

A-0015

Total Pages : 3

Roll No.

MSCBOT-507

M.Sc. Botany (MSCBOT)

(Cytogenetic and Plant Breeding)

Examination, June 2025

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. Describe apomixes and its different types. Discuss the role of apomixis in plant breeding for crop improvement.
2. What do you understand by mutation and molecular basis of mutation ? Discuss types of mutation and different types of mutagens in brief. Describe applications of mutation breeding in crop improvement.
3. Define plant breeding ? Write down the objectives, applications and achievements of plant breeding in detail.
4. Explain the role of genetic variance in plant breeding. Describe the breeding strategies for salt and acid tolerance in plants.
5. Explain the followings :
 - (a) Undesirable consequences of plant breeding
 - (b) Future prospects of plant breeding
 - (c) Types of male sterility

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. Hand emasculation is very tedious and difficult in small flowers. Write on any *two* methods of emasculation that can be employed in such a case.
2. Briefly explain the overdominance hypothesis of heterosis.
3. Differentiate any *two* of the followings :
 - (a) Self-incompatibility and male sterility
 - (b) Transition mutation and transversion mutation
 - (c) Extrachromosomal and Chromosomal Inheritance
4. Discuss the hybridization of self-pollinated plants.
5. Give a brief account of multiple cross method of hybridization .
6. Describe pedigree method in plant breeding.
7. Explain the mechanisms of sex determination.
8. Write short notes on *two* of the following :
 - (a) Mutation breeding
 - (b) Heterosis and Inbreeding depression
 - (c) Cytological Basis of Crossing-over
