QP Code: Reg. No | | | | | | | | | | | AY 24

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, ODISHA, GUNUPUR
(GIET UNIVERSITY)

M.Sc. (First Semester - Regular) Examinations, February – 2025

24MBIPC11001– Biochemistry
(Biotechnology)

Time: 3 hrs Maximum: 60 Marks

Answer ALL questions
(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. List different types of turns.	CO1	K2
b. Write on molecular chaperons.	CO2	K1
c. Write the different emergent properties of biomolecules in water.	CO1	K1
d. Explain glyoxylate cycle.	CO2	K2
e. Illustrate the general structure of triacylglycerols (TAGs).	CO2	K3

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Compare and contrast between purines and pyrimidines. Add a note on nucleosides and nucleotides.	5	CO2	K4
b. Describe Urey-Miller experiment for origin of life on Earth.	5	CO1	K2
(OR)			
c. Describe the structure of B-DNA using suitable diagram.	5	CO2	K2
d. pH and buffer play a crucial role in biological systems. Justify using suitable example.	5	CO1	K5
3.a. Give a brief description of macromolecules.	5	CO1	K2
b. Briefly describe β-oxidation of fatty acids.	5	CO2	K2
(OR)			
c. Ramachandran plot helps to understand allowed conformations and identify secondary structures. Justify.	5	CO2	K5
d. Describe the Michaelis-Menten equation. What are the factors affecting enzyme activity.	5	CO2	K2
4.a. Write on inhibitors. Explain the different types of inhibitors using suitable diagrams or examples.	5	CO1	K2
b. Explain the different types membrane lipids with structure and function.	5	CO1	K1
(OR)			
c. Diagrammatically explain the Kreb's cycle.	5	CO2	K2
d. Explain the process of oxidative phosphorylation as the electrons move across the electron transport chain.	5	CO2	K2
5.a. Give an account on the structure function relationship of hemoglobin.	5	CO2	K2
b. Antiparallel β-sheets are more stable than parallel β-sheets. Justify.	5	CO2	K5
(OR)			
c. Provide a detailed account of non-cyclic photophosphorylation.	5	CO1	K3

d.	Six rounds of Calvin cycle are needed for the generation of one molecule of glucose. Justify using suitable diagram.	5	CO2	K5
6.a.	Describe the two distinct phases of HMP shunt and the major products formed?	5	CO2	K2
b.	Define disaccharides. Diagrammatically show the glycosidic bonds between any two important disaccharides.	5	CO1	K2
	(OR)			
c.	Explain the process of glycogenolysis.	5	CO2	K2
d.	With the help of a flow chart describe the process of biosynthesis of cholesterol.	5	CO2	K2

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