

B.Sc. T. Y. (CBCS Pattern) Semester-V
USBCDST-10 (DSE-II) - Biochemistry Paper-II - Molecular Biology

P. Pages : 2

Time : Three Hours



GUG/S/25/13112

Max. Marks : 50

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- Notes : 1. All questions are compulsory and carry equal marks.
2. Draw well labelled diagram wherever necessary.

1. Describe in detail the experiment of Meselson & Stahl to prove the Semiconservative nature of replication. **10**

OR

- a) Write the basic features of replication. **2½**
- b) Explain the origin of replication. **2½**
- c) Write a note on rolling circle replication. **2½**
- d) Explain in short the termination of replication. **2½**

2. Explain in detail the assembly of DNA polymerase III holoenzyme sub units on DNA. Draw the diagram of sub unit composition of polymerase III associated with leading and lagging strand. **10**

OR

- a) What is the importance of $5' \rightarrow 3'$ exonuclease activity of DNA polymerase I? **2½**
- b) Write a note on direct repair. **2½**
- c) What is the concept of C and D value? **2½**
- d) Explain the mechanism of nucleotide excision repair. **2½**

3. Describe the termination of transcription w.r.t. the followings-

- i) Rho dependent termination. **5**
- ii) Rho independent termination. **5**

OR

- a) Explain the DNA foot printing method for the determination of length of promoter. **2½**
- b) What is abortive initiation? **2½**
- c) Write a note on RNA polymerase. **2½**
- d) Write a note on reverse transcription. **2½**

4. Describe the features of genetic code. 10

OR

- a) Write a note on Wobble hypothesis. 2½
- b) Explain the error correction in amino acylation. 2½
- c) How does the selection of initiation codon occur? 2½
- d) Write a note on structure of t-RNA. 2½

5. Attempt **any ten** of the following- 10

- a) What is bidirectional replication?
- b) Who discovered the theta model of replication?
- c) What is processivity?
- d) What is nick translation?
- e) What is the concept of error prove repair?
- f) What is know fragment?
- g) What is sense and nonsense strand?
- h) Write the example of inhibitor of prokaryotic transcription?
- i) What is the function of σ^{70} (sigma⁷⁰)?
- j) What do you understand by decipherment of genetic code?
- k) How does the activation of amino acid occur?
- l) Draw the structure of Inosine.
