

Total No. of Pages: 2
FOURTH SEMESTER
MID SEMESTER EXAMINATION

Roll No.
B. Tech. (BT)
March-2019

BT 202 Molecular Biology

Time: 1:30 Hours

Max. Marks: 20

**Note: Answer all the questions.
Assume suitable missing data, if any.**

Q.1 Answer the following [8]

- (a) Discuss in detail the roles of any four of the following in post-transcriptional processing of RNA. Clearly indicate the post-transcriptional event in which each is involved
- (i) Guide RNA
 - (ii) Cytidine deaminase
 - (iii) RNase P
 - (iv) H/ACA small nucleolar RNA (H/ACA snoRNA)
 - (v) Cleavage and polyadenylation specificity factor (CPSF)
 - (vi) RNA triphosphatase
 - (vii) Adenosine deaminase acting of transfer RNA (ADAT)
- (b) What are GU-AG introns? Describe two transesterification reactions for their splicing. What roles do uracil rich small nuclear ribonucleoproteins (snRNPs) play in the process of splicing?

or

Describe the roles of transcription factors, chromatin remodelers and histone acetyl transferase in the initiation of eukaryotic transcription

Q.2 Answer the following [6]

- (a) Give a self-explanatory flowsheet representation of Meselson and Stahl experiment. Clearly indicate the interpretation of the results obtained

or

Describe the function of DNA gyrase in prokaryotic DNA replication. Type II topoisomerases act on crossover configuration. Explain

- (b) Describe in detail the functions of finger, thumb and palm domains of DNA polymerase III in prokaryotic DNA replication

P.T.O.

Q.3 Answer the following

[6]

(a) What are telomeres? What roles do telomeres play in eukaryotic DNA replication? How is telomere length related to aging?

or

How do DnaA and Dam regulate prokaryotic DNA replication?

(b) Give in detail the action of any three of the following proteins in DNA replication

- (i) HU proteins
- (ii) DNA polymerase α
- (iii) DNA ligase
- (iv) FEN-1
- (v) DNA polymerase I
- (vi) Cdc45

END