A–037

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MSCBOT–507

M.Sc. BOTANY (MSCBOT)

(Cytogenetic and Plant Breeding)

2nd Semester Examination, 2024 (June)

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 the aim and objectives of plant breeding. Discuss the major impact of plant breeding on Indian Agriculture.

2. Explain the various methods of genetic recombination in bacteria.

3. What is restriction mapping ? Explain any one of the techniques used in restriction mapping.

4. Write explanation notes on any two of the following

   (a) Heterosis and Inbreeding depression

   (b) Classification of nutrition and its role in plant building

   (c) Male sterility

5. Describe chemical mutagens in detail. Write an essay on methods of DNA repair mechanism.

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 the importance of genetic variations in crop improvement.

2. Write short notes on any *two* of the following :

   (a) Robertsonian translocations

   (b) Inherited human diseases

   (c) In-situ hybridization

3. Bring out the significance of the factors affecting crossing over.

4. Describe briefly about translocation heterozygotes.

5. Write short note on genetic mutation caused by radiation.

6. Give a brief account on inversion and its significance

7. Write a detailed note on allopolyploids.

8. Differentiate between coupling and repulsion phase of linkage.

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