Exam. Code : 210003
Subject Code : 5397

M.Sc. Botany 3rd Semester

PLANT MOLECULAR BIOLOGY

Paper—BOT-C-613

Time Allowed—3 Hours] [Maximum Marks—50

Note :— Candidates are required to attempt ***all*** Sections (A, B and C).

Section-A : Attempt ***all*** parts, each having **1** mark.

Section-B : Attempt any ***seven*** questions. Answer to any question should not exceed **2** pages. Each question carries **3** marks.

Section-C : Attempt any ***three*** questions. Answer to any question should not exceed **4** pages. Draw diagram wherever applicable. Each question carries **7** marks.

SECTION—A

1. Write short notes on the following (**2-4** lines each) :
   (i) Mention the promoters of prokaryote.
   (ii) What is the Western Blotting ?
   (iii) Define expression vector.
   (iv) What is Lytic cycle in Bacteriophage ?
   (v) What do you mean by disarming of T_{-i} plasmid ?
   (vi) What do the different words in ECORI enzyme mean ?
   (vii) What are microarrays ?
   (viii) Role of spliceosome. 8×1=8

SECTION—B

2. C-value paradox.
3. Procedure for selection of recombinant clones.
4. Cosmids.
5. Organization of T-DNA of *Agrobacterium*.
6. Note on RFLPs.
7. Importance of artificial chromosomes in genomic analysis.
8. Role of bioinformatics in genomics.
9. Plant genomic projects.
10. Agarose gel electrophoresis.
11. Structure of RNA polymerase. 7×3=21

SECTION—C

12. Briefly discuss the mechanism of Transcription in Eukaryotes.
13. Write briefly about any *two* :
    (a) Different enzymes involved in Recombinant technology.
    (b) Genomic and C-DNA libraries.
    (c) Southern blotting technique.
14. Discuss the following :
    (a) Important properties of good cloning vector. Discuss the structure of pBR 322 vector.
    (b) Lysogenic cycle of bacteriophage.
15. Describe the following :
    (a) Important steps of general PCR
    (b) DNA fingerprinting by RAPD.
16. Comment upon the following :
    (a) Procedure for protein profiling and its significance.
    (b) Different types of molecular markers for transgenic plants. 3×7=21