



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

PAPER ID : 154405

Roll No.

--	--	--	--	--	--	--	--	--	--

B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15
IMMUNOLOGY

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions.

1 Attempt any two parts of the following : **10×2=20**

- (a) Define immunity. Explain the characteristics of innate and adaptive immunity.
- (b) Describe the process of B cell maturation, activation and differentiation.
- (c) Write short note on molecules of the immune system and their role in human immunity.

2 Attempt any two parts of the following : **10×2=20**

- (a) What are the various types of antigens? Explain their characteristics.
- (b) Define T and B cell epitopes. Compare their characteristics features.

- (c) Write short note on:
- (i) Paratopes
 - (ii) Adjuvants
- 3** Attempt any two parts of the following:- **10×2=20**
- (a) Describe the endogenous antigens processing pathway.
 - (b) Describe the genetic organization, structure and function of HLA class II molecules.
 - (c) Write short note on cytokines and their role in immune regulations.
- 4** Attempt any two parts of the following:- **10×2=20**
- (a) What is cross-reactivity? Discuss its applications in vaccine development.
 - (b) Write short notes on:
 - (i) RIA
 - (ii) Sandwich ELISA
 - (c) Describe the production and therapeutic applications of mAb.
- 5** Attempt any two parts of the following : **10×2=20**
- (a) What are cancers related antigens? Discuss their possible role in cancer immunotherapies.
 - (b) Discuss the natural immunity against HIV viruses and possible vaccination approaches.
 - (c) Write short note on autoimmune disorders and possible immuno-therapies.