

Exam Code: 0908

Sub. Code: 6701

1058

**B.E. (Biotechnology) Fourth Semester
BIO-411: Molecular Biology**

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) Differentiate chromosomes and chromatin.
- b) What is operon?
- c) Give example of extrachromosomal replicon.
- d) Explain processivity of an enzyme.
- e) Differentiate coding and non-coding strand in transcription.
- f) What do you understand about degeneracy of genetic code?
- g) Give example of transcription inhibitors.
- h) What are retrotransposons?
- i) How cap and tail is added in transcript?
- j) What are G-protein coupled receptors?

(10x1)

UNIT -I

- II. a) Explain role of different DNA polymerases present in E coli cells.
b) Why SOS repair is required inside cell? Explain mechanisms of SOS response.
(2x5)
- III. a) How origin of replication is different from promoter sequences?
b) Write short notes on:-
 - i) Nick-translation
 - ii) Wobble hypothesis
- IV. a) Discuss about different post-transcription modifications.
b) Briefly explain: RNA editing, sigma factor.
(2x5)

P.T.O.

(2)

UNIT - II

- V. a) Describe protein synthesis mechanism starting from amino acyl-t-RNA synthesis.
b) Write briefly:-
 i) Post-translational modifications
 ii) Translational inhibitors (2x5)
- VI. a) Explain importance of C-AMP-CRP and repressor molecules in lactose operon.
b) Write short notes on:-
 i) G-protein coupled receptor
 ii) Autocrine signaling (2x5)
- VII. a) Explain the mechanism of action and application of polymerase chain reaction.
b) Explain briefly:-
 i) FISH
 ii) 2-D gel (2x5)

x-x-x

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NO