

B.Sc. Part—III (Semester—VI) Examination
BIOTECHNOLOGY (R/V)
(Plant Biotechnology)

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) **ALL** questions are compulsory.

(2) Draw neat and labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

2

(i) The fusogen used for fusion of somatic cells is _____.

(ii) Gene transfer by using electric current is called _____.

(iii) The undifferentiated and unorganised mass of cells developed from explant is _____.

(iv) Loss of water in the form of water vapour from the stomata is called _____.

(B) Multiple choice questions :

2

(i) Fruit ripening takes place by :

(a) Auxin

(b) Cytokinin

(c) Ethylene

(d) GA

(ii) Sterilization of glasswares need :

(a) Incubator

(b) Autoclave

(c) Laminar Air Flow

(d) Centrifuge

(iii) Angiospermic endosperm culture gives :

- (a) n
- (b) $2n$
- (c) $3n$
- (d) $4n$

(iv) Ti-plasmid is present in :

- (a) E.Coli
- (b) Agrobacteria
- (c) Yeast
- (d) Rhizobium

(C) Answer in **one** sentence each :

4

- (i) Define Cybrid.
- (ii) What is Geotropism ?
- (iii) What is Apical Dominance ?
- (iv) Name the enzymes used for isolation of Prototplast.

2. Describe :

- (a) Phototropism 4
- (b) Growth Curve 4
- (c) Growth Measuring Methods 4

OR

- (d) Apical Dominance 4
- (e) Structure of Stomata 4
- (f) Effect of photoperiod on growth. 4

3. Explain in detail the physiological effects of Ethylene.

12

OR

Explain the physiological effects of Cytokinine.

12

4. Explain in brief :
- (a) Autoclave 4
 - (b) Composition of MS Medium 4
 - (c) Design of Tissue Culture Laboratory 4
- OR**
- (d) Laminar Air Flow 4
 - (e) Management of Tissue Culture Laboratory 4
 - (f) Practical applications of Organ Culture. 4
5. Explain :
- (a) Embryo Rescue 4
 - (b) Meristem Culture 4
 - (c) Hardening of Tissue Cultured Plants 4
- OR**
- (d) Pollen Culture 4
 - (e) Clonal Multiplication 4
 - (f) Applications of Somaclonal Variation. 4
6. Describe :
- (a) Protoplast isolation by mechanical method 4
 - (b) Active transport 4
 - (c) Single cell suspension culture 4
- OR**
- (d) Selection of variants by single cell suspension culture 4
 - (e) Passive transport 4
 - (f) Protoplasmic membrane. 4
7. Describe electroporation and Gene gun method of gene transfer in detail. 12
- OR**
- Describe somatic hybridization and explain the markers for selection of hybrid cells. 12

