

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2025
(Regular/Improvement/Supplementary)

ZOOLOGY

FZOL2C04: CELL & MOLECULAR BIOLOGY

Time: 3 Hours

Maximum Weightage: 30

Part A: Answer any *four* questions. Each carries 2 weightage.

1. Write notes on origin of replication of *E. coli*.
2. Briefly discuss Wobble hypothesis.
3. Provide a brief account on translational proof reading.
4. Briefly discuss the role of snoRNAs.
5. Provide a brief account on the organization of interrupted genes.
6. Write notes on pseudogenes.
7. Give a brief account on transduction.

(4 × 2 = 8 weightage)

Part B: Answer any *four* questions. Each carries 3 weightage.

8. Provide an account on repetitive DNA.
9. Discuss the role of telomerase in eukaryotic DNA replication.
10. Explain aminoacylation of tRNA. Add notes on the enzyme involved in this process.
11. Discuss the organization of histone genes in sea urchin.
12. Explain the role of Rec A protein in genetic recombination.
13. Give an account on the characteristic features of cancer cells.
14. Discuss the role of protein kinases in the control of cell cycle.

(4 × 3 = 12 weightage)

Part C: Answer any *two* questions. Each carries 5 weightage.

15. Write an essay on any five types of DNA repair mechanisms.
16. What are transposons? Explain the mechanism of transposition and add notes on transposons in Eukaryotes.
17. Discuss the alternate patterns of gene expression for control of lytic and lysogenic cycle in lambda phage.
18. Explain various steps involved in prokaryotic transcription.

(2 × 5 = 10 weightage)