KUMARAGURU
college of technology
character is life

Register Number: …….

B.TECH DEGREE EXAMINATIONS: MAY 2015

(Regulation 2013)

Fourth Semester

BIOTECHNOLOGY

U13BTT402:Bioorganic Chemistry

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

Answer all the Questions

PART A (10 x 1 = 10 Marks)

1. At isoelectric point, proteins have
   a) Equal number of positive and negative charged groups
   b) Positive charged groups
   c) Negative charged groups
   d) Neutral
2. The pH of actuate buffer solution is in the range……
3. Decrease of free energy of activation will result in ……..
   a) Increase in reaction rate
   b) Increase in enzyme binding
   c) Decrease in reaction
   d) Decrease in enzyme binding
4. Olive oil contains highest percentage of …….. fat.
5. Which way $NADP^+$ functions in photosynthesis?
   a) Water splitting coenzyme
   b) Producer of ATP
   c) Hydrogen carrier
   d) Chlorophyll stimulator
6. Pyridoxal phosphate is concerned with …….. metabolism
7. The active site of chytotrypsin contains …….
   a) Glycine and tryptophan
   b) Isoleucine and proline
   c) Serine and histidine
   d) Cystine and leucine
8. …… are a family of compounds made up of sugar molecules.
9. A DNA molecule contains adenine 20% of the total bases. What would be the percentage of cytosine?
   a) 30%
   b) 50%
   c) 35%
   d) 40%
10. The complementary sequence for 5’-TCTAAG-3’ is ……

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. What are Zwitter ions?
12. Define pH.
13. Define Saponification number.
14. What is meant by acid number?
15. What are carboxylases?
16. What are Co-enzymes? Give two examples.
17. Enlist any two industrial applications of enzymes.
18. What are cyclodextrins?
19. Define feed back inhibition.
20. Enlist any two softwares used in drug design.

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. Illustrate in detail – sequencing of peptides using Edman's degradation method.

22. a) (i) Compare and contrast SN_1, SN_2, E_1 and E_2 reactions. (7)

(ii) Describe the concepts (i) Free Energy (ii) Activation energy (4+3)

(OR)

b) (i) Describe the terms acid, base and buffer with examples. Add a note on the different types of buffers. (7)

(ii) Discuss Henderson-Hasselbalch equation and its significance. (7)

23. a) (i) Describe the structure and mechanism of action of Ribonuclease A. (7)

(ii) What are lysozymes? Explain its mechanism of action. (7)

(OR)

b) (i) Discuss the functions and mechanism of action of aminotransferases. (7)

(ii) Illustrate the structure and mechanism of action of Horse Liver alcohol dehydrogenase enzyme. (7)

24.	a)	(i)	Differentiate between artificial enzymes and modified enzymes? Give two examples each.	(8)
		(ii)	What are chemically modified enzymes? List out applications.	(6)
			(OR)	
	b)	(i)	Describe the reduction of aldehydes and ketones using enzymes and whole cells.	(10)
		(ii)	What are Enzyme-analog polymers? Mention its significance.	(4)
25.	a)	(i)	Discuss in detail about pharmacore identification and functional group modification.	(8)
		(ii)	Describe the mechanism of action of enzyme inhibitors.	(6)
			(OR)	
	b)	(i)	Briefly describe the factors affecting drug designing.	(8)
		(ii)	Comment on DNA interactive drugs and its mechanism of action with an example.	(6)

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