



Department of Genetic Engineering and Biotechnology
Faculty of Health and Life Sciences
B. Sc. (Hons.) in Genetic Engineering and Biotechnology
Final Examination Summer 2025

Course Code: 0512-1209

Course Title: Computer fundamentals and
computation Biology
Course Teacher Initials: MZA
Total Marks: 40

Level and Term: L-1, T-2
Time: 2 hours

Section: 251 A, B

Splitting any answer is strictly prohibited

			Marks
1	(a) List the three main objectives of bioinformatics.	[CLO2, PLO2, C1]	3
	(b) Explain the functions of biological databases.	[CLO2, PLO2, C2]	5
2	(a) Why the AI algorithms are often referred to as black boxes? Justify.	[CLO3, PLO3, C5]	3
	(b) Analyze the importance of bioinformatics in drug and vaccine discovery.	[CLO5, PLO3, C4]	5
3	(a) Explain deep learning and machine learning.	[CLO3, PLO3, C2]	3
	(b) Discuss the benefits of cloud computing in bioinformatics.	[CLO3, PLO3, C3]	2
	(c) Summarize the advantages of multiple sequence alignment (MSA).	[CLO5, PLO3, C2]	3
4	(a) Compare firewalls and antivirus software	[CLO2, PLO2, C4]	4
	(b) Describe the functions of a digital signature in cybersecurity	[CLO3, PLO3, C2]	4
5	(a) Compare and contrast multiple sequence alignment (MSA) with pairwise alignment.	[CLO5, PLO3, C4]	4
	(b) Differentiate between global and local alignment with examples	[CLO5, PLO3, C3]	4