

**2012****M.Sc.****1st Semester Examination****BIOTECHNOLOGY****PAPER—BIT-104**

Full Marks : 40

Time : 2 Hours

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

**Group—A**

1. Answer any *five* questions of the following : 2×5
- (a) What do you mean by "Aquaporins"? When it was first invented and by whom?
  - (b) Write the sequence of three termination codes.
  - (c) What do you mean by "Biocarcinogens"? Cite some examples.
  - (d) "Write the difference between primary and secondary structure of protein.

(Turn Over)

- (e) Are steroid hormones act as internal receptors ?
- (f) What do you mean by "Primase" ? Mention its function.
- (g) What do you mean by EMS ? Write down its function in mutation.
- (h) What is nonsense mutation ?

**Group—B**

Answer any *two* questions from the following  $2 \times 5$

2. Describe the molecular mechanism of Base pair and Frame shift mutation. 5
3. Discuss the different sigma factors related to "Biotic stress". 5
4. Write notes on (any one) : 5
- (a) t-RNA splicing ;
- (b) NF-KB signalling pathway. 2+3
5. Draw phosphodiester bond, Peptide bond and 5-methylation of DNA molecule.

$$1\frac{1}{2} + 1\frac{1}{2} + 2$$

**Group—C**

Answer any *two* questions from the following :  $2 \times 10$

6. How is transcription initiated in prokaryotes? Differentiate the prokaryotic transcription with that of eukaryotic transcription. What do you mean by transcriptional enhancer?

3+5+2

7. "Protein Kinases are important players bio-signaling"—Justify the statement.

10

8. Write notes on (any *two*) :

5+5

- (a) Principles of Messelson-Stahl experiment.
- (b) Second messenger in cell signaling.
- (c) Elongation factors in eukaryotic translation.
- (d) The lac operator and lac repressor.

9. What is Protooncogene? How are they activated? Describe the role of myc and myb gene. What is apoptosis?

2+3+3+2

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