Register Number:……..

KUMARAGURU
college of technology
character is life

B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Third Semester

BIOTECHNOLOGY

U18BTT3001**:** Bioorganic Chemistry

COURSE OUTCOMES

CO1: Recognize role of organic chemistry in biological reactions.

CO2: Explain the chemical reactions of coenzymes and metal ions in biocatalysis.

CO3 Evaluate the role of metal ions proteins and enzymes.

CO4: Describe the chemistry of nucleic acids.

CO5: Analyze the synthesis and properties of natural products.

CO6: Demonstrate the techniques used to separate natural products.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Justify the statement: "Amino acids are amphoteric"		CO1	[K_2]
2.	Write the Fischer's structure of D-Gluocse.		CO1	[K_2]
3.	What is the role of Pyridoxal Phosphate in enzymatic reactions?		CO2	[K_2]
4.	Name the cofactor involved in the reaction of alcohol dehydrogenase		CO2	[K_1]
5.	Illustrate Hund's rule using Nitrogen as an example (atomic number 7)		CO3	[K_3]
6.	Distinguish B and Z forms of DNA with respect to their handedness		CO4	[K_2]
7.	List two applications of RNA interference.		CO4	[K_1]
8.	What is the principle of Soxhlet extraction?		CO6	[K_2]
9.	What is the precursor molecule for terpenoids?		CO5	[K_2]
10.	List two limitations of reflux extraction of natural compounds.		CO6	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Enumerate the steps involved in the Solid Phase synthesis of Peptides	10	CO1	[K_2]
	b)	Describe the principle and reaction of aminoacids with ninhydrin reagent	6	CO1	[K_2]

12.	a)	Elaborate the role of Thiamine Pyrophosphate coenzyme in enzymatic decarboxylation.	8	CO2	[K_2]
	b)	Describe the catalytic cycle of alpha chymotrypsin.	8	CO2	[K_2]
13.	a)	Describe the structure of Hemocyanin with specific emphasis on the copper atoms.	8	CO3	[K_3]
	b)	Describe the reaction mechanism of Nitrogenase enzyme.	8	CO3	[K_2]
14.	a)	Illustrate the structural features of the sugar-phosphate backbone of DNA in relation to B DNA	6	CO4	[K_3]
	b)	Describe the blocking reagents and process stages involved in Solid phase chemical synthesis of Oligonucleotides	10	CO4	[K_2]
15.	a)	Write a note on the process of Maceration and its applications in extraction	8	CO5	[K2]
	b)	Describe the industrial synthesis of the terpenoid menthol	8	CO5	[K_2]
16.	a)	Describe the Industrial extraction process using super critical fluid technology	16	CO2	[K_3]

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