(e) Plant derived anti-cancer drugs. 5

(f) Significance of HAT selection. 5

(g) Non-ribosomal peptides as vaccines. 5

(h) Applications of ideotypes. 5