

AQ-935

M.Sc. (Semester-II) (CBCS Scheme) Examination
BIOTECHNOLOGY
(2 BTB 3)
(Plant Biotechnology (2 GIC-D))

Time : Three Hours] [Maximum Marks : 100

- Note :-** (1) **ALL** questions are compulsory and carry equal marks.
- (2) Draw well labelled diagram and give suitable examples wherever necessary.

1. Write an essay on plant breeding methods in vegetatively propagated plants giving examples. 20

OR

How can the population of crop plants be improved using breeding programs ? 20

2. (a) Write a note on embryo rescue. 5
- (b) How is it possible to get virus free plantlets using clonal propagation ? 5
- (c) Which are the abiotic factors affecting the growth of the plantlets in vitro ? 5
- (d) Write a note on somaclonal variations. 5

OR

- (p) What do you mean by asymmetric hybrid ? Write its applications. 5
- (q) Explain the role of enzymes in protoplast culture. 5
- (r) What is the role of cryoprotectant in cryopreservation ? 5
- (s) What are the advantages of Haploid production ? 5
3. (a) What is the use of generic marker in cloning ? Give examples. 5
- (b) Write a note on 35 S promoter. 5
- (c) How can you transfer multiple genes in a same tissue ? 5
- (d) Explain in detail various ways to transform protoplasts. 5

OR

- (p) What are binary vectors ? How are they more useful ? 5
- (q) Comment upon the role of virulence genes in *Agrobacterium*. 5
- (r) What are reporter genes ? 5
- (s) Write a note on particle bombardment technique. 5

4. (a) How can introduction of a gene of amylase inhibitor confer insect resistant in the resultant plants ? 5
- (b) Which are various strategies to get herbicide resistant plants ? 5
- (c) What are the advantages in transformation of plastid DNA ? 5
- (d) Write a note on abiotic stress. 5

OR

- (p) Write various strategies used for conferring resistant against the herbicide glyphosate. 5
- (q) Write a note on male sterility and restorer gene strategy. 5
- (r) What strategy is used in the formation of genetically manipulated herbicide resistant plants, where herbicides act on enzymes of photosystems ? 5
- (s) What are the various types of genes that on transformation confer resistance against viruses ? 5
5. Write an essay on production and use of bioplastics. Comment upon the advantages and disadvantages of bioplastics. 20

OR

Write any essay on commercial use and economic importance of plant secondary metabolites. 20