

**BOT-554**

**Plant Molecular Biology and  
Biotechnology**

M.Sc. BOTANY (MSCBOT- 12/13/16/17)

Second Year, Examination, 2019

Time: 03 Hours

Max. Marks: 80

---

Note: This paper is of Eighty (80) marks, divided into two (02) sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

**SECTION-A**

(Long-Answer-Type Questions)

Note: Section 'A' contains five (05) long-answer-type questions of fifteen (15) marks each. Learners are required to answer any three (03) questions.

(3×15=45)

1. Describe the different mechanisms known for regulation of gene activity at the post transcriptional level in eukaryotes.
2. Give a concise account of different kinds of vectors available for gene cloning. Discuss the use of plasmids for this purpose.
3. What is polymerase chain reaction and how can it be utilized for gene amplification?
4. Write a short account of Plant Tissue Culture. What are its applications?
5. What is a patent and how it can be obtained? Discuss.

## **SECTION-B**

(Short Answer Type Questions)

Note: Section 'B' contains eight (08) short-answer type questions of seven (07) marks each learners are required to answer any five (05) questions only.

(5×7=35)

1. Exons and Introns
2. Lac Operon

- 3 Genomic library
4. *Agrobacterium tumefaciens*
5. Molecular markers
6. Totipotency
7. Cryopreservation of plant cells
8. Plant metabolomics

\*\*\*\*\*