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**School of Biological Sciences  
Doon University  
Dehradun, Uttarakhand  
Question Paper: End-Semester Examination  
Academic Session: Jan 2024 – Jun 2024**

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**B.Sc. Biological Sciences (4<sup>th</sup> Semester)**

**Course: Molecular Biology**

**Course Code: BSC253**

**Total Marks: 30**

**Maximum Time: 2:00 Hrs**

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**PART I Give answers to any six questions:**

**(Marks: 1 × 6 = 6)**

1. What is C- value paradox?
2. When is SOS response take place and which DNA polymerase become active?
3. What is a transcript?
4. What is a genetic code?
5. List out certain inhibitors of DNA transcription?
6. What is the role of DnaA and DnaB protein?
7. Difference between DNA polymerase III and RNA polymerase?

**PART II Give answers to any four questions:**

**(Marks: 3 × 4 = 12)**

8. What are transcription factors and their role?
9. Describe the process of wobble hypothesis. How it contributes to the degeneracy of genetic code?
10. Explain the process of Capping?
11. Explain any of the following DNA repair process a) Nucleotide excision repair b) SOS response?
12. Describe the process of DNA replication (initiation) in prokaryotes.

**PART III Give answers to any two questions:**

**(Marks: 6 × 2 = 12)**

13. Briefly describe the process of group 3 Intron splicing with diagram?
14. Briefly describe the process of translation (activation and initiation) in E.coli with diagram.
15. Describe the process of transcription initiation?