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Total No. of Pages : 02

Total No. of Questions : 18

**B.Tech. (BT) (2012 to 2017) (Sem.-4)**  
**IMMUNOLOGY AND IMMUNOTECHNOLOGY-I**  
Subject Code : BTBT-403  
M.Code : 55086

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****Write briefly :**

1. Difference between antigen and immunogen.
2. Double immunodiffusion
3. Structure of T cell receptor
4. Allotypic and Isotypic determinants
5. DNA Vaccine
6. Neutrophils
7. Transcytosis
8. Organization of MHC locus in human
9. Chimeric antibodies
10. Thymus

### SECTION-B

11. Differentiate between positive and negative selection of T cells development.
12. Illustrate the affinity maturation and somatic hyper-mutation.
13. Diagrammatically explain the phagocytosis mechanism of Macrophages.
14. Outline the theory and application of western blotting.
15. Explain any two subunit vaccine.

### SECTION-C

16. How does T and B cell activation take place?
17. Describe the classical and MBL pathway of complement system.
18. Explain the different steps of ELISA. Differentiate between competitive and indirect ELISA.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**