**Exam.Code:0436**
**Sub. Code: 3472**

**1058**

M.Sc. (Biotechnology) Second Semester
MBIO-201: Molecular Biology

Time allowed: 3 Hours Max. Marks: 80

***NOTE:*** *Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

*x-x-x*

I. Attempt the following:-

a) Which enzyme is required for initiation of replication of okazaki fragments? Discuss its characteristics.

b) What is FLP/FRT recombination? Discuss.

c) What is alternate splicing? Explain with help of example.

d) Write various steps taken to enhance the stability of antisense molecule.

e) Write in brief about RAPD. (4,3,3,3,3)

## UNIT – I

II. a) Discuss the three enzymatic activities of DNA polymerase I and its role in DNA replication.

b) Discuss the experiment t by Hershey and Chase. What they concluded from this experiment. (8,8)

III. a) List different types of DNA repair mechanism. Write a note on photoreactivation and SOS repair.

b) Write in brief about Cre/ Lox recombination and its biological significance. (8,8)

## UNIT – II

IV. a) Discuss the different type of promoters and transcription factor required for RNA polymerase I, II and III.

b) Discuss various types of post transcriptional modification? (8,8)

V. a) Discuss the process of charging of tRNA with correct amino acid. How the proof reading of nearly same amino acids takes place?

b) Discuss the initiation of translation in prokaryotes. How it is different from eukaryotes? (8,8)

P.T.O.

## UNIT – III

VI. a) Discuss the mechanism of cell cycle regulation by retinoblastoma.

b) What is gain of function and loss of function in cancer? Explain with help of example.

c) Give full form of these acronyms: myc, sis, ras, jun, abl, (6,5,5)

VII. a) How gene expression is controlled by RNA? Explain with help of example. Discuss the application of antisense technology in plant biotechnology.

b) What is ribozyme? Discuss its various types. (8,8)

## UNIT – IV

VIII. a) Enlist the sequencing strategies for the analysis of whole genome. Explain with help of example.

b) Discuss Clone by clone strategy of genome sequencing. (8,8)

IX. Short notes on:-

a) In situ hybridization for genome analysis

b) Physical mapping of genome

c) Pyrosequencing (5,5,6)

*x-x-x*