A–1208

Total Pages : 3 **Roll No. .....**

MSCBOT-506

M.Sc. Botany (MSCBOT)

Cell Biology of Plants

Examination February, 2026

Time : 2:00 Hrs. Max. Marks : 70

Note* :–** This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section–A

Long Answer Type Questions (2×19=38)

***Note* :–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. What is cell wall ? Describe the chemical composition, structure, origin and functions of the plant cell wall.

2. Describe the ultrastructure of nucleus, with special emphasis on nuclear envelope.

3. What is meiosis ? Describe the major features of each meiotic phase. Why is meiosis needed for the production of gametes ?

4. Describe the structure and functions of Golgi apparatus. What types of vesicles arise from Golgi membrane ?

5. Write down explanatory notes on any *two* of the following :

   (a) Cytokinesis

   (b) Nucleolus

   (c) Receptor mediated endocytosis

Section–B

Short Answer Type Questions (4×8=32)

***Note* :–** Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Describe structure of mitochondria and write its functions in the cell.
2. Describe the types and biogenesis of riobosomes.
3. Define the following term- gene, chromatid, centromere and telomere.
4. Explain the symbiotic origin of chloroplast.
5. Write short notes on any *two* of the following :
   (a) Lampbrush chromosome.
   (b) Mitotic spindle.
   (c) GERL region.
6. Differentiate between any *two* of the following :
   (a) Biogenesis and abiogenesis
   (b) Karyokinesis and cytokinesis
   (c) Plant cell and animal cell
7. Proteins destined for secretion are translated primarily by ribosomes of rough endoplasmic reticulum instead of by free ribosomes. What factors are probably accounted for this selectivity ?
8. Calcium works as a second messenger in cell signaling process. Explain calcium mediated signaling pathway.

****