

**P-927**

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## **BOT-554**

### **Plant Molecular Biology and Biotechnology**

M.Sc. Botany (MSCBOT)

2nd Year Examination, 2023 (June)

**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 answer 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. Discuss gene expression in eukaryotes.

2. What are cloning vectors? Discuss the types of cloning vectors.
3. What are molecular markers? Describe the types and tools to identify molecular markers.
4. Write an explanatory note on stages of micropropagation its importance, limitation and future perspective.
5. What are transgenic plants? Mention its advantages. Discuss the risk and controversies associated with transgenic plants.

## **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. Discuss the methods of in-vitro conservation of germplasm.
2. What are Genomics and Proteomics? Discuss the practical applications of Genomics and Proteomics.
3. Write a note on Biosafety.
4. What do you understand by genome? What are the different techniques to study genome? Draw a labelled diagram of metacentric chromosome.

5. Describe the mitochondrial genome organisation and its role in cytoplasmic male sterility.
  6. What are restriction endonucleases? Discuss the types and significance of restriction endonucleases in molecular biology.
  7. Discuss Polymerase Chain Reaction.
  8. What is somatic hybridization? Write about the achievements of somatic hybridisation.
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