

Roll No: _____

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MSc Biochemistry, Semester II Examination, 2023

Paper Title: IMMUNOLOGY

Paper Code: MBC 204

Time: 2.5 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 Used:

CO- Course Outcome, PO- Program 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 A (Attempt all questions)

[1x10=10 Marks]

Q. No. 1	Multiple Choice Questions (MCQs)	BTL	CLO	PLO
i.	An example of a type III immune complex disease is A. Contact dermatitis B. Graft rejection C. Serum sickness D. Atopy	1	4	3
ii.	Human immunodeficiency virus (HIV) binds specifically to which immune cell marker? A. CD8 B. MHC C. CDC D. CD4	3	5	3
iii.	Genetic material of HIV virus is A. ds DNA B. ss DNA C. ss RNA D. ds RNA	2	5	2
iv.	Which of the following compounds is NOT found in tears? A. Lysozyme B. Lactoferrin C. IgA D. IgE	1	1	3

v.	Which of the following I_g first reaches the site of infection? A. I_gA B. I_gG C. I_gM D. I_gE	2	1	3
vi.	Monoclonal antibodies will be directed towards: A. single antigen B. single antigenic determinant C. different antigenic determinants of one antigen D. none of the above	2	3	2
vii.	In hybridoma technology, mortal spleen cells used have following characteristics: A. lack HGPRT B. lack salvage pathway C. lack de novo pathway D. produces specific antibodies	1	5	3
viii.	Four characteristic attributes of adaptive immunity do not include: A. antigenic specificity B. antigenic processing and presentation C. immunological memory D. self and non-self-discrimination	3	2	3
ix.	The only TLR that works as homodimer is: A. TLR1 B. TLR2 C. TLR3 D. TLR4	3	1	2
x.	Soluble molecules that do not contribute to innate immunity is: A. lysosome B. interferon C. clotting proteins D. complement proteins	1	1	3

Section B: Long answer type Questions

[2x12.5=25 Marks]

Q. No. 2	Questions <u>Attempt ANY TWO out of four</u>	BTL	CLO	PLO
(a)	Define hypersensitivity reactions. Describe in detail type II and III reactions. Give suitable examples of both.	1	4	3
(b)	Describe in detail classical complement pathway till the formation of membrane attack complex. Give suitable diagram.	2	1	2

(c)	Discuss and differentiate between Class I MHC and Class II MHC antigens. Support your answer with suitable diagram.	3	3	3
(d)	Describe graft vs host disease. What role does minor histocompatibility antigen play in this disease?	4	2	2

Section C: Short answer type questions

[5x5=25 Marks]

Q. No. 3	Questions	BTL	CLO	PLO
	<u>Attempt all questions, each question has an internal choice</u>			
(a)	Describe indirect ELISA. Support your answer with a suitable diagram. OR Explain the working principle and an application for the following techniques: Agglutination, ELISPOT assay and Flow cytometry.	1	5	3
(b)	Briefly describe how HIV induces cytopathic effect on infected CD4 ⁺ T cells. OR Differentiate between tolerance and auto immunity. Highlight the different types associated with each, with examples if available.	2	4	2
(c)	How is anaphylaxis different from atopy? Which one has genetic predisposition? OR Explain the CD4 ⁺ and CD8 ⁺ T cell mediated immune response.	3	1	2
(d)	Explain briefly various modes of self-tolerance induction in T-lymphocytes. OR Discuss how tolerance is induced in B- cell? Give suitable diagram.	1	2	3
(e)	Differentiate between Innate and adaptive immune response. Also highlight the primary and secondary immune responses associated with each. OR Write the names, locations and functions associated with different primary and secondary lymphoid organs.	2	3	3

END OF THE QUESTION PAPER