

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

**BIO-CHEMISTRY (Microbiology & Immunology)**

**Compulsory Paper—2**

Time : Three Hours]

[Maximum Marks : 50

**Note :—** ALL questions are compulsory and carry equal marks.

1. Describe in detail the basic nutritional requirements of bacteria. 10

**OR**

- (a) Describe briefly chemotrophs and phototrophs. 5
- (b) Explain any one method to obtain a pure culture. 5
2. (a) Explain different factors influencing the antimicrobial activity. 5
- (b) Describe in brief the mechanism of cell injury. 5

**OR**

- (c) Write a note on phenol coefficient of a disinfectant. 5
- (d) Describe the use of steam as a sterilizing agent. 5
3. Explain various organs and cells of the immune system. 10

**OR**

- Describe in detail the structure of IgG. 10
4. (a) Differentiate between the cellular and non-cellular immunity. 5
- (b) Describe alternate complement system. 5

**OR**

Describe hybridomas technique for production of monoclonal antibodies. Give its applications. 10

5. Solve any *ten* of the following :

- (i) What is a pure culture ? 1
- (ii) What are auxotrophs ? 1
- (iii) Name the carbon source in nutrient broth. 1
- (iv) What is a disinfectant ? 1
- (v) Name any two antibiotics. 1
- (vi) Define sanitization. 1
- (vii) Define active immunity. 1
- (viii) Name the cells on which MHC molecules are expressed. 1
- (ix) Define an antigen. 1
- (x) Name the scientist who proposed clonal selection theory. 1
- (xi) What is the importance of myeloma cell in hybridomas ? 1
- (xii) What are monoclonal antibodies ? 1