

**K-353**

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# **MSCBOT-506**

## **CELL BIOLOGY OF PLANTS**

M.Sc. Botany (MSCBOT)

2nd Semester Examination, 2023 (Dec.)

**Time : 2 Hours]**

**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)**

**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.

(2×19=38)

1. Define the term cell cycle. Name the stage of cell cycle, which is usually the largest stage. Explain different phases of mitosis with its significance.
2. Describe the Fluid mosaic model of the plasma membrane. On the basis of this model explain different functions of plasma membrane.
3. Discuss structure, functions and biogenesis of mitochondria with appropriate diagram.
4. Write down explanatory note on any *two* of the following :
  - (a) Origin and functions of endoplasmic reticulum.
  - (b) Cell senescence.
  - (c) Cell receptors.
5. Give an account on structure of nucleus with suitable diagram. Discuss functions of different components of nucleus.

## SECTION-B

### (Short Answer Type Questions)

**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. (4×8=32)

1. Draw a well labelled diagram of ultrastructure of plant cell and write down its special characteristics.
  2. Define the term thylakoid, granum, stroma and karyotype.
  3. Write short note on any *two* :
    - (a) Plasmodesmata.
    - (b) Plant vacuole.
    - (c) Endosome.
  4. Protein destined for secretion are translated primarily by the ribosomes of rough endoplasmic reticulum instead of by free ribosomes. What factors probably account for this selectivity.
  5. Differentiate between any *two* of the following :
    - (a) Primary cell wall and secondary cell wall.
    - (b) Chromatid and chromosome.
    - (c) DNA and RNA.
  6. How many types of RNA and Proteins are found in the 70S and 80S ribosomes?
  7. Discuss the importance of the GTPase activity of the alpha subunits of heterotrimeric G protein to the termination of a signaling event.
  8. Write an account on special types of chromosomes.
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