

Roll No.

Total Pages : 3

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)

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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)

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