

**2024**  
**B.A./B.Sc.**  
**Second Semester**  
CORE – 4  
**ZOOLOGY**  
Course Code: ZOC 2.21  
(Cell Biology)

Total Mark: 70  
Time: 3 hours

Pass Mark: 28

Answer five questions, taking one from each unit.

**UNIT-I**

1. Distinguish between active and passive transport. Explain the mechanism of facilitated transport using suitable diagrams. 5+9=14
2. Write short notes on the following: 7×2=14
  - (a) Virus and viroids
  - (b) Prions

**UNIT-II**

3. Explain the different types of endoplasmic reticulum present in cells? Describe the important roles of ER in cellular functioning with diagram. 6+8=14
4. Explain the mechanism of protein sorting in the exocytic and endocytic pathways with the help of diagrams. 7+7=14

**UNIT-III**

5. Elucidate the structure of mitochondria with the help of a neat labelled diagram. Describe in detail the semi-autonomic nature of mitochondria. 6+8=14
6. Write a note on the following: 7×2=14
  - (a) Peroxisomes
  - (b) Microfilaments and intermediate filaments

## UNIT-IV

7. Write a short note on the following: 7×2=14  
(a) Supernumerary chromosome  
(b) Euchromatin and heterochromatin
8. Describe the structure of nuclear envelope and nuclear pore complex with the help of neat labelled diagrams. Add a note of the importance of nucleolus. 8+6=14

## UNIT-V

9. Describe the various stages of meiosis with diagrams. Illustrate the difference between meiosis and mitosis. 10+4=14
10. Write a short note on the following: 7×2=14  
(a) Mitotic spindle  
(b) Role of cAMP in cell cycle
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