

M.Sc. (Part-I) Semester-II (CBCS Scheme) Examination

BIOTECHNOLOGY : 2 BTB 3

Plant Biotechnology (2 GIC-D)

Paper-VII

Time : Three Hours]

[Maximum Marks : 100

Note :— (1) All questions are compulsory and carry equal marks.

(2) Draw well labelled diagrams wherever necessary.

1. What is the importance of plant breeding to society ? Discuss how plant breeding has changed time to time. 20

OR

Describe the role of biotechnology for creating variability for plant breeding. 20

2. (a) Explain embryo culture and embryo rescue. 5
- (b) What is an explant ? How will you induce callus from it ? 5
- (c) What are the applications and uses of root organ culture ? 5
- (d) Discuss the problem involved in tissue culture of woody plants. 5

OR

- (p) Discuss somatic embryogenesis. 5
- (q) What is meristem culture and what are its uses ? 5
- (r) What are slow growth cultures and why are they used ? 5
- (s) What is dedifferentiation and redifferentiation ? 5
3. (a) Explain structure of Ti plasmid. 5
- (b) Describe the technique by which you can improve the storage protein in the plant. 5
- (c) What is role of RNA interference in control of protein expression ? 5
- (d) How the application of RAPD and RFLP marker would help in case of plant improvement ? 5

OR

- (p) Discuss TDNA and disarmed plasmid. 5
- (q) Why promoters are important in cloning ? 5
- (r) Discuss microinjection. 5
- (s) How viruses could be used in cloning ? 5
- 4. (a) What is the importance of herbicide resistant plants ? 5
- (b) Which are the strategies used in developing insect resistant plants ? 5
- (c) What is the importance of biotechnology in plant improvement ? 5
- (d) How the male sterile plants can be generated ? 5

OR

- (p) Why is it important to generate plants resistant for insects in post harvest conditions ? 5
- (q) Which are different strategies used in development of herbicide resistant plants ? 5
- (r) What is molecular farming ? 5
- (s) What is importance of plants resistant to abiotic stress ? 5
- 5. What are secondary metabolites ? Enlist various classes of plant secondary metabolites and write in detail about each class stating examples and their roles in plants. 20

OR

What are the uses of secondary metabolites as drugs ? How plant tissue culture has helped to obtain secondary metabolites ? 20