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 :

(i) The shape of typical growth curve is _____.

(ii) The root inducing hormone is _____.

(iii) _____ filters are present in Laminar Air Flow.

(iv) The cell without cell wall is called as _____. 2

(B) Multiple Choice Questions :

(i) MS medium is used for :

(a) Bacterial culture (b) Plant cell culture

(c) Fungal culture (d) Viral culture

(ii) The plant required more photoperiod than critical length for flowering is called as :

(a) LDP (b) SDP

(c) DNP (d) All

(iii) The hormone responsible for Natural ripening of fruits is :

(a) Auxin (b) Cytokinin

(c) Ethylene (d) GA

(iv) The sterilization temperature in Autoclave is maintained at :

(a) 60°C (b) 100°C

(c) 121°C (d) 150°C 2

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

(i) What is cybrid ?

(ii) Name the vector present in Agrobacterium tumefaciens.

(iii) Name the enzymes used for protoplast isolation.

(iv) Define electroporation. 4

2. Describe :

(a) Short day plants 4

(b) Apical dominance 4

(c) Phototropism. 4

OR

(d) Radiation energy 4

(e) Geotropism 4

(f) Growth curve and growth analysis. 4

3. Explain the mechanism of Action of Gibberellins. 12

OR

Explain in detail the physiological effects of Auxin. 12

4. Explain in brief :

(a) Practical applications of Tissue Culture. 4

(b) Incubator and its role. 4

(c) Management of Tissue Culture laboratory. 4

OR

(d) Media preparation and composition. 4

(e) Applications of Organ culture 4

(f) Design of Tissue Culture laboratory. 4

5. Explain :

(a) Pollen culture 4

(b) Embryo rescue 4

(c) Hardening of tissue culture plants. 4

OR

(d) Ovule culture 4

(e) Meristem culture 4

(f) Applications of Somaclonal variations. 4

6. Describe Single cell suspension culture and give its applications in selection of variants. 12

OR

Define Protoplast. Describe methodology for isolation and regeneration of protoplast. 12

7. Explain :

(a) Ti plasmid 4

(b) Markers for selection of hybrid cells 4

(c) Electroporation. 4

OR

(d) Gene gun method for gene transfer 4

(e) Applications of Somatic hybridization 4

(f) Hybrid and Cybrid. 4