

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

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 microporogation. 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 NHB. Write down the main goal of NHB. | 1+1 |
| (g) What is perthinocarpy? Give an example. | 1+1 |
| (h) What do you mean by crop sanitation? | 2 |

2. Answer *any two* questions :

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| (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 :

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| (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 |