Exam. Code : 210003
Subject Code : 4910

M.Sc. Botany 3rd Semester (Batch 2020-22)

PLANT MOLECULAR BIOLOGY

Paper—BOT-C613

Time Allowed—3 Hours] [Maximum Marks—50

Note :— Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The **FIFTH** question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. Give a detailed account of mechanism of transcription in prokaryotes. 10

2. Write notes on any **TWO** of the following (5 marks each) :
   (a) DNA sequencing
   (b) Capping and polyadenylation
   (c) Ribonucleoproteins. 10

SECTION—B

3. Write notes on any **TWO** of the following (5 marks each) :—
   (a) Restriction endonucleases that produce sticky ended fragments.
   (b) Role of DNA ligase in rDNA technology.
   (c) Southern blotting. 10

4. Give an account of Agarose gel electrophoresis. Discuss its role in plant molecular biology. 10

SECTION—C

5. What do you understand by vectors for gene cloning ? What type of vectors are used for Cloning single stranded DNA ? Discuss their important features with the help of a suitable diagram. 10

6. Write notes on any **TWO** of the following (5 marks each) :—
   (a) Cosmids
   (b) Ti-plasmid
   (c) pBR322. 10

SECTION—D

7. What do you understand by 'Genetic colonization of plants by *Agrobacterium* infection and tumor growth' Discuss in detail. 10

8. Write notes on any **TWO** of the following (5 marks each) :—
   (a) PCR
   (b) Genomics
   (c) Microarrays. 10