

**M. Sc. (Medical Biotechnology) Sem-I (Choice Based Credit System) :
SUMMER - 2019**

SUBJECT: MOLECULAR BIOLOGY

Day : Tuesday
Date : 02/04/2019

Time: 02.00 PM TO 05.00 PM
Max. Marks: 60

S-2019-1502

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers should be written in **SAME** answer book.

SECTION – I

- Q.1** Attempt **ANY FIVE** of the following: [10]
- a) Name any two repair mechanisms
 - b) State the role of Rec A and Lex A proteins in SOS repair
 - c) State the role of ligase and helicase in DNA replication
 - d) Name two mechanisms of termination of transcription in prokaryotes
 - e) What is site specific recombination? Name the proteins involved in it.
 - f) Give the role of Cdc 6 and MCM protein in eukaryotic replication.
- Q.2** Attempt **ANY TWO** of the following: [10]
- a) Give an overview of how DNA is folded to form the compact state of chromatin in chromosome
 - b) Describe the structure of a typical bacterial promoter and σ^{70} of *E.coli*. Add a note on interaction between them
 - c) State the role of bacterial Rec BCD complex in recombination
- Q.3** Write short notes on **ANY TWO** of the following: [10]
- a) Centromere
 - b) Autonomous replicating sequence (ARS)
 - c) Base excision repair

SECTION – II

- Q.4** Attempt **ANY FIVE** of the following: [10]
- a) Name the two unusual bases in tRNA
 - b) State the role of 3' poly (A) tail in mRNA
 - c) Differentiate between prokaryotic and eukaryotic ribosomes
 - d) State the role of Ribosome recycling factor (RRF) in translation
 - e) What is Shine Dalgarno (SD) sequence?
 - f) What are split genes?
- Q.5** Attempt **ANY TWO** the following: [10]
- a) Enlist the transcription factors required for initiation of eukaryotic mRNA synthesis and state their role
 - b) Describe the steps involved in initiation of translation in *E.coli*
 - c) Explain attenuation control in Tryptophan operon.
- Q.6** Write short notes on **ANY TWO** of the following : [10]
- a) Spliceosomes
 - b) Signal peptide
 - c) Repressor protein

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