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GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR

(GIET UNIVERSITY)

M. Sc. (Third Semester) Regular Examinations, December – 2024

22PSCBOE306 – Plant Metabolism

(Life Science- Plant Science)

Time: 3 hrs | Maximum: 70 Marks

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

PART – A **(2 x 10 = 20 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Give the examples of Ketone bodies.	CO1	K2
b. Illustrate the role of carnitine in fatty acid oxidation.	CO1	K1
c. Give the importance of α-oxidation of fatty acids.	CO1	K2
d. Explain the importance of sulphur in protein structure.	CO2	K2
e. Write the form of Sulphur is uptake by plants.	CO2	K2
f. Define the process of ammonification and write its reaction.	CO3	K1
g. Give any two examples of bacteria doing symbiotic nitrogen fixation.	CO3	K2
h. Mention the role of *nif* gene in N_2 fixation?	CO3	K1
i. Highlight the biological significance of phenolics in plants?	CO4	K2
j. Explain terpene and give its functions?.	CO4	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ANY FIVE*** questions	Marks	CO #	Blooms Level
2. a. Explain in details about the β-oxidation of fatty acids.	10	CO1	K2
3.a. Discuss the biosynthesis of glycerol.	5	CO1	K2
b. Discuss the steps of Ketogenesis.	5	CO1	K2
4. a. Schematically explain the Sulphur Cycle.	5	CO2	K2
b. Describe the process of uptake and transport of sulphur in plants.	5	CO2	K1
5.a. Illustrate about the nitrogen cycle with diagram.	5	CO3	K2
b. Explain about the non-biological fixation of nitrogen.	5	CO3	K2
6. a. Schematically explain the symbiotic nitrogen fixation and nodulations in plants.	5	CO3	K1
b. Give and discuss the genetics of N_2 fixation.	5	CO3	K2
7.a. Write notes on synthesis and regulation of nitrogenase.	5	CO3	K1
b. Define secondary metabolites. Discuss about the different secondary metabolites in plants.	5	CO4	K1
8. a. Discuss the steps of Shikimic acid biosynthesis pathway.	5	CO4	K2
b. Discuss the biosynthesis and biological significance of Mevalonate pathway.	5	CO4	K2