'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 5th Semester Examination, 2023

CC11- ZOOLOGY

MOLECULAR BIOLOGY

Time Allotted: 2 Hours | Full Marks: 40

The figures in the margin indicate full marks.

1. Answer any ***five*** questions from the following: 1×5 = 5

   (a) Name any two unusual bases of tRNA.

   (b) Name two inhibitors of transcription.

   (c) What are start and stop codon?

   (d) What is Primosome?

   (e) Name the termination factor of Prokaryotic transcription.

   (f) What is Pribnow Box?

   (g) Only DNA-polymerase III exhibits 5′ → 3′ exonuclease activity. (True/False)

   (h) What is Peptidyl transferase?

2. Answer any ***three*** questions from the following: 5×3 = 15

   (a) Draw a labelled diagram of secondary structure of tRNA.

   (b) What is Okazaki fragment? How is it formed? 2+3

   (c) 'The code is degenerate' — Explain the statement.

   (d) Write about the basic principle of PCR.

   (e) Write short note on catabolic repression.

3. Answer any ***two*** questions from the following: 10×2 = 20

   (a) Describe the organisation of Trp operon. Discuss the repressible negative regulation of Trp operon. Write short note on attenuation. 2+3+5

   (b) Describe the steps involved in charging of tRNA and formation of initiation complex during translation in Prokaryotes. 3+7

   (c) What is RecBCD enzyme? Illustrate the process of repair of dsDNA break mediated by RecBCD with a proper diagram. 2+8

   (d) With suitable illustrations briefly describe the Northern blotting technique. Write the importance and limitations of Northern blotting. 7+3

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