

2062

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 Section.

x-x-x

1. Attempt the following:-

- i) Define leucine zipper.
- ii) What are restriction endonucleases?
- iii) Define DNA profiling.
- iv) What is yeast gal gene?
- v) Define lytic mode of phage infection.
- vi) What is a probe?
- vii) Write the importance of methylation of DNA.
- viii) What is syncytial blastoderm?
- ix) Name any two transcriptional inhibitors.

(1x9=9)

Section-I

- 2 a) Describe the process of protein folding and processing.
b) What is an operon? Discuss in detail about regulation of lac operon. (4,5)
- 3 a) How post-translational modification of proteins helps in regulating various cellular activities?
b) Differentiate between lytic and lysogenic mode of infection. (5,4)

Section-II

- 4 a) What are signal transduction pathways?
b) Discuss different mechanisms of transcription termination (4,5)
- 5 a) Discuss in detail the various factors involved in the transcription regulation along with the role of antibiotics in the process.
b) Discuss about eukaryotic pre-mRNA processing (5,4)

Section-III

- 6 a) Discuss isolation of genes in prokaryotes.
b) Discuss developmental genetics in *Drosophila*.
c) Write about the significance of cDNA libraries. (3x3=9)

(2)

- 7 a) Discuss different kinds of vectors available for gene cloning. What are their advantages over one another ?
b) Explain the working mechanism of gal gene in yeast. (5,4)

Section-IV

- 8 a) What are microarrays? Write their use.
b) Define genetic markers and discuss different types of genetic markers used in genome mapping. (3,6)
- 9 a) Describe applications of genome sequencing.
b) What are SNPs? Write their role in diseases and forensics. (4,5)

x-x-x