

2031

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. I which is compulsory and selecting atleast one question from each Unit.

x-x-x

I. Answer the following briefly:-

- a) Immunoscreening
- b) Cosmids
- c) RNA editing
- d) Colony hybridization
- e) Clover leaf structure
- f) Kozak sequence
- g) Frame shifting
- h) Colony Hybridization

(8x1½)

UNIT – I

II. Write a note on the structure and components of DNA.

(12)

III. a) Explain the role and mode of action of Telomerase.

b) Discuss the initiation of transcription in eukaryotes.

(2x6)

UNIT – II

IV. a) Discuss the basic features of the Genetic code and explain Wobble hypothesis.

b) What is the role and significance of alternative splicing?

(7,5)

V. a) Explain the regulation of gene expression in the context of Operons.

b) Differentiate between ribosomes of prokaryotes and eukaryotes.

(2x6)

UNIT – III

VI. a) Differentiate between Restriction enzymes and modifying enzymes.

b) Elaborate on the role of fusion proteins for protein expression.

(2x6)

VII. a) Write a note on the features and applications of expression vectors with suitable examples.

b) Discuss the identification of desired recombinants by alpha complementation.

(2x6)

x-x-x