



PG

M.Sc. Semester-I Examination, 2023
(AGRICULTURE) IN GENETICS AND PLANT BREEDING
PAPER: GPB 502
(PRINCIPLES OF PLANT BREEDING)

Full Marks: 50

Time: 2 Hours

The figures in the right-hand margin indicate full marks.
 Candidates are required to give their answers in their own words as far as practicable.

GROUP-A**1. Answer any FIVE questions:****2 X 5 = 10**

- a) Differentiate pureline from isogenic lines?
- b) Distinguish between GCA and SCA.
- c) What is meant by inbreeding depression?
- d) Define RIL and NIL.
- e) What is apomixis?
- f) What is genetic erosion?
- g) Define protandry and protogyny.
- h) Write about primary and secondary gene pool.

GROUP-B**2. Answer any FOUR questions:****5 X 4 = 20**

- a) Explain the dominance and over dominance hypothesis of heterosis. 2+3
- b) What is mutagen? Write down different types of mutagen with example. 1+4
- c) Write briefly about germplasm conservation.
- d) State different breeding methods of self-pollinated crops. Distinguish between synthetic and composite variety. 2+3
- e) Write a short note on pure-line theory.
- f) What is self-incompatibility? How sporophytic self-incompatibility differs from gametophytic self-incompatibility? 1+4
- g) Briefly discuss about the process of gametogenesis in pollen mother cell.

GROUP-C**3. Answer any TWO questions:****10 X 2 = 20**

- a) Define plant breeding. Write down the different objectives of plant breeding. 2+8
- b) What is male sterility? How different types of male sterility are utilized in commercial agriculture? 1+3+6
- c) Briefly describe the bulk method of breeding and its applications. Discuss its merits and demerits. 6+4

(P.T.O.)



(2)

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- d) Define abiotic stress. Discuss briefly the importance of abiotic stress. Mention the various approaches to minimise losses from abiotic stress. 1+4+5
