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**M. TECH.**  
**(SEMESTER II) THEORY EXAMINATION 2017-18**  
**IMMUNOTECHNOLOGY**

*Time: 3 Hours*

*Total Marks: 100*

**Note:** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

**1. Attempt all questions in brief.**

**2 x10 = 20**

- (a) What is HLA typing?
- (b) Describe role of aminopterin in HAT medium.
- (c) Describe the role of MHC III in short.
- (d) What is the role of  $\beta_2M$  subunit?
- (e) What are Haptens?
- (f) Why secondary antibody is used in ELISA?
- (g) Describe Interferons.
- (h) What role of buster doses?
- (i) Explain precipitin curve formation in short.
- (j) Discuss about IgM in short

**SECTION B**

**2. Attempt any three of the following:**

**10 x 3 = 30**

- (a) Give outline of how adaptive immunity achieved a mammalian animal when infected with an infectious agent?
- (b) What do you mean by MHC? Explain function of various MHC molecules in detail.
- (c) What do you understand by cell mediated immune response? Outline how this achieved?
- (d) Discuss antigen- antibody interaction in detail? Also explain role of affinity and avidity.
- (e) What are monoclonal antibodies? Discuss production and application of monoclonal antibodies in detail?

**SECTION C**

**3. Attempt any one part of the following:**

**10 x 1=10**

- (a) What are macrophages? Describe characteristics and function of macrophages.
- (b) Describe structure and function of spleen and thymus in detail.

- 4. Attempt any *one* part of the following: 10 x 1=10**
- (a) Explain briefly about Enzyme linked Immunosorbent Assay in detection of antibodies in blood serum. .
  - (b) Describe, what are the reasons of autoimmune disorders? Also explain any autoimmune disease in detail.
- 5. Attempt any *one* part of the following: 10 x 1=10**
- (a) What do you understand by Complement System? Explain its functions in detail?
  - (b) What is concept of vaccines? Explain about DNA vaccine in detail.
- 6. Attempt any *one* part of the following: 10 x 1=10**
- (a) Define structure and functions of immunoglobulines in detail..
  - (b) What are the main factors which affect immunogenicity? Discuss in brief.
- 7. Attempt any *one* part of the following: 10 x 1 =10**
- (a) Define agglutination reaction in detail with suitable examples?
  - (b) Discuss about western blotting techniques and its application in immunology.