



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
Level and Term: L-2, T-2
Time: 1 Hour 30 Minutes

Section- 251 (A+B)

Course Title: Biofertilizer and Renewable Energy
Course Teacher Initials: KMH & MAR
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