

Seat No. : _____

N15-106

November-2014

B.Sc., (Sem. –V) (CBCS)

BIC-303 : Biochemistry

(Enzymology)

Time : 3 Hours]

[Max. Marks : 70

- Instructions:**
- (1) **All** questions are compulsory.
 - (2) **All** questions carry equal marks.
 - (3) Draw diagrams wherever necessary.

1. (a) Define the following with an example. **4**
- (i) Coenzymes
 - (ii) Holoenzyme
 - (iii) Synzyme
 - (iv) Extremozyme
- (b) List the differences between Enzymes and Chemical catalysts. **7**
- (c) Explain Activation energy in brief. **3**

OR

- (a) Explain the role of Vitamin B1 and Vitamin B2 in enzyme catalyzed reactions. **6**
 - (b) Write a note on Zymogens. **6**
 - (c) Define Multienzyme Complex. **2**
2. (a) Discuss Isoenzymes with LDH as an example. Discuss the biochemical importance of Isoenzymes. **10**
- (b) Discuss the role of metal ions in Superoxide dismutase and Kinase. **4**

OR

- (a) Explain Membrane bound enzymes and its importance with a suitable example. **10**
 - (b) Describe the role of metals in enzyme action. **4**
3. (a) Discuss the effect of Enzyme Concentration and Temperature on the enzyme catalyzed reactions. **6**
- (b) Discuss briefly the four digit classification of Enzymes. **8**

OR

N15-106

1

P.T.O.

- (a) Discuss the effect of Substrate concentration and pH and on the enzyme catalyzed reactions. **8**
- (b) Name the class to which the following enzymes belong, justifying your answer. **6**
- (i) Pyruvate dehydrogenase.
- (ii) Acetyl Co A synthetase.
- (iii) Creatine Kinase.
4. (a) Discuss the covalent modulation of enzyme with Glycogen phosphorylase as an example. **10**
- (b) What are the Allosteric modulators of the following enzymes ? **4**
- (i) Threonine dehydratase
- (ii) Fructose 1, 6 Bisphosphatase
- (iii) Acetyl CoA carboxylase
- (iv) Phosphofructokinase-1
- OR**
- (a) Discuss two substrate reaction mechanism with suitable example. **12**
- (b) Give two differences between Allosteric and Non-regulatory enzymes. **2**
5. Answer briefly **all** questions : **14**
- (1) Define Apoenzyme. **1**
- (2) Name two scientists and their contribution in Enzymology. **2**
- (3) List two advantages of Multi enzyme complex. **2**
- (4) Define K_m . **1**
- (5) Why do we need to classify enzymes ? **1**
- (6) Name the enzyme which has EC number 1.1.1.1. **1**
- (7) What is a monovalent allosteric enzyme ? Give example. **2**
- (8) Define homotropic allosteric enzyme. **1**
- (9) Define Enzyme specificity. **1**
- (10) Niacin and Biotin act as coenzymes to which class of enzymes. **1**
- (11) Define Abzymes. **1**