Roll No. ..... **Total No. of Pages : 3**

PC 13191-N

L-15/2111
ENZYMOLOGY-IX
Semester- III

Time Allowed : Three Hours] [Maximum Marks : 75

Note :- Candidates are required to attempt two questions each from Section A & B and the entire Section C is compulsory.

SECTION—A

1. (a) Write a comprehensive note on natural vs directed evolution of enzymes. 7

   (b) State briefly on the following : Enzyme specificity, mechanism of enzyme action. 8

2. (a) Explain the importance of some covalent modifications of enzymes. 7

   (b) Write briefly on the following : allosteric interaction, Fatty acid synthase (FAS) 8

3. (a) Critically discuss the criteria for the selection of enzyme sources with examples. 7

   (b) State briefly the salient attributes of amylases, invertases, lipases and proteases. 8

4. (a) State the principles and uses of solid substrate and submerged fermentation. 6

(b) Highlight the advantages and limitations of soluble and immobilised enzymes. 9

SECTION—B

5. (a) Illustrate the steps involved in the enzymatic production of L-Asp and L-Lys. 8

(b) Outline the srategy for enzymatic production of any two chiral compounds. 7

6. (a) Describe the steps of enzyme-mediated production of any two antibiotics. 8

(b) Write a comprehensive note on any two biotechnologically important steroids. 7

7. (a) Write briefly on the following :

enzyme sensors, bio-semiconductors. 8

(b) State the desirable attributes of industrially important enzymes with examples. 7

8. (a) Describe the *in vitro* approaches for producing functionally robust enzymes. 8

(b) Analyse the role of organic solvents in enzyme function with examples. 7

SECTION—C

9. Answer all the following short answer type questions :-

(i) Define the following terms: apoenzyme, cofactor and prosthetic group.

(ii) Elucidate the role of Tyr and Asn in the enzyme active sites.

(iii) Wrire a brief note on multienzyme complexes.

(iv) What do you mean by irreversible and reversible denaturation of enzymes?

(v) State the principle of enzyme therapy.

(vi) Write briefly on any two microbes for large-scale enzyme production.

(vii) Write briefly on enzyme membranes.

(viii) State catalytic property and industrial importance of pectinases and amylases.

(ix) Give a brief account of recombinant enzymes..

(x) Explain why enzymes are used in detergents. $10 \times 1.5 = 15$