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**MBCE-015**

**M. SC. (BIOCHEMISTRY) (MSCBCH)**

**Term-End Examination**

**June, 2026**

**MBCE-015 : IMMUNOLOGY AND**

**IMMUNOLOGICAL TECHNIQUES**

*Time : 3 Hours*

*Maximum Marks : 100*

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**Note :** (i) Answer any *five* questions.

(ii) All questions carry equal marks.

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1. (a) State primary organs of immune system and discuss their role. 10
- (b) What are phagocytes ? Explain its different types. 10
2. (a) Describe immunogenicity and list the characteristics of a good immunogen. 10
- (b) Explain isotype and allotype antigenic determinants. 10

3. (a) Discuss the means of antibody diversity. 10
- (b) Describe antigen independent phase of  $\beta$ -Lymphocyte maturation and selection. 10
4. (a) Explain the structure of MHC class I and class II molecules. 10
- (b) Write notes on the following : 5+5
- (i) Cytotoxic  $CD_8^+$  T-cells
- (ii) Memory T-cells
5. (a) Discuss the therapeutic applications of cytokines and cytokine receptors. 10
- (b) Explain passive immunization and its types. 10
6. (a) What are immunodiagnostics ? Discuss the applications of antibodies in research and therapeutics. 10
- (b) Write a detailed note on RIA. 10

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7. (a) What are tumor antigens ? Explain their different types. 10
- (b) Explain delayed-type hypersensitivity. 10
8. (a) What challenges lie in the development of vaccines ? 10
- (b) Describe any *one* of the following : 10
- (i) Mechanism of induction of autoimmunity
- (ii) FACS

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