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Department of Genetic Engineering and Biotechnology
Faculty of Health and Life Sciences
B. Sc. (Hons.) in Genetic Engineering and Biotechnology
Final Examination Summer 2026

Course Code: 0512-2207 | **Course Title: Immunology**
Level and Term: L2, T2 | **Section: 251 (A+B)** | **Course Teacher Initials: DMI & DNH**
Time: 2 Hour | **Total Marks: 40**

				Marks
1	(a)	Define antibody. Describe the structure of antibody briefly.	[CLO1, PLO2, C1]	3
	(b)	Differentiate between affinity and avidity with suitable examples.	[CLO1, PLO2, C3]	2
	(c)	What are the consequences of antigen-antibody interactions?	[CLO1, PLO2, C3]	3
2	(a)	Define cell-mediated immune response. Briefly describe antigen recognition by T cells.	[CLO1, PLO1, C5]	5
	(b)	Compare MHC Class I and Class II molecules based on their structure and functions.	[CLO2, PLO1, C4]	3
3	(a)	Describe the pathways of antigen processing and presentation through MHC Class I and Class II.	[CLO2, PLO1, C2]	4
	(b)	Define cytokines. Briefly describe their sources and roles in immune regulation.	[CLO1, PLO2, C1]	4
4	(a)	What is the complement system? Describe the key steps involved in the classical pathway of complement activation.	[CLO1, PLO1, C1]	4
	(b)	Describe the formation of the membrane attack complex and the biological effects of the complement system.	[CLO1, PLO2, C6]	4
5	(a)	What are the major immune mechanisms involved in defense against viruses?	[CLO2, PLO2, C2]	3
	(b)	What forces mediate antigen-antibody binding? Mention the factors affecting antigen-antibody binding.	[CLO2, PLO2, C6]	2
	(c)	How affinity maturation improves antibody affinity during an immune response.	[CLO2, PLO2, C6]	3