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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 Summer 2025

Course Code: 0512-1201 | **Section: 251 A, B** | **Course Title: Principle of Genetics**
Level and Term: L-1, T-2 | **Course Teacher Initials: MZA**
Time: 2 hours | **Total Marks:** 40

Splitting any answer is strictly prohibited

				Marks
1	(a)	Define independent assortment and explain conditions where it does not occur in human genes.	[CLO2, PLO1, C1]	4
	(b)	What are complete linkage and incomplete linkage.	[CLO3, PLO3, C1]	4
2	(a)	Illustrate the process of mitochondrial DNA replication with a labeled diagram.	[CLO6, PLO1, C2]	5
	(b)	Justify the statement – "compartmentalization of a transgene may be necessary in cells".	[CLO3, PLO3, C3]	3
3	(a)	Explain the two methods of mitochondrial transformation.	[CLO3, PLO3, C5]	5
	(b)	Provide one of the examples of chromosomal DNA manipulation and analyze its outcome.	[CLO4, PLO3, C2]	3
4	(a)	Explain the clinical features of Kearns-Sayre Syndrome.	[CLO1, PLO1, C3]	2
	(b)	Differentiate between linkage and crossing over.	[CLO3, PLO3, C1]	3
	(c)	Which part of DNA control gene expression in A cell? Discuss.	[CLO6, PLO4, C2]	3
5	(a)	Explain the mechanism of sex determination in butterflies.	[CLO1, PLO1, C2]	5
	(b)	Do you think hormonal imbalance can determine sex in a specie? Show your reasons	[CLO1, PLO1, C5]	3