

**2024/TDC (CBCS)/EVEN/SEM/
BTCDSE-601T/011**

TDC (CBCS) Even Semester Exam., 2024

BIOTECHNOLOGY

(6th Semester)

Course No. : BTC DSE-601T

(Plant Biotechnology)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

**The figures in the margin indicate full marks
for the questions**

UNIT—I

1. Answer any three of the following questions :

1×3=3

- (a) What is totipotency?**
- (b) Define micropropagation.**
- (c) Write down the advantages of micropropagation.**
- (d) Name one nutrient medium for plant tissue culture.**

(2)

2. Answer any *one* of the following questions : 2

- (a) Define callus.
- (b) Write a note on organogenesis.

3. Answer any *one* of the following questions : 5

- (a) What is meristem culture? Write down the steps involved in the production of virus-free plants. $2+3=5$
- (b) What is embryo culture? Add a note on embryogenesis. $2+3=5$

UNIT—II

4. Answer any *three* of the following questions : $1 \times 3 = 3$

- (a) Write about chromosome doubling.
- (b) What is gynogenic haploid?
- (c) Define polyploidy.
- (d) Write down the factors affecting gynogenesis.

5. Answer any *one* of the following questions : 2

- (a) What is microspore culture?
- (b) Write about androgenic methods.

(3)

6. Answer any *one* of the following questions : 5

- (a) Write down the uses of haploids. Add a note on anther culture. $2+3=5$
- (b) Discuss the techniques for the production of haploids in cereals.

UNIT—III

7. Answer any *three* of the following questions : $1 \times 3 = 3$

- (a) What is protoplast?
- (b) Define cybrid.
- (c) What is heterokaryon?
- (d) What is the use of PEG?

8. Answer any *one* of the following questions : 2

- (a) What is somatic hybridization?
- (b) Write down the application of somaclonal variation.

9. Answer any *one* of the following questions : 5

- (a) Discuss the steps involved in protoplast fusion.

(4)

- (b) Write a note on identification and selection of hybrid cells.

UNIT—IV

10. Answer any *three* of the following questions :

1×3=3

- (a) Name two symbiotic plant growth promoting bacteria.
- (b) Write about hydrogenase.
- (c) What do you mean by rhizobacteria?
- (d) Define nodulation.

11. Answer any *one* of the following questions : 2

- (a) What do you mean by nitrogen fixation?
- (b) What is the role of nitrogenase in nitrogen fixation?

12. Answer any *one* of the following questions : 5

- (a) Give a detailed account of plant growth promoting bacteria.
- (b) Describe the process of nodule formation by nitrogen-fixing bacteria.

(5)

UNIT—V

13. Answer any *three* of the following questions :

1×3=3

- (a) Write down the limitation of biocontrol.
- (b) What do you mean by Bt-toxin?
- (c) What is Trichoderma?
- (d) How is biocontrol better than chemical method?

14. Answer any *one* of the following questions : 2

- (a) Write a note on integrated pest management.
- (b) Write about the advantages of biological control.

15. Answer any *one* of the following questions : 5

- (a) Write down the principle of biocontrol. Add a note on biocontrol of insect pests.
- (b) Discuss the role of free-living bacteria in plant growth and development.

2+3=5

★ ★ ★