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Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)

M. Sc. (Ag.) (First Semester - Regular) Examinations, February 2026

SOIL-502 – Soil Fertility and Fertiliser Use

(Soil Science)

Time: 2 hrs | Maximum: 50 Marks

Answer ALL questions

(The figures in the right-hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** the questions	CO #	Blooms Level
a. What is biological nitrogen fixation?	CO1	K1
b. Mention one factor affecting phosphorus availability in acid soils.	CO1	K2
c. What is potassium fixation in soils?	CO1	K1
d. Define the critical limit of a micronutrient in soil.	CO2	K1
e. Define Soil Health.	CO2	K2

PART – B **(6 x 5 = 30 Marks)**

Answer ***ANY SIX*** questions	CO #	Blooms Level
2. Differentiate between soil fertility and soil productivity and analyze how they influence crop yield under Indian conditions.	CO1	L4
3. Compare phosphorus reactions in acid and alkaline soils and analyze their impact on P availability.	CO2	L4
4. Explain potassium forms in soil and the mechanism of potassium fixation.	CO2	L2
5. Define soil health and soil quality. Explain the long-term effects of fertilizers on soil quality.	CO4	L2
6. Evaluate different approaches to improve Fertilizer Use Efficiency (FUE) of Nitrogen under field conditions.	CO4	L4
7. Apply the principles of Integrated Nutrient Management (INM) to design a nutrient management plan for a cereal-based cropping system.	CO4	L3
8. Explain soil fertility evaluation methods (soil test, plant analysis and biological methods) and state their importance in fertilizer recommendation.	CO3	L2

PART – C **(10 x 1 = 10 Marks)**

Answer ***ANY ONE*** question	CO #	Blooms Level
9. Compare mobile and immobile nutrients in plants and analyze their significance in diagnosing nutrient deficiencies under field conditions.	CO1	L3, L4
10. Explain the transformations of nitrogen in soil and evaluate the management practices required to improve nitrogen use efficiency under lowland and upland conditions.	CO2	L4

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