

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

P. Pages : 2

Time : Three Hours



GUG/S/23/13112

Max. Marks : 50

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- Notes : 1. All questions are compulsory.
2. All questions carry equal marks.

1. Discuss in detail the experiment which proved that DNA replication is semiconservative. **10**

OR

- a) Write a note on origin of replication. **2½**
- b) Describe the rolling circle model of replication. **2½**
- c) Describe the formation of Okazaki fragments with experimental proof. **2½**
- d) Describe elongation of replication in E. coli. **2½**

2. Describe in detail base excision repair & nucleotide excision repair of DNA. **10**

OR

- a) Write a note on DNA polymerase I. **2½**
- b) Discuss the concept of C & D value. **2½**
- c) Describe Ames test. Give its significance. **2½**
- d) Briefly describe Mut-HLS system in mismatch repair. **2½**

3. Describe in detail initiation of prokaryotic transcription. **10**

OR

- a) Describe the structure of RNA polymerase. **2½**
- b) Describe rho dependent termination of transcription. **2½**
- c) Write a note on role of Sigma subunit. **2½**
- d) Describe weak & strong promoters. **2½**

4. Describe the Nirenberg - Matthaei's experiment in detail that deciphered the genetic code. **10**

OR

- a) Discuss the triplet nature of genetic code. **2½**
- b) Write a note on wobble hypothesis. **2½**

- c) Draw a well labeled diagram of tRNA. 2½
- d) Describe the mechanism of proofreading by aminoacyl – tRNA synthetases. 2½

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

- a) What are leading & lagging strands?
- b) What is meant by priming in DNA replication?
- c) Who describe theta replication?
- d) What is nick translation?
- e) Define Klenow fragment.
- f) Name the subunits of core polymerase III.
- g) Name one inhibitor of prokaryotic transcription.
- h) What is reverse transcription?
- i) What is promoter escape in transcription?
- j) Shine – Dalgarno sequence is rich in purine bases. (True or False)
- k) What are cognates?
- l) Define the term “uncharged tRNA”.
