

**M. SC. (BIOTECHNOLOGY) SEM-II (2012 COURSE)(CHOICE
BASED CREDIT SYSTEM) : WINTER - 2017
SUBJECT: MOLECULAR BIOLOGY**

Day Wednesday
Date 01/11/2017

W-2017-0968

Time 10.00 AM TO 01.00 PM
Max. Marks : 60

N.B.

- 1) Q.1 and Q.5 are **COMPULSORY**. Out of the remaining, attempt any **TWO** questions from Section – I and Section – II.
- 2) Figures to the right indicate **FULL** marks
- 3) Answers to the both the sections should be written in **SEPARATE** answer book.

SECTION – I

- Q.1** Attempt any **FIVE** of the following: **(10)**
- a) State the contribution of Maurice Wilkins and Rosalind Franklin in molecular biology.
 - b) Define euchromatin and heterochromatin.
 - c) State the effect of UV radiation on DNA.
 - d) Define C-value paradox.
 - e) What are transposable elements?
 - f) State Shine Dalgarno sequence and give its significance.
 - g) What are IS elements?
- Q.2**
- a) Describe the structure and role of t-RNA in protein synthesis. **(05)**
 - b) With well labeled diagram explain the structure of bacterial nucleoid. **(05)**
- Q.3**
- a) Describe the pre-priming and priming reactions required for initiation of bacterial DNA replication. **(05)**
 - b) Explain the types and role of various DNA polymerases in *E. coli*. **(05)**
- Q.4** Write short notes on any **TWO**: **(10)**
- a) Excision repair pathway
 - b) SOS response
 - c) Transposons

SECTION – II

- Q.5** Attempt any **TWO** of the following: **(10)**
- a) Describe the structure of RNA polymerase in *E. coli*. State the role of each subunit.
 - b) Explain specific elements of eukaryotic promoter. Add a note on role of enhancers in eukaryotic transcription.
 - c) State the role of Rho factor in termination of prokaryotic transcription.
- Q.6**
- a) Explain various types and role of Sn RNAs in splicing of introns. **(05)**
 - b) Outline the steps involved in homologous recombination. **(05)**
- Q.7** Explain the role of following in synthesis of proteins; **(10)**
- i) eIF 2, ii) eIF 4, iii) EFTs, iv) IRES v) Stop codons
- Q.8**
- a) Diagrammatically represent lactose operon with reference to; **(05)**
 - i) Regulatory gene ii) Promoter
 - iii) Operator iv) CAP binding site
 - v) Structural genes
 - b) Write short note on molecular chaperons. **(05)**

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