M-32|2110 1047e/N

Set I

ENZYMOLOGY (PAPER IX)

M.Sc. (BIOTECHNOLOGY) – PART II (Semester III)

Maximum Marks-75

Time Allowed-3 h

Instructions for candidates

1. Attempt any two questions from section A and B. All questions carry equal marks.

2. Section C is compulsory.

Section A

I (a) Describe the molecular aspects of enzyme action. 10

I (b) Write a note on enzyme classification giving examples of different classes of enzymes. 5

II. Write notes on:

(a) Allosteric enzymes 7.5

(b) Enzyme immobilization 7.5

III (a) Describe industrial production of amylases and proteases. 10

III (b) Describe the advantages of using immobilized enzymes over their soluble counterparts. 5

IV. What is the effect of substrate on enzyme activity? Derive Michaelis-Menten equation for studying enzyme kinetics. Discuss the significance of Km and Kcat. 15

Section B

V. Describe the applications of enzymes in pharmaceutical industry. 15

VI. Write a note on important food enzymes. 15

VII. What are enzyme sensors? Describe their construction and working. 15

VIII (a) What are the strategies employed for stabilizing enzymes in organic solvents? 8

VIII (b) Write a note on recombinant enzymes. 7

Section C

1.5 X 10= 15

IX. (i) What are biochips?

(ii) What is the significance of studying evolutionary patterns of enzymes?

(iii) What is binding energy?

(iv) What is the role of phosphorylation in regulating enzyme activity?

(v) Describe the industrial uses of cellulases.

(vi) Define enzyme activity.

(vii) What is enzyme therapy?

(viii) Name an enzyme that requires Mg^{+2} for its activity.

(ix) Describe the structure of active site.

(x) Define coenzymes and cofactors.