



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

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

**SIXTH SEMESTER – APRIL 2023**

**UPB 6501 – PLANT BIOTECHNOLOGY**

Date: 29-04-2023

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

**PART- A**

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

**(10×2=20marks)**

1. Write notes on *in vitro* culture of plants.
2. Comment on somaclonal variation.
3. Write a note on chloroplast genome.
4. Give the importance of leghaemoglobin.
5. Cite the salient features of lambda phage.
6. Mention the features of shuttle vector.
7. List the characteristics T-DNA.
8. Write a short note on crown gall disease.
9. What is plant molecular farming?
10. Give the significance of golden rice.

**PART- B**

**(5×7=35marks)**

**Answer the following, each within 500 words; draw diagrams / flowcharts wherever necessary.**

- 11) (a) Elaborate on the significance of plant tissue culture technique.  
OR  
(b) Write notes on cell suspension culture and its importance.
- 12) (a) Highlight the molecular basis of symbiosis between *Rhizobium* and legumes.  
OR  
(b) What is the Central Dogma of Life? Add a note on the translation process.
- 13) (a) Explain the structure and significance of Yeast artificial chromosome.  
OR  
(b) Compare the Southern and Northern Blotting techniques.
- 14) (a) Highlight the role of Ti Plasmid in *Agrobacterium* transformations.  
OR  
(b) Enlist the significance of Marker genes in plant transformations.
- 15) (a) Explain about IPR and its relevance in biological research.  
OR  
(b) What is bioethics? Explain its necessity in research.

**PART- C**

**(3×15=45marks)**

**Answer any THREE of the following, each within 1200 words; draw diagrams/flowcharts wherever necessary**

- 16) Enlist the sequential steps in anther culture and add a note on artificial seeds.
- 17) Describe transcription and post transcriptional modifications in plants.
- 18) Explain in detail the steps involved in PCR. Outline its importance.
- 19) Explain i) Electroporation ii) Microinjection iii) Biolistic / Gene Gun.
- 20) Write notes on the following: i) RFLP ii) RAPD iii) SNP.

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