D 72414 **(Pages : 3)** **Name**.....

Reg. No.....

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2014

(UG-CCSS)

Complementary Course—Biochemistry

BC 3C 09—ENZYMOLOGY AND METABOLISM

Time : Three Hours Maximum : 30 Weightage

I. Answer *all* the twelve questions :

1 In the presence of a fixed concentration of a competitive inhibitor, increase in the concentration of the substrate :

(a) Reverses the inhibitory action.

(b) Increases Km.

(c) Inhibitory effect remains unaffected.

(d) Decreases Vmax.

2 The enzymes catalyzing breakdown without addition of water are called :

(a) Lyases. (b) Hydrolases.

(c) Ligases. (d) Oxidoreductases.

3 In the electron transport final acceptor of electron is :

(a) Cytochrome b. (b) Cytochrome a.

(c) Oxygen. (d) CoQ.

4 At high temperatures enzymes are :

(a) Killed. (b) Denatured.

(c) Inactivated. (d) All of the above.

5 The components of electron transport chain are arranged in the following order of redox potential

(a) Increasing. (b) Decreasing.

(c) Random. (d) Alternatively increasing and decreasing.

6 The enzymes of glycolysis are located in the :

(a) Mitochondrion. (b) Nucleus.

(c) Cytoplasm. (d) Lysosomes.

7 The synthesis of glucose from lactate, glycerol, or amino acids is called :

(a) Glycogenolysis. (b) Glycolysis.

(c) Lipolysis. (d) Gluconeogenesis.

Turn over

8 In photosynthesis, CO_2 acceptor is :

(a) Ribulose biphosphate. (b) Glyceraldehyde.

(c) Dihydroxy acetone. (d) Ribose 5 phosphate.

9 Substrate binding site on the enzyme is :

(a) Active site. (b) Allosteric site.

(c) Both. (d) None.

10 Km values are not altered by which type of inhibitor :

(a) Competitive inhibitors. (b) Non-competitive inhibitors.

(c) Uncompetitive inhibitors. (d) All of these.

11 During glycolysis the following reaction requires NAD^+ :

(a) Alcohol dehydrogenase. (b) Glyceraldehyde-3-phosphate dehydrogenase.

(c) Lactate dehydrogenase. (d) Pyruvate dehydrogenase.

12 Calvin cycle is also known as :

(a) Reductive hexose phosphate cycle.

(b) Reductive pentose phosphate cycle.

(c) Oxidative hexose phosphate cycle.

(d) Oxidative pentose phosphate cycle.

(12 x ¼ = 3 weightage)

II. Answer *all* nine questions :

13 What is an allosteric site ?

14 Name two coenzymes derived from niacin.

15 What is the action of amylase ?

16 What is substrate level phosphorylation ?

17 What is the action of adenylate cyclase ?

18 Give an example for group specificity of enzymes.

19 What are zymogens ?

20 What is the effect of temperature on enzyme activity ?

21 What are the full forms of FMN and FAD ?

(9 x 1 = 9 weightage)

III. Answer any *five* questions :

22 Draw a Lineweaver Burk Plot and mark Vmax and Km.

23 Outline the sequences of reactions in the pentose phosphate pathway.

24 What are the six classes of enzymes ? Give one example.

25 Rubisco is important in the dark reactions of photosynthesis. How ?

26 Discuss the role of cyclic AMP in glycogen metabolism.

27 Describe the structure of mitochondria.

28 State Michaelis Menten equation and discuss the importance of Km.

(5 x 2 = 10 weightage)

IV. Answer any *two* questions

29 Describe glycolysis.

30 Write an essay on muscle contraction.

31 Describe the reactions of citric acid cycle.

(2 x 4 = 8 weightage)