

**Bachelor of Science (B.Sc.) Semester—IV (C.B.S.) Examination**

**BIOTECHNOLOGY (Immunology)**

**Paper—I**

Time : Three Hours]

[Maximum Marks : 50]

**N.B. :— All questions are compulsory and carry equal marks.**

1. Discuss various factors affecting antigenicity.

10

**OR**

Discuss the classical and alternate complement pathways.

10

2. Explain in detail delayed hypersensitivity.

10

**OR**

Describe various types of cytokines and their functions.

10

3. (a) Explain type I hypersensitivity.

5

(b) Compare live and killed vaccines with examples.

5

**OR**

(c) Describe type III hypersensitivity.

5

(d) Describe the general concept of autoimmunity.

5

4. Write notes on :

(a) Lattice hypothesis

2½

(b) Slide agglutination reactions

2½

(c) Radial immuno diffusion

2½

(d) Direct Coomb's test.

2½

**OR**

(e) Precipitation reaction

2½

(f) Complement fixation test

2½

(g) Direct ELISA test

2½

(h) Hybridoma technology.

2½

5. Solve any **ten** of the following :

- (i) Give an example of natural passive immunity. 1
- (ii) What are antigen presenting cells ? 1
- (iii) What is a complete antigen ? 1
- (iv) Write the full form of MHC. 1
- (v) What is a T-Cell receptor ? 1
- (vi) Which immunoglobulin is usually present as pentamer ? 1
- (vii) What are edible vaccines ? 1
- (viii) Give the full form of DPT. 1
- (ix) Name any two type II hypersensitivity complexes. 1
- (x) Give two applications of monoclonal antibodies. 1
- (xi) Define antibody titre. 1
- (xii) What is tube agglutination test ? 1