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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: 0512-1201 **Course Title:** Principles of Genetics
Level and Term: L1, T2 **Section: 253 (A+B)** **Course Teacher Initials:** AR
Time: 2 hours **Total Marks:** 40

				Marks
1.	a)	Define chromosomal linkage and crossing over. Classify chromosomal linkage with examples.	[CLO4, PLO1, C2]	3.5
	b)	Discuss chromosome maps. Write down the linkage map of *Drosophila* chromosomes 2 and 3.	[CLO4, PLO2, C5]	4.5
2.	a)	What is sex determination? Describe the basis of sex determination.	[CLO6, PLO1, C5]	3.0
	b)	Explain the cytological sex determination of different organisms.	[CLO6, PLO2, C4]	5.0
3.	a)	Define mutagens. Describe physical mutagens that cause mutation in DNA.	[CLO5, PLO1, C3]	3.5
	b)	Briefly discuss the types of chromosomal mutation I and II.	[CLO5, PLO1, C2]	4.5
4.	a)	Define mutation. Classify gene mutations with examples.	[CLO5, PLO2, C1]	4.0
	b)	Write down the significance of gene mutation in Biological Science.	[CLO5, PLO1, C4]	4.0
5.	a)	What is extrachromosomal inheritance? Briefly describe its characteristics and classification.	[CLO6, PLO1, C1]	4.5
	b)	How do bacterial cells transfer their plasmid DNA into other bacteria? Explain the process with a diagram.	[CLO3, PLO2, C6]	3.5

transjection, conjugation, transduction.

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