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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 Spring 2026

Course Code: 0512-1207 **Course Title: Microbial Genetics**
Level and Term: L-1, T-2 **Section: 253 (A+B)** **Course Teacher Initials: DMI**
Time: 02 Hours **Total Marks: 40**

				Marks
1	(a)	Discuss the detail process of molecular cloning with diagram.	[CLO7, PLO6, C6]	4.0
	(b)	Explain the common types of cloning vectors. Briefly discuss the applications of bacterial plasmids in biotechnology.	[CLO7, PLO6, C2]	4.0
2	(a)	Discuss the process of cut-and-paste transposition and illustrate it with a labeled diagram.	[CLO6, PLO4, C6]	4.0
	(b)	Explain the mechanism of copy-and-paste transposition with figure.	[CLO6, PLO4, C2]	4.0
3	(a)	List the types of gene libraries. Elaborate the procedure for the preparation of gene libraries with a diagram.	[CLO7, PLO6, C6]	5.0
	(b)	What are the differences between sticky ends and blunt ends?	[CLO7, PLO4, C1]	3.0
4	(a)	Illustrate and discuss the different stages of the T4 bacteriophage life cycle.	[CLO6, PLO4, C2]	4.0
	(b)	Briefly describe the applications and significance of bacteriophages in biotechnology.	[CLO6, PLO4, C6]	4.0
5	(a)	Describe and illustrate the gene structure of prokaryotes and eukaryotes.	[CLO5, PLO5, C6]	4.0
	(b)	Explain mitochondrial inheritance in yeast and contrast it with genetic inheritance mechanisms in bacteria.	[CLO7, PLO6, C2]	4.0