

Subject Title: Tissue Culture and Biotechnology

Prepared by: K Gouthami

Year: III

Semester: VI

Updated on: 23.03.

Unit - I: Tissue Culture**Essay Questions:**

1. Write in detail about the technical procedures employed in plant tissue culture.
2. Write an essay on Anther and Pollen Culture.
3. Write in detail about Organ Culture.
4. Write in detail about Single Cell Culture.
5. Write an essay on protoplast culture and callus culture.
6. Define somatic hybridization? Describe different steps involved in it and mention its uses.

Short Answer Questions:

7. Significance of plant tissue culture.
8. Micro propagation.
9. Sterilization Methods.
10. Culture Medium.
11. Major types of Culture Media.
12. Embryo Culture.
13. Root Culture.
14. Shoot Tip Culture.
15. Leaf Culture.
16. Ovule and Ovary Culture.
17. Callus Culture – Importance.
18. Single Cell Culture – Importance.
19. Protoplast Culture – Importance.
20. Cybrids and Somatic hybrids.

Unit - II: Tissue Culture and Biotechnology**Essay Questions:**

21. Write in detail about the various applications of Tissue culture technology.
22. Write an essay on hairy roots and their production of Secondary metabolites.
23. Write an essay on Biotechnology and its applications in various fields.
24. What is Gene Cloning? Write in detail about Gene Cloning?
25. Write about the enzymes used in Gene Cloning.

Short Answer Questions:

26. Somaclonal variants.
27. Artificial seeds.
28. Secondary metabolites and Tissue culture.
29. Disease free plants-thro' Tissue culture.
30. Tissue culture - Stress Resistant Plants.
31. Ri - Plasmid.
32. Applications of hairy root cultures.
33. Hairy Roots and Secondary Metabolites.
34. Restriction Endonucleases, Ligases and Polymerases.
35. PCR mediated Gene Cloning.
36. Differences between Normal and PCR Gene Cloning.
37. Agricultural Biotechnology.
38. Medical and Industrial Biotechnology
39. Genetic Engineering.
40. Gene Therapy and DNA finger printing.

Unit - III: Tissue Culture and Biotechnology

Essay Questions:

41. Write in detail about all Gene Cloning Vectors / Vehicles.
42. Write an essay on Genomic Libraries.
43. What is PCR? Describe in detail about PCR and its applications.
44. What is Gene transfer? Describe in detail about the Gene Transfer Methods in Plants.
45. Describe in detail about the Physical Gene Transfer Methods.
46. Write in detail about the production and applications of transgenic plants in crop improvement.

Short Answer Questions:

47. Plasmids and Cosmids.
48. Phage Vectors / Bacteriophages.
49. Phagemids.
50. YAC.
51. PAC.
52. pUC Plasmids.
53. cDNA and Genomic Library – Uses.
54. cDNA and Genomic Library – Differences.
55. DNA Libraries – Screening.
56. Colony Hybridization.
57. Describe the role of Rdna technology through its applications in the field of Medicine and other fields.
58. Write about the Microprojectile method of gene transfer.
59. Agrobacterium – Gene Transfer.
60. Direct and Indirect Gene Transfer.
61. Types of transgenic plants.
62. Bt-Cotton and Bt-Brinjal.
63. Applications of transgenic plants.