

May 2025
M.Sc.
Second Semester
CORE – 08
BOTANY
Course Code: MBOC 2.41
(Cell & Molecular Biology)

Total Mark: 70
Time: 3 hours

Pass Mark: 28

Answer five questions, taking one from each unit.

UNIT-I

1. What is cell cycle? Explain the molecular events of each phase. Add a note on the regulation of cell cycle with reference to check points. 2+6+6=14
2. Write a note on each of the following: 7×2=14
 - (a) Fluid mosaic model of plasma membrane
 - (b) Structure of Golgi complex

UNIT-II

3. Why are mitochondria called the powerhouse of a cell? Explain the structure and biogenesis of mitochondria. 2+12=14
4. Give the ultrastructure of nucleolus and its role in rRNA synthesis. 14

UNIT-III

5. Supporting your answer with diagrams, discuss DNA replication in prokaryotes. 14
6. Write a note on each of the following: 7×2=14
 - (a) Nucleic acids
 - (b) Universality of genetic code

UNIT-IV

7. Discuss transcription in prokaryotes. 14

8. Write a note on each of the following: 7×2=14
(a) Attenuator
(b) tRNA charging

UNIT-V

9. Discuss on homologous and site-specific recombination. 14
10. Write a note on each of the following: 7×2=14
(a) Alkylation
(b) Photoreactivation
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