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Daffodil International University

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: 0512-1307 | **Course Title: Enzymology**
Level and Term: L1, T3 | **Section: 253 (A+B)** | **Course Teacher Initials: DNH & MAR**
Time: 2 Hours | **Total Marks: 40**

				Marks
1	(a)	Define enzyme inhibition. Briefly explain reversible and irreversible enzyme inhibition with suitable examples.	[CLO1, PLO1, C2]	3
	(b)	How do competitive and non-competitive inhibitors affect enzyme kinetics? Illustrate their effects using Lineweaver-Burk plots.	[CLO1, PLO2, C2]	3
	(c)	Why is enzyme inhibition important? State its major applications.	CLO1, PLO2, C6	2
2	(a)	What is enzyme specificity? Discuss linkage specificity and stereospecificity with suitable examples.	[CLO1, PLO2, C6]	5
	(b)	Define absolute specificity and discuss the biological and industrial significance of enzyme specificity.	[CLO1, PLO2, C6]	3
3	(a)	What is cooperativity? Describe the Koshland-Némethy-Filmer (KNF) model of enzyme cooperativity.	[CLO2, PLO1, C4]	5
	(b)	Define covalent modification of enzymes. How does covalent modification regulate the pyruvate dehydrogenase (PDH) complex?	[CLO2, PLO2, C5]	3
4	(a)	How does chymotrypsin recognize and select its specific substrates?	[CLO2, PLO1, C1]	2
	(b)	Elucidate the catalytic mechanism by which chymotrypsin facilitates protein degradation.	[CLO2, PLO1, C2]	4
	(c)	State the biological significance of lysozyme.	CLO1, PLO2, C6	2
5	(a)	Briefly describe the catalytic mechanism of RNase A in RNA degradation.	[CLO2, PLO1, C5]	5
	(b)	Discuss the applications of lysozyme in the medical, pharmaceutical, and food industries.	[CLO3, PLO3, C3]	3