4/5/23 (morning)

Exam.Code:0006
Sub. Code: 0556

2053
B.A./B.Sc. (General) Sixth Semester
Bio-Chemistry
Paper – A: Molecular Biology –II

Time allowed: 3 Hours Max. Marks: 45

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

x-x-x

I. Answer the following in brief:-

a) What do you understand by a transcription factor?

b) Which organelles play a role in protein targeting?

c) Elaborate on the modes of phage infection.

d) What is the role of DBD in nuclear receptors?

e) Discuss the structure of a drosophila egg.

f) What are the ways by which proteins can be modified?

g) What are the techniques used in genome sequencing?

h) Define the function of zygotic genes in drosophila.

i) What is the role of the mat locus? (9x1)

UNIT - I

II. a) Transcriptional activators and transcriptional repressers play a key role in prokaryotic cells. Discuss how they control the lac operon.

b) What do you understand by post-translational modification of proteins? (5,4)

III. Write short notes on the following:-

a) Lysogenic mode

b) Protein targeting

c) Chaperones (3x3)

UNIT - II

IV. a) Most of the specialized cells in a multicellular organism are capable of altering their patterns of gene expression in response to extracellular signals. Discuss the role of hormones in the regulation of eukaryotic gene expression.

b) A large number of proteins behave as transcription factors and regulate gene expression. Elaborate on the role of zinc fingers. (5,4)

P.T.O.

V. Write short notes on the following:-

a) Leucine zippers

b) Chromatin modifiers

c) Promoters

(3x3)

UNIT - III

VI. a) What is the role of restriction nucleases? Using a suitable diagram show their mechanism of action.

b) What are the major differences between a genomic DNA library and a cDNA library?

(5,4)

VII. Briefly discuss the following:-

a) Maternal effect genes

b) Syncytial blastoderm

c) Vectors

(3x3)

UNIT - IV

VIII. a) What are SNPs? How are they analyzed?

b) Discuss the usefulness of SNPs in the field of forensics. (5,4)

IX. a) What is comparative Genomics? What are the ways by which it can be studied?

b) Briefly describe the contribution of microarrays in the field of molecular biology.

(5,4)

x-x-x