



**K22U 1789**

Reg. No. : .....

Name : .....

**III Semester B.Sc. Degree (C.B.C.S.S. – Regular)  
Examination, November 2021  
(2020 Admission)  
CORE COURSE IN LIFE SCIENCES (ZOOLOGY) AND  
COMPUTATIONAL BIOLOGY  
3B03 ZCB – Molecular Biology**

Time : 3 Hours

Max. Marks : 40

**PART – A  
(Short Answer)**

Answer **all** questions :

**(6×1=6)**

1. Central dogma
2. RNAi
3. CRISPR
4. Neurospora
5. PCR
6. Structure of RNA polymerase.

**PART – B  
(Short Essay)**

Answer **any 6** questions :

**(6×2=12)**

7. Experiment of DNA as the genetic material.
8. Notes on condensins and cohesins.
9. Structure of RNA and types.
10. What are the factors involved in regulation of transcription in eukaryotes ?

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11. Types of eukaryotic RNA polymerases and functions.
12. One gene-one polypeptide hypothesis.
13. Structure of promoters in prokaryotes.
14. Semi-conservative model of replication.

**PART – C  
(Essay)**

Answer **any 4** questions :

**(4×3=12)**

15. Explain the mitochondrial gene in phylogeny of an organism.
16. Notes on Watson and Crick model of DNA.
17. Write the properties of genetic code.
18. Describe different forms of DNA.
19. Types of transcription termination in prokaryotes.
20. What are the different enzymes involved in rDNA technology ?

**PART – D  
(Long Essay)**

Answer **any 2** questions :

**(2×5=10)**

21. Give a detailed account composition, structure of nucleosome and packaging of DNA.
  22. Write a detailed essay on DNA repair mechanisms with suitable examples.
  23. Explain the mechanism of prokaryotic transcription and translation.
  24. Explain the operon concept and mechanism of *Lac operon*.
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