

**NTK/KW/15/7953**

**Faculty of Engineering and Technology**

**B.Tech. Fifth Semester (Bio-Tech.)**

**(C.B.S.) Examination**

**IMMUNOLOGY**

**Paper—V [BT BIT-505(T)]**

Time : Three Hours]

[Maximum Marks : 80

**INSTRUCTIONS TO CANDIDATES**

- (1) All questions carry equal marks.
  - (2) Answer any **FIVE** questions.
  - (3) Illustrate your answers wherever necessary with the help of neat sketches.
1. (a) Describe secondary lymphoid organs and explain their role in immunity building. 10
  - (b) Explain the role of macrophage and natural killer cells in protecting the host. 6
  2. (a) Discuss various factors involved in immunogenicity in detail with particular emphasis on foreignness, chemical complexity, molecular size and processability of a molecule. 8
  - (b) Discuss the distinguishing features of five different classes of immunoglobulin. 8

3. (a) Give an account of the cytosolic pathway of antigen processing and presentation. 10
- (b) Explain T cell and  $\beta$  cell. Describe interactions of T and  $\beta$  cell in cell mediated immunity. 6
4. (a) Describe various Antigen-Antibody reactions in detail. 10
- (b) Explain principal of Radio-immuno Assay technique. Give its applications. 6
5. (a) What are vaccines ? Classify different types of vaccines explaining generalized method for preparation of vaccines. 10
- (b) Give outline of hybridoma technology for production of monoclonal antibodies. 6
6. (a) What is autoimmunity ? Describe various autoimmune diseases. 8
- (b) Describe Type I and Type II hypersensitivity in immunological reactions. 8
7. Answer "Any **two**" : 16
- (a) Explain the process of B cell maturation, activation and differentiation.
- (b) What is complements system ? How are the complement components involved in defence mechanism ?
- (c) Explain the mechanism involved in Graft Rejection.

8. Write notes on : 16
- (a) Active and Passive immunization
- (b) Hapten and Adjuvants
- (c) ABO blood grouping
- (d) Tumor Antigens.