

SET-A

Roll No: _____

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M.Sc. BIOCHEMISTRY EVEN-SEMESTER (II) EXAMINATION, MAY 2025

Paper Code: MBC 204
(Immunology)

Time: 2½ h

Max Marks: 60

Note: This paper has 3 Sections, A, B, and C. Attempt all three sections. Section A: Answer all the questions; Section B: Answer any two; Section C: Answer all the questions, each question in this section has an internal choice.

Abbreviations: CLO- Course Learning Outcome, PLO- Program Learning Outcome, BTL- Bloom Taxonomy Level: BT level 1- Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create.

SECTION AAttempt All Questions

(10 x 1 = 10 Marks)

Q No. 1	OBJECTIVE QUESTIONS (Identify the correct option)	BTL	CLO	PLO
i.	B cells are described as a) They are a form of cell that creates bone marrow. b) They are the primary form of cell structure in the human body. c) They are a type of white blood cell that is trained to recognize foreign invaders. d) They are expelled from the body as quickly as possible.	4	3	4
ii.	Cells are involved in innate immune responses and adaptive immune responses are a) Dendritic cells b) Natural Killer cells c) Macrophages d) Neutrophils	2	3	3
iii.	What does 'CAR' in CAR T-cell therapy stand for? a) Chimeric antigen receptor b) Chimeric antibody receptor c) Cell-cell antigen receptor d) Cell-cell antibody receptor	1	1	2

iv.	Cytokines that are released in response to virus infection are a) Interferons b) Monokines c) Lymphokines d) Interleukins	1	2	3
v.	The first vaccine developed was a) Smallpox vaccine b) MMR vaccine c) Polio vaccine d) Rabies vaccine	3	3	2
vi.	The following technique involves antigen-antibody reaction a) PCR b) Western blotting c) Electrophoresis d) Dialysis	4	1	3
vii.	Example of a superantigen is a) Insulin b) Staphylococcal enterotoxin c) MHC class I molecule d) Interferon-gamma	3	4	3
viii.	Antibody involved in Type I hypersensitive reactions a) IgG b) IgM c) IgE d) IgA	2	1	2
ix.	Example of an autoimmune disease is a) Rheumatoid arthritis (RA) b) Cancer c) HIV Staphylococcus aureus	4	2	3
x.	Transplanted graft may be rejected due to a) Cell-mediated immune response b) Humoral immune response c) Innate immune response d) Passive response	1	3	2

SECTION B

Answer ANY TWO of the following questions

(2 x 10 = 20 Marks)

Q. No	LONG ANSWER QUESTIONS	BTL	CLO	PLO
2				
a)	Describe the different types of immunoglobins. Explain their individual role in immune response.	3	4	2
b)	What is Major Histocompatibility Complex (MHC). Describe the genetic organization of MHC I and MHC II molecules.	1	3	3

c)	Describe the classical pathway of Complement activation.	3	1	3
d)	Explain the different types of ELSA methods? How are they different from each other?	5	2	2

SECTION C

Attempt ALL SIX questions
 (each question has an internal choice)
 (6 x 5= 30 Marks)

Q No. 3	SHORT ANSWER QUESTIONS (Write Short Notes)	BTL	CLO	PLO
a)	Explain the significance of hematopoietic stem cells/ OR Differentiate between humoral and cell-mediated immune response.	3	3	3
b)	Differentiate between isotypes, allotypes and idiotypes/ OR What is the importance of TCR (T cell receptor)?	2	3	3
c)	What is the role of TNF and IFN in the immune system/ OR How does class I MHC presentation differ from class II MHC presentation?	3	2	3
d)	Explain the mechanism of action of hemolytic disease of newborn/ OR Write short notes on autoimmunity.	1	1	2
e)	What is graft rejection and pattern of graft rejection? Describe the mechanism of graft rejection/ OR What is hypersensitivity? Briefly explain the different types of hypersensitive reactions.	3	3	3
f)	How is direct immunofluorescence assay different from indirect immunofluorescence assay/ OR Describe the hybridoma technology for the production of monoclonal antibodies.	5	2	3

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END OF THE QUESTION PAPER

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