

SIXTH SEMESTER B.A./B.Sc. DEGREE EXAMINATION, MARCH 2020

(CUCBCSS—UG)

Microbiology

MBY 6B 18 (E1)—CELL AND TISSUE CULTURE

Time : Three Hours

Maximum : 80 Marks

Section A (Objective)*Answer all the twelve questions.**Each question carries ½ mark.*

1. Protoplasts can be produced from suspension cultures, callus tissues or intact tissues by enzymatic treatment with _____.
2. _____ is an excised piece of plant used in micropropagation.
3. Who is the father of tissue culture ?
4. The most widely used chemical for protoplast fusion is _____.
5. Cell lines that divide only a limited number of times and then die are called _____.
6. Formation of roots and shoots in callus tissue is called as _____.
7. Cell line derived by selection or cloning is called _____.
8. The ability of callus cells to form a whole plant is known as _____.
9. _____ culture is used to obtain a haploid plant.
10. Growth hormone producing apical dominance is _____.
11. The ability of any plant part to regenerate into a whole plant is called _____.
12. Name a bacteria used for gene transfer in plants.

(12 × ½ = 6 marks)

Section B (Short Answer Questions)*Answer all ten questions.**Each question carries 2 marks.*

13. Callus.
14. Primary culture.
15. Synthetic seeds.
16. Protoplast.
17. Transgenic plants.
18. Ti plasmid.

Turn over

19. Organ culture.
20. Cytokinins.
21. Explant.
22. Electroporation.

(10 × 2 = 20 marks)

Section C (Short Essay Questions)

Answer any six questions.

Each question carries 5 marks.

23. Direct and indirect methods used for specific gene transfer.
24. Applications of plant tissue culture.
25. Androgenesis.
26. What is a cell line ? What are its various types ?
27. Comment on explant selection and sterilization.
28. Explain the role of hormones in plant tissue culture.
29. Explain clonal propagation.
30. Comment on production of secondary metabolites from suspension culture.

(6 × 5 = 30 marks)

Section D (Essay Type Questions)

Answer any two questions.

Each question carries 12 marks.

31. Write an essay on plant tissue culture media.
32. Explain the various steps involved in protoplast technology. Mention its applications.
33. How can we use animal cell culture as a substitute for animal experiments ? Explain.

(2 × 12 = 24 marks)