

SE/IV/BT/10/6/14.

SE (Biotech) - Sem IV (CBGS)

I 8 I

Sub: Immunology Immunotechnology QP Code : NP-19854  
(3 Hours) [ Total Marks : 80

(29)

- N.B. : (1) Question No.1 is compulsory.  
(2) Attempt any three questions from the remaining five questions.  
(3) Draw diagrams wherever necessary.

1. Give differences between the following (any four) 20
- (a) B-cells and T-cells
  - (b) Immunoglobulin and T-cell receptors
  - (c) Cytotoxic T-cells and Helper T-cells
  - (d) Direct ELISA and Indirect ELISA
  - (e) MHC class I and MHC class II molecules
  - (f) Agglutination and precipitation.
2. (a) Write in detail how endogenous antigens are processed and presented. 10  
(b) Explain different classes of antibodies with their functions. 10
3. (a) What are monoclonal antibodies? Explain hybridoma technology in detail. 10  
(b) Discuss why AIDS is considered a deadly disease. 10
4. (a) Explain why innate immunity is considered as the first line of defence. 10  
(b) What are recombinant vaccines. How are they produced. 10
5. (a) Describe the classical pathway of complement system. 10  
(b) Explain any two types of hypersensitivity reactions. 10
6. (a) Describe the humoral immune response in detail. 10  
(b) Write in detail the process of B-cell maturation, activation and differentiation. 10