



K23U 0544

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/  
Improvement) Examination, April 2023  
(2019 and 2020 Admissions)  
Core Course in Zoology  
6B10 ZLG : MOLECULAR BIOLOGY AND BIOINFORMATICS

Time : 3 Hours

Max. Marks : 40

- I. Essay questions (**Each** question carries 8 marks). Answer **any two**.
- 1) Explain any four DNA repair mechanisms.
  - 2) Describe two experiments to prove DNA as genetic material.
  - 3) Briefly explain the different types of databases used in bioinformatics.
  - 4) Give an account of various enzymes involved in DNA replication. (2×8=16)
- ii. Short essay questions (**Each** question carries 4 marks). Answer **any two**.
- 5) What are microarrays ? Write its applications.
  - 6) Explain the post-transcriptional modifications the hn-RNA undergoes in a eukaryotic cell.
  - 7) What is the genetic code ? Briefly explain its characteristics. (2×4=8)
- III. Short answer questions (**Each** question carries 2 marks). Answer **any six**.
- 8) Explain CADD.
  - 9) What are pseudogenes ?
  - 10) Explain FASTA.
  - 11) What is siRNA ? How does it control gene expression ?
  - 12) Explain central dogma in molecular biology.
  - 13) Describe nucleosomes.
  - 14) Explain Southern blotting.
  - 15) What is metabolomics ? Mention its two applications. (6×2=12)

P.T.O.

K23U 0544



- IV. Multiple choice questions (**Each** question carries 0.5 marks). Answer **all**.

- 16) "Molecular Scissors" are  
(DNA polymerases, Restriction endonucleases, RNA polymerases, DNA ligases)
- 17) Histones are rich in  
(Tryptophan and Valine, Arginine and Lysine, Glutamic acid and Aspartic acid, Cysteine and Methionine)
- 18) A secondary data base is  
(KEGC, PROSITE, EMBL, DDBJ)
- 19) DNA amplification technique is  
(PAGE, PCR, Western blot, Southern blot)
- 20) The sequence alignment programme is  
(CLUSTAL, KEGC, PROSITE, EMBL)
- 21) Blotting technique used for the analysis of RNA  
(Northern blotting, Southern blotting, Western blotting, PCR)
- 22) Adapter molecule in protein synthesis is  
(tRNA, mRNA, rRNA, DNA)
- 23) Semi-conservative model of DNA replication was proposed by  
(Sutton and Boveri, Watson and Crick, Jacob and Monod, Hershey and Chase) (8×.5=4)