

B.Sc. 5th Semester (Hons.) Examination, 2021 (CBCS)

Subject: Zoology

Paper: CC-11(Molecular Biology)

Full Marks: 40

Time: 2 Hrs

Candidates are required to give the answers in their own words as far as practicable.

*Answer any **eight** questions of the following:*

$5 \times 8 = 40$

1. Describe the structural organization and function of different elements of *E. coli* origin of replication (oriC).
2. Compare and contrast the intrinsic and Rho dependent transcription termination in *E. coli*.
3. Write a note on molecular mechanism of charging of tRNA molecule with amino acids.
4. ‘Leader sequence of *trp* operon plays a significant role towards its regulation’ - explain the statement.
5. Critically explain the role of RecA protein in DNA repair process.
6. How many subunits does *E. coli* RNA polymerase have? Add a note on core enzyme and holoenzyme of the *E. coli* RNA Polymerase.
7. What does it signify when catabolite suppression occurs in the presence of a preferred energy source? How does it operate in the lac operon?
8. How does the Shine-Dalgarno sequence start the translation process?
9. What is dideoxy sequencing? How does it work?
10. Why do double-strand breaks occur in DNA? How is it repaired?