**M.Sc. Final Year**

**End Semester Examination (IV Semester 2020-2021)**

**Semester [IV]**

**Subject: Botany Paper Code CMS-BOT-EC 03 (Cytogenetic, Plant Breeding, Molecular Biology and Biotechnology)**

**Time-2 hrs Full Marks=70**

**Group – B (Short answer type questions) Answer any four 5x4=20**

1. Germplasm collection and its conservation
2. Cellular Totipotency
3. Organogenesis
4. Protoplast isolation
5. Theory of centre of origin of crops plants
6. Bt Cotton
7. Flavr savr tomato
8. Herbicide tolerant transgenic plants.
9. What are the agencies of plant introduction in India?
10. Acclimatization
11. Methods to overcome self-incompatibility.
12. Heterosis

**Group – C (Long answer questions) Answer any two 15x2=30**

1. Discuss the role of transgenic plants in crop improvement. Explain with suitable examples.
2. Discuss the technique of protoplast isolation and hybridization. What are its limitation and role in crop improvement?
3. Describe the methods used for induction of protoplast fusion leading to production of somatic hybrids. Discuss the utility of this technique in plant breeding.
4. Describe the genes used for the production of transgenic plants providing resistance against herbicide and insect damage?
5. Explain the genetic basis of self-incompatibility. What is the significance of incompatibility?
6. What is inbreeding and its coefficient?
7. What is male sterility? Mention its type with examples.
8. What do you understand by plant introduction? Mention its merits and demerits.