AS–1493

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) Specialised pores on leaf meant for transpiration are called as _____.

(ii) _____ is the fruit ripening hormone.

(iii) The products of Mutation are called as _____.

(iv) Haploids are produced by _____ culture.

(B) Multiple choice questions :— 2

(i) Indole-3 acetic acid is an example of :

(a) Auxin (b) Cytokinin

(c) Abscisic Acid (d) Gibberalic Acid

(ii) Endosperm culture of an Angiospermic plant produce :

(a) Haploids (b) Diploids

(c) Triploids (d) Tetraploid

(iii) Enzymes required for protoplast isolation :

(a) Lypase (b) Isomerase

(c) Cellulase and pectinase (d) Proteases

(iv) Which particles are not used in Gene gun ?

(a) Gold (b) Silver

(c) Tungsten (d) Carbon

(C) Answer in **ONE** sentence each :— 4

(i) Define Totipotency.

(ii) What is Protoplast ?

(iii) What is meant by organogenesis ?

(iv) What is phototropism ?

2. Describe :—

(a) Apical dominance 4

(b) Growth curve 4

(c) Geotropism 4

OR

(d) Long day plants 4

(e) Structure of stomata 4

(f) Phototropism. 4

3. Explain in detail the physiological effects of cytokinins. 12

OR

Explain the mechanism of action of Auxin. 12

4. Explain in brief :—

(a) Composition of M.S. Medium. 4

(b) Practical applications of Tissue Culture. 4

(c) Management of Tissue Culture Laboratory. 4

OR

(d) Role of Laminar Air Flow in Tissue Culture. 4

(e) Practical applications of Organ Culture. 4

(f) Sterilization techniques in Tissue Culture. 4

5. Explain :—

(a) Ovule culture 4

(b) Applications of Somaclonal variation 4

(c) Micropropagation. 4

OR

(d) Embryo rescue 4

(e) Clonal multiplication 4

(f) Anther culture. 4

6. Describe :—

(a) Passive transport across cell membrane. 4

(b) Protoplast isolation (enzymatic method). 4

(c) Single cell suspension culture. 4

OR

(d) Active transport across cell membrane. 4

(e) Role of single cell suspension culture in selection of variants. 4

(f) Protoplast regeneration. 4

7. Describe Agrobacterium mediated gene transfer in detail. 12

OR

Explain somatic hybridization and its applications in detail. 12