

2024

**BOTANY — HONOURS**

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

*The figures in the margin indicate full marks.*

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

**Paper : DSE-B-1**

**(Plant Biotechnology)**

**Full Marks : 50**

1. Answer *any five* questions :

2×5

- (a) What is osmoticum? Cite an example.
- (b) What are synthetic seeds?
- (c) What is somaclonal variation?
- (d) What are fusogens? Give a suitable example.
- (e) What is particle gun?
- (f) What is totipotency?
- (g) What is diploidization of haploids? Name one chemical used for this technique.
- (h) Why reporter genes are used for plant gene transfer?

2. Answer *any two* questions :

5×2

- (a) Enumerate with flowchart one method of haploid culture.
- (b) Differentiate between organogenesis and somatic embryogenesis.
- (c) Write a short note on Suspension Culture.
- (d) Discuss briefly the different sterilization techniques in plant tissue culture.

3. Answer *any three* questions :

- (a) What is callus culture? Discuss how callus culture is developed from an explant. State the applications of callus culture. 2+6+2
- (b) Write short notes on (*any two*) : 5×2
  - (i) Superbug
  - (ii) Bt Cotton
  - (iii) Flavr-Savr Tomato.

**Please Turn Over**

**(0458+0413)**

- (c) With the help of a flowchart discuss the process of T-DNA transfer from *Agrobacterium tumefaciens* to plant cells. 10
- (d) What is a cybrid? How are cybrids produced? Discuss the different methods of protoplast culture. 2+3+5
- (e) What are the basic components are used in any basal plant tissue culture media? Write down the roles of different PGRs in organogenesis. Define dedifferentiation and redifferentiation. 4+2+4

**Paper : DSE-B-2****(Horticultural Practices and Post Harvest Technology)****Full Marks : 50****1. Answer *any five* questions :**

- |  |     |
|--|-----|
| (a) What do you understand by the term landscaping?                        | 2   |
| (b) What is green manure?  | 2   |
| (c) What do you mean by crop sanitation?                                   | 2   |
| (d) Distinguish between manure and fertilizer.                             | 2   |
| (e) Where did Bonsai originate from? Name two Bonsai styles.               | 1+1 |
| (f) What is hydroponics system?  | 2   |
| (g) Note down the deficiency symptoms of nitrogen and manganese in plants. | 2   |
| (h) Write one advantage and one disadvantage of using herbicide.           | 1+1 |

**2. Answer *any two* questions :**

- |   |      |
|---|------|
| (a) Mention the basic differences followed in the landscaping of parks and gardens. | 5    |
| (b) What are weeds? Discuss the different methods of weed control.                  | 1+4  |
| (c) Write down the salient features to identify the following plants :              | 2½×2 |
| (i) Cacti   |      |
| (ii) Poppies.   |      |

**3. Answer *any three* questions :**

- |  |         |
|--|---------|
| (a) What do you mean by plant growth regulator? Describe the roles of plant growth regulators in horticulture.   | 2+8     |
| (b) (i) Write a short note on management and marketing of fruits and vegetables.   |         |
| (ii) Mention two identifying characters of the following fruit and vegetable varieties :<br>Citrus and Cucurbits.  | 6+(2+2) |
| (c) Why the post-harvest technology is important? How can we minimize the loss during transportation and storage of crops? Write the importance of food safety.  | 3+4+3   |
| (d) What are the key factors that influence horticultural market demand and supply? Discuss the importance of flower shows and exhibition in promoting floriculture.   | 5+5     |
| (e) Discuss the basic principles of hydroponics. What are the benefits of using such a system for plant growth? Name few plants commercially grown through hydroponics presently. Enlist the nutrients required for hydroponics. | 3+3+2+2 |