

**D.K.M.COLLEGE FOR WOMEN (AUTONOMOUS),VELLORE-1.**

**PLANT BIOTECHNOLOGY**

**CBT5A**

**UNIT –I**

**SECTION-A**

**2 Marks**

1. What is plant tissue culture?
2. What is an explant? Give few examples.
3. Give the types of explants.
4. What is totipotency?
5. How is aseptic condition achieved?
6. What are the different methods of sterilization?
7. Explain Dry sterilization.
8. Explain Wet sterilization.
9. What are the physical agents of sterilization?
10. What chemicals are used in sterilization?
11. Explain about Laminar Air Flow cabinet.
12. Explain HEPA filter.
13. What is culture media?
14. What are the common media used for plant tissue culture?
15. Define MS media.
16. What are the constituents of MS media?
17. What are macronutrients & micronutrients?
18. What are essential aminoacids and vitamins needed in media?
19. What is solid media?
20. What is liquid media or suspension culture?
21. What are different culture types available?
22. What is seed culture?
23. What is protoplast culture?
24. What is embryo culture?
25. What is meristem culture?

26. What is bud culture?
27. What is organ culture?
28. What is dedifferentiation?
29. Explain Cell and organ differentiation.
30. Explain somatic embryogenesis.
31. Explain organogenesis.
32. What is somoclonal variation?
33. What is a protoplast? How is protoplast cultured? Mention its types.
34. What is regeneration potential?
35. What are the necessary growth hormones needed for a plant?
36. What are the properties of auxin?
37. What are the properties of cytokinins?
38. What are the properties of gibberlins?
39. What is the role of ethylene as a phytohormone?
40. What is the role of Absisic acid as a phytohormone?
41. What is another culture?
42. What is haploid culture
43. What is differentiation?

**SECTION-B            5 marks**

1. Explain sterilization techniques.
2. Discuss about growth hormones.
3. Write short notes on cell and organ differentiation.
4. How is protoplast culture? Discuss the methods.
5. How is protoplast regenerated? Discuss the methods.
6. What is somoclonal variation?
7. Difference between somatic embryogenesis and organogenesis.

**SECTION-C****10 Marks**

1. What are the different types of culture? Discuss in brief about each.
2. Discuss the regulation of growth hormones in plant tissue culture.

**UNIT-II****2 MARKS**

1. What are vectors?
2. What are plasmids?
3. How is Ti plasmid useful as a vector?
4. What is T-DNA? Draw the structure of Ti plasmid and mention its genes.
5. What are binary vectors?
6. What are promoter regions?
7. What are terminator regions?
8. What are selectable marker genes? Give examples.
9. What are reporter or scorer genes?
10. What is the role of Agrobacterium in plant tissue culture?
11. What is chloroplast transformation?
12. What are the different methods of in-planta transformation?
13. What are plant viruses and give examples.
14. What is the significance of Cauliflower Mosaic Virus?
15. What is the significance of Gemini virus?

**SECTION-B****5 Marks**

1. Structure of Ti Plasmid.
2. What are binary vectors? Give its uses.
3. What are selectable marker genes? Give any 2 examples.
4. What are reporter genes? Discuss with examples.
5. Discuss in-planta transformation.
6. Structure of Gemini virus and CaMV. Give its significance.

**SECTION-C****10 Marks**

1. Discuss in detail about the *Agrobacterium* mediated gene transfer.
2. Explain the process of T-DNA intergration with a neat sketch.
3. Discuss the mechanism of chloroplast transformation

**UNIT-III****2 MARKS**

1. What are direct gene transfer methods available of gene transfer in plants?
2. How is protoplast isolated?
3. What are the enzymes used in protoplast isolation?
4. What are the advantages of protoplast fusion?
5. What are the disadvantages of protoplast fusion?
6. What are biolistics?
7. What is electroporation?
8. How is microinjection performed
9. How are liposomes formed?
10. What are the advantages of direct gene transfer methods?
11. What are the disadvantages of direct gene transfer methods?
12. What are the advantages of *Agrobacterium* mediated gene transfer methods?
13. What are the disadvantages of *Agrobacterium* mediated gene transfer methods?

**SECTION-B****5 Marks**

1. Protopalst fusion – methods.
2. Advantages of using protoplasts.
3. Biolistics – gene transfer
4. Microinjection

5. Electroporation
6. Liposome encapsulation

**SECTION-C**                      **10 Marks**

1. Advantages and disadvantages of direct gene transfer.
2. Different methods of direct gene transfer.
3. Advantages and disadvantages of *Agrobacterium* mediated gene transfer methods.

**UNIT-V**                      **2 MARKS**

1. What is molecular pharming?
2. What are plantigens?
3. Define edible vaccines.
4. What are plantibodies? Give 2 examples and its uses.
5. What are secondary metabolites?
6. What are therapeutic proteins?
7. What are biofuels? Give examples.
8. How is bioethanol produced?
9. How is biopetrol produced?
10. How is biodiesel produced?

**SECTION-B**                      **5 Marks**

1. Discuss about the storage biomolecules- carbohydrates and proteins
2. Alternative fuels – Discuss.
3. Industrial enzymes –application
4. Plantigens

5. Edible vaccines.

**SECTION-C**

**10marks**

1. Production of plantibody in plants.
2. Carbohydrate production methods
3. Lipid production methods.