

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 154405

Roll No.

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B.Tech.

(SEM. IV) THEORY EXAMINATION 2013-14

IMMUNOLOGY

Time : 3 Hours

Total Marks : 100

Note :- Attempt all questions.

1. Attempt any two parts of the following : (10×2=20)
 - (a) What are primary lymphoid organs ? Explain the cells of immune system.
 - (b) Discuss the maturation, activation and differentiation of T cells.
 - (c) What are the primary and secondary immune responses ? Discuss the Humoral immune response with suitable diagram.
2. Attempt any two parts of the following : (10×2=20)
 - (a) Explain the structure and functions of the following :
 - (i) IgA
 - (ii) IgG
 - (iii) IgE
 - (iv) IgM
 - (b) What is epitope ? Discuss the characteristics of T and B cell epitopes.

- (c) Differentiate between Hapten and Immunogen ? Explain the factors affecting Immunogenicity.
3. Attempt any **two** parts of the following : **(10×2=20)**
- (a) What is Major Histocompatibility Complex (MHC) ? Describe the structure and function of MHC molecules.
 - (b) What are cytokines ? Describe the role of different cytokines in immune system.
 - (c) Describe the Classical pathway of complement activation. What are the important functions of a complement system?
4. Attempt any **two** parts of the following : **(10×2=20)**
- (a) Discuss the Hybridoma Technology for production of monoclonal antibodies.
 - (b) Differentiate between active and passive immunization. Discuss the whole organism vaccine and subunit vaccine.
 - (c) Discuss the principle and applications of Direct ELISA.
5. Attempt any **two** parts of the following : **(10×2=20)**
- (a) What is Hypersensitivity ? Explain the type I and type II Hypersensitivity.
 - (b) Write short notes on :
 - (i) Malaria Vaccine development
 - (ii) Autograft, Allograft and Xenograft.
 - (c) What is autoimmunity ? Discuss one autoimmune disease mediated by direct cellular damage.