

2023

BOTANY — HONOURS

Paper : DSE-B-1 and DSE-B-2

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

The figures in the margin indicate full marks.

**Paper : DSE-B-1
(Plant Biotechnology)**

Full Marks : 50

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1. Answer **any five** questions : 2×5
 - (a) Define de-differentiation.
 - (b) Name two natural auxins.
 - (c) Define androgenesis.
 - (d) What is a double haploid?
 - (e) State two importances of protoplast culture.
 - (f) What is gametoclonal variation?
 - (g) What do you mean by Recombinant DNA?
 - (h) Cite the name of the gene transformed into *Bt* Cotton. State the source of the gene.

2. Answer **any two** questions : 5×2
 - (a) With a suitable diagram describe the Ti plasmid of *Agrobacterium tumefaciens*.
 - (b) Discuss the advantages of pollen culture over anther culture.
 - (c) Discuss the process of protoplast culture with suitable diagram.
 - (d) Write a note on synthetic seeds.

3. Answer **any three** questions :
 - (a) What is the difference between Adherent and Suspension Culture? Elaborate the protocol of Suspension Culture. Discuss the advantages and disadvantages of Suspension Culture. 2+5+3
 - (b) What is direct and indirect somatic embryogenesis? Describe somatic embryogenesis with proper diagram. Mention its applications. 2+5+3
 - (c) Discuss the different sterilization methods used in plant tissue culture. Write a short note on the different stages of micropropagation. 5+5
 - (d) What do you mean by genetically modified crop? Discuss the achievements in crop biotechnology with suitable examples. 2+8
 - (e) What is somatic hybridization? With the help of suitable diagrams discuss the possibilities of formation of different fusion products after somatic hybridization. 2+8

Please Turn Over

Paper : DSE-B-2

(Horticultural Practices and Post Harvest Technology)

Full Marks : 50

1. Answer *any five* questions :

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- (a) What is arboriculture? Write down the aims of ecotourism. 1+1
- (b) What is bonsai? Name one style of bonsai. 1+1
- (c) What do you mean by weed control? Name one chemical used as herbicide. 1+1
- (d) What are the main objectives of quarantine practices? 2
- (e) Write one advantage of micropropagation technique in horticultural crops. 2
- (f) Write the full form of NIIB. Write down the main goal of NIIB. 1+1
- (g) What is perthincarpy? Give an example. 1+1
- (h) What do you mean by crop sanitation? 2

2. Answer *any two* questions :

- (a) Write the salient features to identify the following plants : 2½×2
- (i) Orchids
- (ii) Succulents.
- (b) Write a brief note on biofertilizers. What are the advantages of application of biopesticides? 3+2
- (c) Discuss briefly the principles of landscape designing. 5

3. Answer *any three* questions :

- (a) (i) Write a short note on economic products of fruits and vegetables.
- (ii) Mention two identifying characters of the following fruits and vegetable varieties : Banana, Mango and Chillis. 4+(2+2+2)
- (b) Briefly discuss the role of green manure in Horticultural techniques. How nutrients and plant growth regulators (PGRs) help in improving horticultural practices? 4+(3+3)
- (c) Discuss briefly on post-harvest diseases. How remedial measures and nutritional management practices help in disease control? What is IPM? 4+4+2
- (d) (i) Briefly discuss on germplasm conservation.
- (ii) Comment on varieties and cultivars of various horticultural crops. 5+5
- (e) What is IPR? Discuss the IPR issues in trade and commerce of horticulture crops. What are the methods followed during storage and transportation of vegetables and fruits? 1+4+5