

2022

M.Sc. (Bio-Informatics) First Semester
 MBIN-8003: Fundamentals of Modern Biology

Time allowed: 3 Hours

Max. Marks: 60

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

x-x-x

I. Answer the following:-

- a) What are the features of OriC?
- b) Differentiate between twist and writhe
- c) Enlist various modes of DNA replication
- d) What is meant by degeneracy of the genetic code?
- e) Briefly explain exon shuffling and its importance
- f) What are shuttle vectors?
- g) Differentiate between genomic and cDNA .
- h) What is qPCR?

(8x1½)

UNIT - I

II. Differentiate between:-

- a) DNA polymerases in prokaryotes and eukaryotes
- b) Transcription of prokaryotes and eukaryotes

(2x6)

III. a) Discuss the reaction catalyzed by theorem and its importance

- b) Write a note on transcription factors of eukaryotes

(2x6)

UNIT - II

IV. a) Discuss Lac Operon and its regulation.

- b) Write a note on spliceosome and process of RNA splicing

(2x6)

V. a) Discuss Trp operon and its regulation

- b) Write a note on various post translational modifications

(2x6)

UNIT - III

VI. a) What is Site-directed mutagenesis and how is it carried out?

- b) Differentiate between expression vectors and cloning vectors.

(2x6)

P.T.O.

(2)

- VII. a) What are fusion proteins and how are they synthesized?
b) How are desired recombinants identified using immunoscreening? (2x6)

x-x-x