



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

**B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**

SIXTH SEMESTER – APRIL 2017

**PB 6612- PLANT BIOTECHNOLOGY**

Date: 20-04-2017  
09:00-12:00

Dept. No.

Max. : 100 Marks

**PART – A**

**Answer the following, each within 50 words.**

**(10 x 2=20marks)**

1. Define Callus.
2. What is Suspension culture?
3. Define Organogenesis.
4. What are artificial seeds?
5. Mention the important trait that makes *Arabidopsis thaliana* a useful model plant.
6. What is T-DNA?
7. Which restriction enzyme produces sticky ends and how?
8. What does the term cDNA refer to and how is it synthesized?
9. State any two uses of RAPD in crop improvement.
10. What are insect resistant crops?

**PART – B**

**Answer the following, each within 500 words. Draw diagrams and flow charts wherever necessary.**

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

11. a) Is hardening necessary for *in vitro* cultured plantlets? If yes, give reasons.

**(OR)**

- b) List and add a note on the major types of plant tissue culture media.

12. a) Define and describe the process of anther culture.

**(OR)**

- b) What are somaclones? Write notes on soma clonal variation?

13. a) Give an account on the genetic organization of Ti plasmid.

**(OR)**

- b) Write a short note on the characteristics of *Agrobacterium tumefaciens* and its use as vector.

14. a). Explain the particle bombardment and microinjection method of gene delivery system.

**(OR)**

b) Give an overview of Southern blotting procedure.

15. a) Explain the technique involved in detecting RFLPs.

**(OR)**

b) How does biosafety differ from Bioethics?

### **PART – C**

***Answer any THREE of the following, each within 1200 words. Draw diagrams and flow charts wherever necessary. (3 x 15=45 marks)***

16) Discuss on the role of plant growth hormones in *in vitro* culture.

17) Explain the process of protoplast isolation and fusion.

18) Give an account on the molecular interaction between *Agrobacterium* and dicot plant.

19) Elaborate on the types of cloning vectors used in molecular cloning.

20) Explain the mechanism of insecticidal action of *Bacillus thuringiensis* in transgenic plants.

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