B.Sc. (Part–II) Semester-IV Examination
BIOCHEMISTRY
ENZYMOLOGY

Time : Three Hours] [Maximum Marks : 80

Note :— (1) All questions are compulsory.

(2) Draw well labelled diagrams wherever necessary.

1. (A) Fill in the blanks : 2

(i) In clinical laboratory glucose estimation is based on conversion of glucose into _____ acid by immobilized glucose oxidase.

(ii) Lock and key model was proposed by _____.

(iii) In competitive inhibition, inhibitor binds with _____ molecule.

(iv) In IUB system of enzyme classification IUB stands for _____.

(B) Choose correct alternative : 2

(i) TPP is _____

(a) Cocarboxylase (b) Monocarboxylase

(c) Dicarboxylase (d) Procarboxylase.

(ii) LDH is an example of _____

(a) Apoenzyme (b) Coenzyme

(c) Ligase (d) Isoenzyme.

(iii) Alcohol dehydrogenase produce _____ as a product.

(a) Alcohol (b) Aldehyde

(c) Ketone (d) CO_2

(iv) Irreversible inhibition involve _____ bonding.

(a) Covalent (b) Noncovalent

(c) Semicovalent (d) Both covalent and noncovalent.

(C) Answer in one sentence : 4

(i) V_{max}

(ii) ES complex

(iii) Stereospecificity

(iv) Kinase.

2. Explain :

(a) Isozymes 4

(b) Marker enzyme 4

(c) Active site 4

OR

(d) Oxidoreductase 4

(e) Multienzyme complex 4

(f) Enzyme activators. 4

3. Describe in detail factors affecting enzyme activity. 12

OR

Derive Michaelis-Menten equation. Give significance of K_m. 12

4. Explain :

(a) Effect of competitive inhibitor on enzyme velocity. 4

(b) Reversible inhibition 4

(c) Lineweaver Burk plot for effect of competitive inhibitor on enzyme velocity. 4

OR

(d) Competitive inhibition 4

(e) Effect of non-competitive inhibitor on enzyme velocity 4

(f) Significance of activation energy. 4

5. Describe

(a) Allosteric effect of an activator 4

(b) Flavin nucleotides 4

(c) Biotin as coenzyme 4

OR

(d) Allosteric effect of inhibitor. 4

(e) Cobalamine as coenzyme. 4

(f) End product inhibition 4

6. Explain :

(a) Acid base catalysis 4

(b) Lock and Key model 4

(c) Substrate strain theory 4

OR

(d) Covalent catalysis 4

(e) Induced fit model 4

(f) Proximity and orientation effect 4

7. Describe in detail industrial applications of immobilized enzymes. 12

OR

Discuss applications of proteases in different industries. 12