



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

Course Code: 0512-2101
Level and Term: L2, T1
Time: 2 hours

Section: 251 (A+B)

Course Title: Molecular Biology
Course Teacher Initials: SBN & AR
Total Marks: 40

		Marks
1. a) What is ribosome? Describe the various components of ribosome.	[CLO1, PLO1, C1]	3.0
b) Briefly describe the various steps of translation.	[CLO2, PLO1, C4]	5.0
2. a) Describe the mutations resulting from tautomeric shift.	[CLO1, PLO2, C2]	4.5
b) Discuss the molecular mechanism of frameshift mutation.	[CLO1, PLO1, C5]	3.5
3. a) Define base analog. Describe the mutation occurred by 5-bouracil.	[CLO2, PLO2, C4]	3.5
b) What is DNA repair system? Explain the photoreactivation process of DNA repair.	[CLO1, PLO1, C1]	4.5
4. a) Diagrammatically show the controlling points of gene regulation.	[CLO1, PLO1, C6]	3.5
b) Describe the structure and mechanism of <i>Lac</i> operon in bacteria.	[CLO2, PLO2, C2]	4.5
5. a) What is organelle genome? Write the structural features of mtDNA.	[CLO1, PLO1, C3]	4.0
b) Describe dual control of organelles functions with diagram.	[CLO1, PLO1, C4]	4.0