

(i) Printed Pages : 3

Roll No.

(ii) Questions : 9

Sub. Code :

2	5	9	4	1
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Exam. Code :

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M.Sc. Bio-Technology 2nd Semester
(2055)

BIOLOGY OF IMMUNE SYSTEM

Paper : MBIO-201

Time Allowed : Three Hours]

[Maximum Marks : 80

Note :— Attempt *five* questions in all, including Question No. 1, which is compulsory and selecting *one* question from each of the four Units. All questions carry equal marks except compulsory question.

1. Explain the following :—

- (a) Immunoglobulin superfamily.
- (b) Function of Natural killer cells.
- (c) Adjuvants.
- (d) Role of B cells in immune response.
- (e) Haplotype.
- (f) CDR.
- (g) Class switching.
- (h) Pattern recognition receptors.

8×2=16

UNIT—I

2. (a) Outline the key discoveries that led to the understanding of cellular and humoral immunity. 8
- (b) Explain the anatomical structure of the spleen and its role as a secondary lymphoid organ in immune response. 8
3. (a) Write a short note on antigenic determinants on immunoglobulins. 8
- (b) Differentiate between T-dependent and T-independent B cell activation. 8

UNIT—II

4. (a) Compare and contrast the classical, alternative, and lectin pathways of complement activation. 8
- (b) Explain how antigen-presenting cells (APCs) process and present exogenous antigens ? 8
5. (a) What is the structure of T-cell receptor (TCR), and how does it contribute to T-cell specificity ? 8
- (b) Discuss the key steps involved in T-cell activation, and how do they contribute to immune responses ? 8

UNIT—III

6. (a) What are cell adhesion molecules (CAMs), and how do they facilitate leukocyte extravasation ? 8
- (b) Discuss the mechanism and implications of type II hypersensitivity reactions. 8

7. (a) Write a note on mechanism of antibody dependent cell mediated cytotoxicity. 8
- (b) Explain the following autoimmune diseases :
- (i) Grave's disease
- (ii) Myasthenia Gravis. 8

UNIT—IV

8. (a) Describe the immunological basis of graft rejection and outline the strategies used to prevent it. 8
- (b) Explain the role of monoclonal antibodies in cancer immunotherapy. 8
9. (a) Discuss the principle of subunit and polysaccharide vaccines, including their advantages and disadvantages. 8
- (b) Describe the mechanism of agglutination reactions and their role in medical diagnostics and research. 8