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**GSE/M-20** **1504**

BIOTECHNOLOGY

(Biochemistry–II)

Paper–IV

Time : Three Hours] [Maximum Marks : 40

**Note :** Attempt *five* questions in all. Question No. 1 is compulsory. Attempt any *two* questions from each of the Unit I and II. All questions carry equal marks.

**Compulsory Question**

**1.** Define the following :

(a) Active site.

(b) Irreversible inhibition.

(c) Energy of activation.

(d) $V_{max}$.

(e) Catabolism.

(f) Prosthetic group.

(g) Ketogenic amino acid.

(h) B-oxidation. (8×1=8)

## UNIT–I

**2.** (a) Differentiate between the enzymes of class Hydrolase and Lyase. Explain with examples. (4)

(b) Explain Induced Fit Hypothesis of enzyme catalysis. (4)

**3.** (a) Enlist various factors affecting enzyme activity. Explain any *one* in detail. (4)

(b) Differentiate between non-competitive and uncompetitive reversible enzyme inhibition. (4)

**4.** (a) Give structure of niacin and explain its role as coenzyme. (4)

(b) How do peptide hormones influence metabolism? Explain with example. (4)

## UNIT–II

**5.** (a) Write reactions and name the enzymes catalyzing the irreversible steps of gluconeogenesis. (4)

(b) Enlist the factors affecting glycogen breakdown. How is the process regulated? (4)

**6.** Name the enzymes constituting fatty acid synthase complex. Give a brief account of fatty acid synthesis from acetyl CoA. (8)

**7.** Write the reaction and mention the coenzymes of any *four* reactions catalyzed by the following enzymes.

(a) Pyruvate dehydrogenase.

(b) Succinate dehydrogenase.

(c) Glutamine synthetase.

(d) L-Ornithine transcarbomylase.

(e) Acyl CoA dehydrogenase. (4×2=8)