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B TECH
(SEM-V) THEORY EXAMINATION 2020-21
PLANT BIOTECHNOLOGY

Time: 3 Hours**Total Marks: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

SECTION-A

1. Note: Attempt all question from this section **(10x2=20)**

- a) Define Acclimatization.
- b) What is organized organ culture?
- c) Define redifferentiation?
- d) What is the role of gibberlins in the growth of plant?
- e) Write any two secondary metabolites formed during plant tissue culture along with their uses?
- f) List the physical factors affecting callus culture.
- g) What do you understand by totipotency?
- h) Define the term Gynogenesis.
- i) What are the limitations of transgenic plants?
- j) Differentiate between Organogenesis and Embryogenesis.

SECTION-B

2. Note: Attempt any three question from this section **(10x3=30)**

- a) Explain Protoplast Culture and Isolation of protoplast in detail.
- b) Explain Androgenesis in detail.
- c) Explain Bt-cotton in detail. What were its advantages and disadvantages?
- d) What are phytohormones? Explain their role in the growth and development of plants.
- e) Explain the various methods of measurement of growth of cultures.
- f) Explain the concept of Somatic Embryogenesis. How is it different from Somaclonal variation?

SECTION-C

3. Attempt any one part of the following: **10x1=10**

- a) What are the suitable constituents for the plant culture medium? Explain the role of every single constituent used in the medium.
- b) What do you mean by Cryopreservation? Discuss the methodology used in preserving the explants in this technique.

4. Attempt any one part of the following: **10x1=10**

- a) Explain the concept of Somatic Embryogenesis in detail. How is it different from Micropropagation?
- b) Explain the secondary metabolites in plant cultures along with their advantages, disadvantages, and their industrial applications.

5. Attempt any one part of the following: **10x1=10**

- a) Give an account on the composition of a plant tissue culture medium.
- b) Explain the concept of artificial seeds. Why are they important?

6. Attempt any one part of the following: **10x1=10**

- a) Give a detailed account on Acclimatization. How is it important from determinism?
- b) Explain the various techniques used for the isolation of single cell clone.

7. Attempt any one part of the following: **10x1=10**

- a) Explain the application of plant tissue culture in transgenic plants for dealing with abiotic stresses.
- b) What are the applications of tissue culture for crop improvement in agriculture?