

**B.Sc. 5<sup>th</sup> 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:

5×8=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?
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