

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

**PAPER ID : ME35**

Roll No.

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**M. TECH. (Sem.II)****THEORY EXAMINATION 2015-16****IMMUNOTECHNOLOGY**

Time : 3 Hours

Total Marks : 100

**SECTION-A**

1. Attempt all parts. All parts carry equal marks.  $(2 \times 10 = 20)$
- (a) What are the reasons responsible for autoimmunity?
- (b) What do you understand from the term opsonization?
- (c) Give the significance of Western Blotting as immunotechnology?
- (d) Explain the functions of macro-phages in various tissues?
- (e) Give the difference between T cell epitope and B cell epitope.
- (f) Discuss the importance of interleukins.

- (g) Explain immunological properties of antigen.
- (h) What are the different modes of by non-specific host defenses? Explain any one?
- (i) Define Immunoprophylaxis.
- (j) What are toxoids? How are used in vaccination?

## **SECTION-B**

2. Attempt any five questions from this section. (10×5=50)

- a) Describe the processes involved in the generation of immunoglobulin diversity. Use annotated diagrams in your answer
- b) Describe the transcription factors and cytokines critical for determining the differentiation of post-thymic naïve CD4 T cells. Describe the resulting phenotypes and functions of each T helper cell subset.
- c) Give an account of the cytosolic pathway of antigen processing and presentation.
- d) What are Complements? How are they involved in the defense mechanism? Give the mechanism involved in detail.

- e) What is inflammation? Describe the clinical symptoms and the physiological processes involved with the process.
- f) Write a note on Cytokines with their structure and functions.
- g) What are memory cells? How are they produced? If you treat a sample of polyclonal antibody with (i) pepsin and (ii) papain and run a polyacrylamide gel electrophoresis on the treated samples, what bonding patterns would you expect?
- h) What is autoimmunity? Describe the various autoimmune diseases.

3. Attempt any two questions from this section. (15×2=30)

- (a) Describe the term vaccine. Give various types of vaccines prepared by modern biotechnology. Briefly explain their preparation method along with their advantages and disadvantages.
- (b) Define Hybridomas? How monoclonal antibodies are produced by hybridoma technology? Add a note on advantage monoclonal antibodies.
- (c) Attempt any **two** parts of the following :

- (i) Distinguish between a B cell receptors and T cell receptors.
- (ii) Compare and contrast the structure, expression and functions of MHC class I and class II molecules.
- (iii) Explain briefly about the primary and secondary antibody response.

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