

2025

M.Sc. 1st Semester Examination

BIOTECHNOLOGY

Paper : BITC405X1

[Molecular Biology]

Full Marks : 25

Time : One Hour

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *two* questions : 2×2=4

1. Why is cellular signaling also called as signal transduction?
2. Mention the role of GTP in translation process.
3. What is a terminator sequence?
4. Mention the characteristics of tumor cells.

P.T.O.

(2)

Group - B

Answer any *two* questions : $4 \times 2 = 8$

5. Briefly discuss the role of DNA binding and unwinding proteins/enzymes in the process of DNA replication.
6. Draw and discuss the structure of t-RNA molecule and state the role of t-RNA in the process of translation.
7. Explain how the lac operon of *Escherichia coli* integrates metabolic signals to control a set of related genes.
8. Describe the role of promoters and enhancers in gene expression.

Group - C

Answer any *one* question : $8 \times 1 = 8$

9. What is c-AMP? Mention its role. Briefly describe with proper diagrams the role of IP_3 and DAG in the process of cellular signaling. 2+6
10. Write notes on :
 - (i) Mismatch repair of DNA
 - (ii) Si RNA.

Internal Assessment : 5 marks
