



'সমানো মন্ত্র: সমিতি: সমানী'

**UNIVERSITY OF NORTH BENGAL**  
B.Sc. Honours 4th Semester Examination, 2023

**CC8-BOTANY**

**MOLECULAR BIOLOGY**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.*

**GROUP-A**

1. Answer any **five** questions from the following: 1×5 = 5
- (a) What is 'bidirectional replication'?
  - (b) What is genetic code?
  - (c) What is peptide hormone?
  - (d) What is Pribnow box?
  - (e) What is Lac operon?
  - (f) Define 'intron' and 'exon'.
  - (g) What is okazaki fragment?
  - (h) Give one example of B-type DNA.

**GROUP-B**

2. Answer any **three** questions from the following: 5×3 = 15
- (a) What is DNA? Write a note on the structure of DNA using suitable diagram. 1+4
  - (b) What is DNA replication? Give a brief account of the different enzymes involved in DNA replication process. 1+4
  - (c) Write short note on: 2½ × 2 = 5
    - (i) Ribozyme
    - (ii) RNA priming
  - (d) Differentiate between: 2½ × 2 = 5
    - (i) Rolling circle and  $\theta$  (theta) mode of replication
    - (ii) 5' and 3' end of DNA
  - (e) Briefly describe ribosome structure. 5

**GROUP-C**

3. Answer any **two** questions from the following: 10×2 = 20
- (a) What is group I and group II intron splicing? Briefly describe spliceosome machinery of removal of introns. 3+7
  - (b) What is co-repressor? What do you mean by 'PTGS'? How is the synthesis of tryptophan in *E.coli.* is regulated by the trp operon? 2+2+6
  - (c) Describe the initiation steps involved in prokaryotic protein synthesis. 10
  - (d) What is semi-conservative mode of replication? Discuss the replication of the 5' end of linear chromosome. 3+7

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