

2014

**B.E. (Biotechnology) Fourth Semester
BIO-415: Immunology and Immuno-Technology**

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

1. Answer the following questions briefly:
 - a) Define immunogen.
 - b) What is a membrane attack complex.
 - c) Define autoimmunity.
 - d) What is a hypersensitive reaction.
 - e) Define inflammation.
 - f) Give function of eosinophil.
 - g) What is secretory IgA.
 - h) Give function of T helper cell.
 - i) What is the role of VDJ recombination?
 - j) What is innate immune response.

1x10

SECTION A

2. Explain various steps of phagocytosis and its contribution to immune response. 10
- 3a. Explain the role of antigen presenting cells in activation of adaptive immune response. 5
- b. Explain the difference between primary and secondary lymphoid organs. 5
- 4a. Give structure, classification and function of antibody. 5
- b. Elucidate the process of generation of peptides and their loading on MHC class I molecules. 5

SECTION B

5. Elucidate the mechanism of defending against the foreign pathogens through complement pathway. 10
6. Write short note on- 5,5
 - a) Polyclonal and monoclonal antibodies
 - b) Different type of vaccines and their characteristics
- 7a. Explain the process of B-cell activation and differentiation. 5
- b. Explain different steps for detection of protein by ELISA. 5

x-x-x