'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 5th Semester Examination, 2021

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) Sigma factor is a component of DNA ligase. (True / False)

   (b) Name two unusual bases of tRNA.

   (c) What is oriC?

   (d) Name two inhibitors of transcription.

   (e) What do you mean by Pribnow box?

   (f) In Nucleotide Excision Repair, UvrC recognizes the DNA damage. (True / False)

   (g) Mention any two stop codons in prokaryotic system.

   (h) Define operon.

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

   (a) Write about the basic principle of PCR.

   (b) Write a short note on clover-leaf model of tRNA.

   (c) Describe the mechanism of repair of damage on DNA due to 6, 4-photoproducts.

   (d) Write a note on Northern-blot technique.

   (e) What is Okazaki fragment? How it is formed? 1+4

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

   (a) With suitable diagrams, describe the initiation of transcription in prokaryotes. What do you mean by Rho-independent termination of transcription? Add a note on RNA polymerase holoenzyme. 4+3+3

   (b) Describe the mechanism of initiation of replication of DNA in prokaryotes. Elucidate the role of Tus-Ter complex in termination of DNA replication. 6+4

   (c) Write a note on amino-acylation of tRNA. Describe the process of elongation stage of translation in prokaryotes with suitable diagrams. 4+6

   (d) Give an account of inducible operon system citing the example of lac operon. Comment on the role of cAMP in the regulation of the same operon. 6+4

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