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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
Midterm Examination Summer 2026

Course Code: 0512-2201 **Course Title:** *Biofertilizer and Renewable Energy*
Level and Term: L-2, T-2 Section- 251 (A+B) **Course Teacher Initials:** *KMH & MAR*
Time: 1 Hour 30 Minutes **Total Marks:** 25

Answer the following questions

				Marks
1	(a)	Define biofertilizer. Illustrate the different types of biofertilizers with examples.	[CLO5, PLO2, C6]	3.0
	(b)	Explain the importance of nitrogen and present the sources of nitrogen in tabular form available in nature.	[CLO3, PLO2, C4]	2.0
2	(a)	State atmospheric nitrogen fixation by electrical discharge and show the mechanism of symbiotic nitrogen fixation.	[CLO1, PLO2, C6]	3.0
	(b)	Diagrammatically show the root hair curling mechanism and nodule development.	[CLO1, PLO2, C4]	2.0
3	(a)	List the major nitrogen-fixing organisms and the methods used for measuring N_2 fixation.	[CLO3, PLO2, C1]	2.0
	(b)	Define nitrogenase and illustrate its mode of action. State the agricultural, economic and biotechnological significance of nitrogenase.	[CLO1, PLO2, C6]	3.0
4	(a)	Illustrate the conceptual diagram of energy. Compare renewable and non-renewable energy sources and state which one is better.	[CLO1, PLO2, C1]	2.5
	(b)	Classify biomass sources with examples and explain the process of biomass formation with a suitable diagram.	[CLO1, PLO2, C2]	2.5
5	(a)	Illustrate the Calvin cycle. What is biomass energy? List the major sources of biomass.	[CLO3, PLO2, C6]	2. 0
	(b)	State the major methods of biomass energy production and illustrate the biomass conversion technologies.	[CLO1, PLO2, C1]	3.0