



**IV. Answer all each in about 50 words**

**(5 x 1 = 5 Marks)**

16. Define the term: Acclimatization.
17. What is Embryo rescue?
18. What you mean by Cytoplasmic male sterility?
19. What is Electroporation?
20. Write about the importance of *Bacillus thuringiensis*.

**PART - B**

**Answer the following, each within 500 words only. Draw diagrams and flowcharts wherever necessary.**

**(5 x 7 = 35 Marks)**

21. a) Give a detailed account on methods of sterilization techniques used in plant tissue culture.  
Or  
b) What is an explant? How will you induce callus from it?
22. a) Write a detailed account on cryopreservation. Add a note on its application.  
Or  
b) Suggest a method for developing virus-free plants through tissue culture.
23. a) Explain the functions of rhizobial genes.  
Or  
b) Describe the structure and organization mitochondrial DNA.
24. a) Elaborate on PCR and its applications.  
Or  
b) What is a cDNA library? How is it constructed?
25. a) Give the role of selectable markers in gene cloning.  
Or  
b) Give the strategies used for developing herbicide resistant plants.

**PART - C**

**Answer any THREE of the following, each within 1200 words only. Draw diagrams and flowcharts wherever necessary.**

**(3 x 15 = 45 Marks)**

26. Give a detailed account on various types of media, their composition and growth hormones used in plant tissue culture.
27. Describe the steps involved in isolation and fusion of protoplast. Add a note on the application of the technique.
28. Explain the genetic organization of Ti plasmid and role of T-DNA in developing transgenic plants.
29. Write an essay on any three cloning vectors used in rDNA technology.
30. What are molecular markers? How are they used in gene mapping?

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