

B.Sc. (CBCS Pattern) Semester-III
011B - Biotechnology Paper-II : Molecular Biology and Enzymology

P. Pages : 2

Time : Three Hours



GUG/W/24/11619

Max. Marks : 50

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- Notes : 1. All questions are compulsory.
2. Draw the diagram wherever it is necessary.

1. What is enzyme? Give classification of enzyme? 10

OR

- a) What are isoenzymes? Explain? 2½
- b) Define terms: 2½
i) Coenzyme
ii) Cofactor.
- c) Discuss Lock and Key model in brief. 2½
- d) What is allosteric Modulator. 2½

2. Derive the Michaelis Menten equation. 10

OR

- a) What is inhibition? Explain competitive inhibition. 2½
- b) Discuss various factor affecting enzyme activity? 2½
- c) How pH affects the enzyme activity. 2½
- d) Discuss the technique of Enzyme Immobilization. 2½

3. What is transcription? Explain four steps of transcription in details? 10

OR

- a) Explain the regulation of Lac operon. 2½
- b) Write a note on Topoisomerase. 2½
- c) Explain structure of holoenzyme DNA polymerase-III. 2½
- d) Write a note on Okazaki fragments. 2½

4. Describe in detail the process of translation with suitable diagram. 10

OR

- a) Describe the concept of couple transcription - translation. 2½
- b) What is shine-Dalgarno sequence? Explain 2½
- c) Discuss the concept of Wobble hypothesis. 2½
- d) Write a note on codon-anti codon interaction. 2½

5. Solve **any ten**.

- a) What is turnover number. 1
- b) What is activation energy? 1
- c) What is holoenzyme? 1
- d) What is Km? 1
- e) What is enzyme catalysis? 1
- f) What is transition state. 1
- g) What is long form of SSB. 1
- h) What is subunit of RNA polymerase? 1
- i) What is the function of helicase? 1
- j) What are Non - sense codons? 1
- l) Which amino acid is synthesized by AUG codon in prokaryotes? 1
- k) What are initiation codons in prokaryotes. 1
