



GIET UNIVERSITY, GUNUPUR - 765022

B. Tech (Third Semester Regular) Examinations, December - 2023 22BBTPC23002 - Biochemistry (Biotechnology)

Time: 3 hrs

Maximum: 70 Marks

(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. Draw the structure of glucose and fructose. | CO1 | K2 |
| b. Differentiate between homopolysaccharides and heteropolysaccharides with suitable examples. | CO1 | K4 |
| c. Cells were obtained from a patient with viral infections. The DNA extracted from the cells consists of two forms i.e double stranded Human DNA and single stranded viral DNA. The base compositions are given below: | CO2 | K4 |

Forms	Adenine	Cytosine	Guanine	Thymine
Form1	22.1%	27.9%	27.9%	22.1%
Form2	31.3%	31.3%	18.7%	18.7%

From the above data determine which form is human DNA and viral DNA?

- | | | |
|--|-----|----|
| d. In fatty acid synthesis, which molecule is an activated form of Acetyl CoA? | CO3 | K4 |
| e. Define ribozyme. Give example. | CO4 | K2 |

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

- | | Marks | CO # | Blooms Level |
|--|-------|------|--------------|
| 2. a. Explain the concept of mutarotation by given the example of glucose. | 5 | CO1 | K3 |
| b. Explain the structure and functions of Cholesterol. | 5 | CO1 | K2 |
| (OR) | | | |
| c. Give a schematic of Ramachandran Plot and explain. | 5 | CO1 | K3 |
| d. Explain the structure and functions of glycogen. | 5 | CO1 | K2 |
| 3.a. Classify the hormones based on the distance they act and briefly write down about the hormones of gonads. | 5 | CO2 | K3 |
| b. Explain the double helical model of DNA with its structure. | 5 | CO2 | K2 |
| (OR) | | | |
| c. Define minerals. Classify the minerals and write about any five minerals. | 5 | CO2 | K1,K3 |
| d. Discuss about any three water soluble vitamins. | 5 | CO2 | K2 |

4.a.	Graphically represent the steps of glycolysis and its energetics.	5	CO3	K3
b.	Explain the denovo pathway for synthesis of pyrimidine.	5	CO3	K2
(OR)				
c.	Mention the process of gluconeogenesis with flow chart.	5	CO3	K3
d.	Explain the basic steps of β -oxidation of fatty acids.	5	CO3	K2
5.a.	Explain in details about the properties of enzymes.	5	CO4	K2
b.	Graphically represent the role of different precursors for the biosynthesis of amino acids.	5	CO4	K2
(OR)				
c.	Discuss in details about the mechanism of enzyme action.	5	CO4	K2
d.	Mention the precursors of glycolysis for the amino acid biosynthesis with diagram.	5	CO4	K2

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