Q. Code:361176

Reg. No. | | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

First Semester

BT22201 – BIOORGANIC CHEMISTRY

(Biotechnology)

(Regulation 2022)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	To know in detail about the elements of atom, charges and their bonding rule.	**2**
CO 2	To understand the various kinetic properties and types of reaction mechanisms.	**2**
CO 3	To understand the possible bio-organic reactions involved in biosynthesis.	**2**
CO 4	To analyze various bioorganic based productions.	**3**
CO 5	To apply the concepts of Bioorganic reactions.	**4**

PART- A (20 x 2 = 40 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Differentiate cis trans isomerism.	**1**	**2**
2.	Explain different types of covalent bonds.	**1**	**2**
3.	Write on SP3 hybridization.	**1**	**2**
4.	Mention on acid base equilibria by Arrhenius theory.	**1**	**2**
5.	Give an account on different steric effect experienced by different conformations.	**2**	**2**
6.	Write on ester hydrolysis of amides.	**2**	**2**
7.	How phosphodiester bond is formed in DNA?	**2**	**2**
8.	Give the role of nucleophile in various reactions.	**2**	**2**
9.	What is rate law and rate constant? Give examples	**3**	**2**
10.	Write Erying equation and abbreviate its parameters.	**3**	**2**
11.	Give the overall rate equation that favors trapping of intermediate.	**3**	**2**
12.	Mention some kinetics methods that experiences change of concentration.	**3**	**2**
13.	How cofactor play a role in functioning of proteins?	**4**	**3**
14.	Infer the role of metal ions in various biological functions.	**4**	**3**
15.	Explain the role of proton transfer in favoring various reactions.	**4**	**3**
16.	How intramolecular reactions are favored to occur?	**4**	**3**
17.	Explain the role of ATP in hydrogen bond formation in DNA.	**5**	**4**
18.	Conclude on how various bonds of DNA facilitate the stability of it?	**5**	**4**
19.	Give an account on how Hoogteen base pairing favors the helices formation in DNA?	**5**	**4**

20.	Analyze is the role of solid support in synthesis of synthetic protein Bradykinin.		**5**	**4**

PART- B (5 x 10 = 50 Marks)

		Marks	CO	RBT LEVEL
21.(a)	Describe the conformational analysis of butane with various forms of structures on 60 degree rotation.	**(10)**	**1**	**2**
	(OR)			
(b)	Explain how hyperchromic effect is experienced by DNA through denaturation and renaturation process?	**(10)**	**1**	**2**
22.(a)	Write on S_N1 and S_N2 reactions on tetrahedral carbon and effect of solvent.	**(10)**	**2**	**2**
	(OR)			
(b)	Explain the conformational strain experienced by DNA supercoiling and the role of enzymes to favor DNA to get different supercoiling to enter into required process.	**(10)**	**2**	**2**
23.(a)	Describe kinetics of thermodynamically coupled reactions through transition state and microscopic reversibility.	**(10)**	**3**	**2**
	(OR)			
(b)	Write brief note on X ray diffraction analysis of DNA to get different forms of DNA structures.	**(10)**	**3**	**2**
24.(a)	Give the role of organized aggregates and phases in synthetic peptide based vaccines.	**(10)**	**4**	**3**
	(OR)			
(b)	Explain how immunostimulatory complexes enhance immune response elicitation in a better way like other vaccines.	**(10)**	**4**	**3**
25.(a)	Describe how various key steps favors the formation of terpene as product by sequential organic reactions?	**(10)**	**5**	**4**
	(OR)			
(b)	Explain Sangers method of peptide sequencing by applying DNP and end group analysis method.	**(10)**	**5**	**4**

PART- C (1 x 10 = 10 Marks)

(Q.No.26 is compulsory)

		Marks	CO	RBT LEVEL
26.	How Sangers method of DNA sequencing applies chain termination method to identify the template DNA?	**(10)**	**5**	**3**

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