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## GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Third Semester - Regular) Examinations, December – 2022  
**21BBTPC23002 – Biochemistry**  
 (Biotechnology)

Time: 3 hrs

Maximum: 70 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. Which monosaccharide is optically inactive and why?	CO1	2
b. Draw the structure of a dipeptide and give the examples of biologically active peptides.	CO1	3
c. Give structure of ATP showing the internal bonds associated with it?	CO2	2
d. Calculate the energetic of $\beta$ -oxidation of Palmitic acid?	CO3	2
e. What is ribozymes? Give examples.	CO4	1

**PART – B****(15 x 4 = 60 Marks)**Answer ALL questions

	Marks	CO #	Blooms Level
2. a. Explain the structure and functions of glycogen?	8	CO1	1
b. What is lipid? Discuss the structure and functions of triglycerides and sphingolipids?	7	CO1	2
(OR)			
c. Discuss the secondary structure of protein with diagram?	8	CO1	2
d. Give a schematic of Ramachandran Plot and explain?	7	CO1	1
3.a. What is hormone? Write the importance and classification of hormones based on their chemical nature?	8	CO2	2
b. Discuss in details about the functions of nucleic acids?	7	CO2	1
(OR)			
c. What is Vitamin? Classify and discuss about any two water soluble vitamins?	8	CO2	1
d. Give the examples of phosphoryl group transfer molecules and explain with examples of biological oxidation and reduction reaction?	7	CO2	2
4.a. Explain the TCA cycle with calculate the total ATP released after complete oxidation of one molecule of Glucose?	8	CO3	3
b. What is glycolysis? Explain the steps of glycolysis?	7	CO3	2
(OR)			
c. Explain about the Electron transport system and discuss the role of chemiosmotic theory?	8	CO3	2
d. Explain in details about the steps $\beta$ -oxidation of fatty acids?	7	CO3	1
5.a. What are enzymes? Discuss about the various properties of enzymes?	8	CO4	3
b. Classify the enzymes in details with suitable examples?	7	CO4	2
(OR)			
c. Discuss the steps of biosynthesis of saturated fatty acids?	8	CO4	2
d. Explain the various theories describe the mechanism of enzyme actions with diagram?	7	CO4	3

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