



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

Course Code: 0512-2101
Level and Term: L2, T1
Time: 1 Hour 30 minutes

Section: 253 (A+B)

Course Title: Molecular Biology
Course Teacher Initials: DNH & SBN
Total Marks: 25

			Marks
✓ (a)	Illustrate the structure of dsDNA. Which is more chemically stable, DNA or RNA, and why?	[CLO1, PLO2, C1]	3
(b)	Shortly describe the cruciform structure of DNA?	[CLO1, PLO2, C3]	2
✓ (a)	Draw the nucleotide structure of the RNA sequence 5'-UCG-3', showing the sugar-phosphate backbone and the nitrogenous bases in the correct order.	[CLO1, PLO1, C5]	3
(b)	Briefly describe the applications of hybridization kinetics.	[CLO2, PLO1, C4]	2
✓ (a)	DNA Replication is a semi-conservative biological process', justify.	[CLO2, PLO1, C2]	2
(b)	State the types of DNA replication. Briefly describe the initiation step of DNA replication.	[CLO1, PLO2, C1]	3
✓ (a)	How do telomeres protect essential genetic information during repeated cell divisions in eukaryotes?	[CLO1, PLO1, C1]	2
(b)	Explain the replication mechanism of a negative-sense RNA viral genome.	[CLO1, PLO2, C6]	3
✓ (a)	Describe the catalytic mechanism of RNA polymerase during transcription.	[CLO2, PLO2, C2]	2.5
(b)	Explain the mechanism of RNA splicing.	[CLO2, PLO2, C6]	2.5