

**FOURTH SEMESTER EXAMINATION 2021-22****M.Sc. CHEMISTRY****Paper - II****Bio Organic & Bio Physical Chemistry**

Time : 3.00 Hrs.

Max. Marks : 80

Total No. of Printed Page : 03

Mini. Marks : 29

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**Note:- Question paper is divided into three sections. Attempt question of all three section as per direction Distribution of marks is given in each section.**

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**Section 'A'****Very short answer question (in few words)**

Q.1 Attempt any six questions from the following :

6x2=12

- (i) Define proximity effect in enzyme catalysis reaction.
- (ii) What are the four functions of enzyme.
- (iii) What is Fischer lock and key Model.
- (iv) What is difference between coenzyme and cofactor.
- (v) Write the correct equation for Line weaver-Burk plot.
- (vi) What is the importance of immobilization of Enzyme.
- (vii) Draw the structure of coenzyme A and FMN.
- (viii) What is the function of cell membrane.

(2)

- (ix) What are some examples of biopolymers.
- (x) What is the definition of X-ray diffraction in biology.

## **Section 'B'**

### **Short answer type question (in 200 words)**

Q.1 Attempt any four questions from the following : 4x5=20

- (i) Discuss the classification of enzymes as reaction they catalysed and IUB system.
- (ii) Derive the Michaelis-Menten equation and explain the significance of  $V_{max}$  and  $K_m$ .
- (iii) Discuss the effect of pH, temperature and concentration on enzyme action.
- (iv) Illustrate biological functions of pyridoxal phosphate.
- (v) Explain how enzymes as targets for drug design.
- (vi) Draw well labelled figure of cell membrane.
- (vii) Explain the thermodynamic treatment of membrane transport.
- (viii) What is diffusion and its role in biological system.

## **Section 'C'**

### **Long answer/Essay type question.**

**4x12=48**

Q.3 Attempt any four questions from the following questions :

- (i) (a) Discuss competitive and non competitive inhibition of enzyme with kinetics.  
(b) Describe the Koshland's induced fit hypothesis concept.
- (ii) Discuss the following :  
(a) Orientation and steric effect in mechanism of Enzyme action.

(3)

- (b) Biological functions of coenzyme A.
- (iii) (a) Explain the role of copper in the mechanism of Superoxide dismutase.  
(b) Compare the role of Zinc in carboxy peptidase A and carbonic anhydrase.
- (iv) (a) Discuss the various methods of immobilisation of enzymes.  
(b) Explain the effect of immobilisation of enzyme activity.
- (v) (a) Discuss the muscle contraction phenomenon in muscular activity of a biological system.  
(b) Explain the thermodynamic treatment of membrane transport.
- (vi) (a) What are the methods used for the evaluation of molecular weight of biopolymer.  
(b) What are various ions transport through cell membrane is possible.
- (vii) Explain the applications of the following :
  - (a) Low angle of X ray
  - (b) Spectroscopy
  - (c) X ray scattering
- (viii) Write notes on following :
  - (a) Nerve conduction
  - (b) Use of enzymes in food and drink
  - (c) Molecular adaptation.

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