

12-7-22
(M)

Exam. Code : 206602

Subject Code : 4707

M.Sc. Bioinformatics 2nd Semester (Batch 2021-23)

**ADVANCED MOLECULAR BIOLOGY & r-DNA
TECHNOLOGY**

Paper—BI-521

Time Allowed—3 Hours]

[Maximum Marks—75

Note :— Attempt **FIVE** questions in all selecting at least **ONE** question from each section. The **FIFTH** question may be attempted from any Section. All questions carry equal marks.

SECTION—A

- I. Explain with the help of a diagram how DNA damage is repaired using Mismatch repair mechanism. 15
- II. Write a short note on the following :— 7.5×2=15
 - (a) RNA capping
 - (b) Post translational modification of proteins.

SECTION—B

- III. Discuss the lytic and lysogenic switch in lambda phage. 15
- IV. Discuss how DNA methylation regulates gene expression. 15

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(Contd.)

SECTION—C

V. Write a short note on the following :— $7.5 \times 2 = 15$

- (a) DNA polymerase
- (b) Plasmid vectors.

VI. Answer the following :— $7.5 \times 2 = 15$

- (a) What is random priming ? How is it useful ?
- (b) Which enzyme can you use to join together two cohesive ends of a DNA fragment ? Discuss the conditions needed for the reaction to take place.

SECTION—D

VII. A gene was cloned into a plasmid vector and transformed into DH5 α cells. How will you screen for positive clones using blotting technique ? 15

VIII. Write short notes on :— $7.5 \times 2 = 15$

- (a) Sangers dideoxy sequencing method
- (b) Transfection.