

2022

BOTANY — HONOURS

Paper : DSE-B-1

(Plant Biotechnology)

Full Marks : 50

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer **any five** questions : 2×5
- (a) Which method is used for sterilization of thermolabile components of plant tissue culture medium?
 - (b) What is reporter gene?
 - (c) Define fusogen with an example.
 - (d) State two advantages of artificial seeds.
 - (e) Define totipotency.
 - (f) What is Flavr-Savr tomato?
 - (g) What is a cybrid?
 - (h) Name two direct gene transfer methods.
2. Answer **any two** questions : 2½+2½
- (a) What is suspension culture? Mention its importance. 5
 - (b) Write a short note on the components of a plant tissue culture medium. 5
 - (c) Write a short note on 'Superbug'. 2+3
 - (d) What is de-differentiation? State its importance in plant tissue culture. 2+3
3. Answer **any three** questions :
- (a) Discuss the process of T-DNA transfer from *Agrobacterium tumefaciens* to plant cells with the help of a flow chart. 6+4
 - (b) What do you mean by direct and indirect organogenesis? What are caulogenesis and rhizogenesis? State the importance of organogenesis. 4+3+3
 - (c) Write short notes on (**any two**) : 5×2
 - (i) *Bt* cotton
 - (ii) Herbicide resistant transgenic plants
 - (iii) Ti plasmid.
 - (d) With suitable flow chart enumerate methods of protoplast isolation, purification and culture. 3+2+5
 - (e) What is haploid culture? With suitable flow chart enumerate one method for anther culture. State the importance of haploid culture. 2+6+2
-