

1T00416 - T.E.(BIOTECHNOLOGY)(Sem VI) (CBSGS) / 36503 - ENZYME ENGINEERING

(3 Hours)

[Total Marks: 80]

N.B. 1) Q.No. 1 is compulsory.

2) Attempt any 3 questions from Q. No. 2 to 6.

3) All questions carry equal marks.

Q1. Explain in detail the various methods of immobilization. [20]

Q2. a) Explain how enzyme activity can be studied using coupled enzyme assay with suitable examples. [10]

b) What is specific activity? Explain its role of in determining purity of enzyme. [10]

Q3. a) Explain how enzyme activity can be determined using (a) change of pH & (b) spectrophotometer. [10]

b) With the help of examples, explain the common mutations carried out in amino acid residues of enzymes. [10]

Q4. a) Explain how affinity chromatography can be utilized to achieve purification of enzyme. [10]

b) Discuss in detail about competitive inhibition with suitable examples. [10]

Q5. Write the applications of enzymes in: [20]

a) Biosensors

b) Detergent industry

c) Diagnostic industry.

d) Textile industry

Q6. a) Discuss the working of any 2 enzyme based reactors. [10]

b) The following results were obtained for an enzyme-catalysed reaction [10]

Substrate concentration (mmol/l): 5.0 6.67 10.0 20.0 40.0

Initial velocity ($\mu\text{mol/l-min}$): 147 182 233 323 400Calculate K_m and V_{max}