

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

**Term-End Examination**

**December, 2025**

**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) Describe the process of hematopoiesis.  
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- (b) How is pathogen internalized in the body ?  
10
2. (a) Explain the traits of host influencing the outcome of immunogen exposure. 10

- (b) Discuss the structural characteristics of heavy and light chains of antibody constant region. 10
3. Write detailed notes on any *two* of the following : 10+10
- (a) B-cell activation
- (b) Tonegawa and Huzumi experiment
- (c) T-cell development
4. (a) Compare endogenous and exogenous pathways of antigen processing and presentation. 10
- (b) What is complement system ? Enumerate its functions. 10
5. (a) Describe hybridoma technology for monoclonal antibody production. 10
- (b) Give an overview of immunoelectrophoresis. 10
6. (a) Distinguish between competitive and sandwich ELISA technique. 10
- (b) Write a detailed note on cancer immunotherapy. 10

7. (a) How are vaccines designed ? List important factors to be considered while designing vaccines. 10
- (b) Explain the concept of autoimmunity. 10
8. (a) Describe the antibody-mediated cytotoxicity. 10
- (b) Discuss any *one* of the following : 10
- (i) IgG
- (ii) MHC polymorphism

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