May 2025
M.Sc.
Second Semester
CORE – 05
ZOOLOGY
Course Code: MZOC 2.11
(Cell & Molecular Biology)

Total Mark: 70 *Pass Mark: 28*
Time: 3 hours

Answer five *questions, taking* one *from each unit.*

UNIT–I

1. Describe the chemical constituents of plasma membrane. Explain the fluid mosaic model using diagrams. 6+8=14

2. What is protein-sorting? Elucidate the transport system in the animal cells. 7+7=14

UNIT–II

3. Write a note each on the following: 7×2=14
   (a) Histone modifications
   (b) Chemical composition of chromatin

4. What are the features of cell cycle? Discuss the regulation of cell cycle with emphasis on CDK-cyclin activity. 4+10=14

UNIT–III

5. Describe the mechanism of DNA replication in prokaryotes. Add a note on the structure and function of DNA polymerases. 8+6=14

6. Describe the structure and properties of RNA polymerases in prokaryotes. Briefly explain the processing of mRNA in eukaryotes. 8+6=14

UNIT–IV

7. Describe the positive and negative control of gene expression in prokaryote. 14

8. Write a note each on the following: 7×2=14
   (a) Post-translational modification of proteins
   (b) Protein synthesis

UNIT–V

9. Explain the role of various tools in rDNA technology. 14

10. Write a note each on the following: 7×2=14
   (a) Electroporation
   (b) History of RDT