

M. Sc. DEGREE EXAMINATION, NOVEMBER 2007  
BIOTECHNOLOGY  
FIRST SEMESTER

COURSE : CORE  
PAPER : BIOCHEMISTRY  
TIME : 3 HOURS

MAX. MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS:

20 x 1 = 20

1. Important buffer system to maintain pH of extra cellular fluid is  
a) Protein      b) bicarbonate      c) Phosphate      d) all the above
2. Glycolysis in erythrocytes in aerobic conditions terminates in  
a) pyruvate      b) lactate      c) acetyl CoA  
d) complete oxidation of glucose molecule.
3. Glucagon decreases blood glucose level through .  
a) inhibition of glycolysis      b) stimulates gluconeogenesis  
c) raising the concentration of CAMP      d) all the above
4. The pacemaker of urea cycle is  
a) argino succinate synthase      b) ornithine trans carba moylase  
c) carbamoyl phosphate synthase I      d) none of the above
5. Tick the nutrient which is not absorbed from ileum  
a) Bile acid      b) vitamin B<sub>12</sub>      c) monacylglycerol      d) water
6. In denaturation of protein, the bond not broken is  
a) peptide bond      b) hydrogen bond      c) ionic bond      d) disulfide bond
7. Non protein part of any enzyme is called.  
a) apoenzyme      b) epienzyme      c) coenzyme      d) none

FILL IN THE BLANKS :

8. The site of HMP shunt is \_\_\_\_\_.
9. \_\_\_\_\_ is a hypoglycemic hormone.
10. \_\_\_\_\_ is the end product of  $\beta$  oxidation.
11. The coenzyme required for transamination is \_\_\_\_\_.
12. The amino acid used in Thyroxine synthesis is \_\_\_\_\_.

**GIVE A VERY BRIEF ANSWER:**

13. Write the structure of  $T_4$ .
14. Define  $k_m$ .
15. Name the rate limiting enzymes in glycolysis.
16. What is carnitine ?
17. What are essential fatty acids? Give examples.
18. Write the structure of ATP.
19. Mention Handerson – Hassel balch's equation.
20. Define turnover number of an enzyme.

**SECTION – B****ANSWER ANY FOUR QUESTIONS:****4 x 10 = 40**

21. Describe Krebs Hensleitt sycle.
22. Explain metabolic adaptations in well fed and starvation state.
23. Discuss the role of kidney in the regulation of blood pH.
24. Enumerate the steps involved in oxidation of fatty acids with regulation.
25. Define oxidative phosphorylation. Explain the theory proposed to describe the mechanism of oxidative phosphorylation.
26. Describe the IOB system of classification of enzymes. Explain allosteric regulation of enzyme with one example.
27. Explain a technique used to separate subcellular fractions from liver homogenate. Mention the markers for each organelle.

**SECTION – C****ANSWER ANY TWO QUESTIONS: DRAW DIAGRAMS WHEREVER NECESSARY:****2 X 20 = 40**

28. Describe the metabolism of glycogen in detail and mention the regulation of this process both in liver and muscle.
29. Illustrate the methods of immobilization of enzymes and their industrial applications.
30. Describe the various levels of Protein structure and mention the forces involved in stabilization of these structures.
31. Discuss the role of tyrosine kinase in signal transduction and explain its mode of action.

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