

2020

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) Name two chemicals used for surface sterilization of explants for *in vitro* culture.
 - (b) What is cytodifferentiation?
 - (c) What do you mean by 'Super bug'?
 - (d) What is edible vaccine?
 - (e) Define cellular totipotency.
 - (f) What is T-DNA?
 - (g) Define fusogen with an example.
 - (h) State two names of transgenic plants.
2. Answer **any two** questions : 5
- (a) Briefly discuss the method of isolation of protoplast. 5
 - (b) Briefly discuss the Ti Plasmid. 5
 - (c) Write a short note on *Bt* cotton. 5
 - (d) What is callus culture? State its application. 3+2
3. Answer **any three** questions : 7+3
- (a) With a suitable flow chart enumerate anther culture method. Explain its application. 7+3
 - (b) Write short notes : 2½×4
 - (i) Reporter gene
 - (ii) Artificial seed
 - (iii) De-differentiation
 - (iv) Suspension culture.
 - (c) Briefly discuss the steps of T-DNA transfer process from *Agrobacterium tumifaciens* cell to plant cell. 10
 - (d) Starting from an explant give an outline of different steps involved to raise a plant *in vitro*. State the essential components of any plant tissue culture medium. 5+5
 - (e) Distinguish between direct and indirect organogenesis. Define rhizogenesis. What is somatic embryo? 6+2+2
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