

**K-354**

Total Pages : 3

Roll No. ....

**MSCBOT-507**

**Cytogenetic and Plant Breeding**

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. Differentiate between the apomixis and parthenogenesis. Discuss the classification, features and significance of apomixis in plant breeding.
2. Write explanation notes on the following :
  - (a) Chloroplast genome
  - (b) Multiple factor hypothesis and heritability
3. Write an essay on the techniques of plant breeding.
4. What is heterosis? Give the theories and applications of plant breeding.
5. Attempt the following :
  - (a) Describe the general properties of genetic code.
  - (b) Describe the Holliday model.

### **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. Describe in brief the selection methods for Crop improvement.

2. Write short notes on any *two* of the following :
    - (a) C-value paradox.
    - (b) Cytoplasmic inheritance.
    - (c) Sex linked inheritance.
  3. Describe different steps in hybridization and add a note on wide crosses.
  4. Give a brief account of Cytoplasmic male sterility in plants.
  5. Write a note on aneuploidy and its significance.
  6. Describe the theories of crossing over and chiasma formation.
  7. Write a note on Photoreactivation repair mechanism.
  8. Describe molecular basis of gene mutation.
-

