

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY & PLANT BIO-TECH.

FIFTH SEMESTER – November 2009

**PB 5504 - PLANT BIOTECHNOLOGY**

Date & Time: 10/11/2009 / 9:00 - 12:00 Dept. No.

Max. : 100 Marks

**PART – A (20 Marks)**

**Answer ALL questions**

**I. Choose the correct answer.**

**[5 x 1 = 5 Marks]**

1. Undifferentiated mass of cells got by tissue culture is called  
a. Cybrid                      b. Callus                      c. Cell culture                      d. Parenchyma.
2. Artificial seeds are produced by embedding embryoids in  
a. Ca-alginate                      b. Na-alginate                      c. agarose                      d. agar.
3. Cytoplasmic male sterility is induced by \_\_\_\_\_ DNA.  
a. Chromosomal                      b. Chloroplast  
c. Mitochondrial                      d. Plasmid
4. *Taq* DNA Pol. is used in \_\_\_\_\_  
a. Southern blot                      b. PCR                      c. Electroporation                      d. Northern blot.
5. Alginic acid is extracted from  
a. *Gelidium*                      b. *Gracillaria*                      c. *Sargasum*                      d. *Ulva*.

**II. State whether the following statements are True or False:-**

**[5 x 1 = 5 Marks]**

6. Acclimatization is induced by adding growth hormones.
7. Cybrids are produced by protoplast fusion.
8. *nod* gene is responsible for nitrogen fixation.
9. Agrobacterium mediated gene transfer is brought about by *Ag* plasmid.
10. Blue green algae is used as biofertilizer to fix atmospheric nitrogen.

**III. Complete the following:-**

**[5 x 1 = 5 Marks]**

11. Sterilization is the process of \_\_\_\_\_.
12. Meristem culture is advantageous because it produces \_\_\_\_\_.
13. Restriction enzymes are used to \_\_\_\_\_.
14. Electroporation is used to \_\_\_\_\_.
15. Spirulina has rich Source of \_\_\_\_\_.

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

**[5 x 1 = 5 Marks]**

16. What is bioreactor?
17. What is a Ti plasmid?
18. Write about artificial seeds.
19. What are the requirements of a cloning vector?
20. What are the uses of alginic acid?

**PART - B**

[5 x 8 = 40 Marks]

**Answer any FIVE questions. Each within 350 words only: Draw diagrams and flowcharts wherever necessary.**

21. What are the requirements of a culture media?
22. Write about the role of hormones in tissue culture.
23. Explain the importance of anther culture.
24. What is somatic embryogenesis? Write about its significance.
25. Write notes on extrachromosomal DNA.
26. Give the characters and types of restriction enzymes.
27. Summarise the importance of fungi.
28. Describe the methodology for producing disease resistant plants

**PART – C**

[2 x 20 = 40 Marks]

**Answer the following, each within 1500 words only. Draw diagrams and flowcharts wherever necessary.**

29. a) Describe the method of isolation, culture and fusion of protoplast.

[OR]

- b) Write about the molecular mechanism behind *Agrobacterium* mediated gene transfer.

30. a) Write about the various gene transfer methods in plants.

[OR]

- b) Briefly describe Southern and western blot techniques.

