

MASTER OF SCIENCE (BIOTECHNOLOGY) (CBCS-2018 COURSE)
M.Sc.(Biotechnology) Sem - I : WINTER :- 2021
SUBJECT: MOLECULAR BIOLOGY

Day : Wednesday
Date 9/2/2022

W-19741-2021

Time : 02:00 PM-05:00 PM
Max. Marks: 60

N.B.:

- 1) All Questions are Compulsory.
- 2) Answer to both the sections should be written in same answer book.
- 3) Draw neat and labelled diagrams wherever necessary.

SECTION-I

- Q.1** Answer the following (**ANY FIVE**) **(10)**
- a) Name the proteins involved in termination of replication in *E. coli*
 - b) State the role of Histone H1
 - c) State the role of ligase in DNA replication
 - d) Name two modifications in mRNA during maturation
 - e) Diagrammatically represent a polycistronic mRNA
 - f) Name the proteins involved in SOS response
- Q.2** Answer **ANY TWO** of the following **(10)**
- a) Explain the role of Mut proteins in DNA repair
 - b) Explain the priming reactions of DNA replication initiation
 - c) What is telomere enzyme? Explain its role in genome stabilization.
- Q.3** Write Short Notes on (**ANY TWO**) **(10)**
- a) D loop model of recombination
 - b) Leading and lagging strands
 - c) 10 nm and 30 nm chromatin fiber

SECTION-II

- Q.4** Answer the following (**ANY FIVE**) **(10)**
- a) Define transcription
 - b) What is post translational protein translocation?
 - c) Diagrammatically represent the structure of eukaryotic mRNA
 - d) State the role of IF-3 in translation
 - e) Define operator
 - f) What is splicing?
- Q.5** Answer **ANY TWO** of the following **(10)**
- a) Describe the structure of RNA polymerase in *E. coli*. Add a note on structure and function of sigma factor
 - b) Explain in brief dual control of arabinose operon
 - c) Discuss in detail the role of EF-G and EF-Tu in translation
- Q.6** Write Short Notes on (**ANY TWO**) **(10)**
- a) Termination of transcription
 - b) Lactose operon
 - c) Role of amino-acyl tRNA synthase in protein synthesis

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