LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

SIXTH SEMESTER – **NOVEMBER 2022**

UPB 6501 – PLANT BIOTECHNOLOGY

Date: 21-11-2022 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

PART - A

Answer the following, each within 50 words **(10 x 2 =20 marks)**

1. Define Androgenesis.
2. Distinguish between dedifferentiation and redifferentiation.
3. Define Plant Nuclear Genome.
4. Comment on RNA polymerase.
5. What are restriction enzymes? Give examples.
6. Define molecular probe?
7. Distinguish between *Ti* and *Ri* plasmid?
8. What are transgenics?
9. Expand RFLP and RAPD.
10. Comment on Golden Rice.

PART - B

Answer the following, each within 500 words. Draw diagrams and flowcharts wherever necessary. **(5 x 7 = 35 marks)**

11a. How are somatic hybrids produced under *in vitro* condition?

or

b. Explain the role of plant growth regulators in plant tissue culture.

12a. Describe the genetic organization of Chloroplast Genome.

or

b. Enlist the post transcriptional and translational modification in Eukaryotes.

13a. Explain the working principle of electrophoresis. Add a note on its significances.

or

b. Explain the steps involved in polymerase chain reaction.

14a. Describe the genetic organization of Ti plasmid.

or

b. Explain the physical methods of gene transformation in plants.

15a. Explain how RAPD is useful in crop improvement programme.

or

b. Write notes on biosafety protocol followed in biotech laboratories.

PART - C

Answer ANY **THREE** of the following, each within 1200 words. Draw diagrams and flowcharts wherever necessary. **(3 x15 = 45 marks)**

16. Enumerate the significances of plant tissue culture in plant sciences.
17. Explain the molecular interaction between *Rhizobium* and legumes
18. Highlight the steps involved in Genetic engineering of plants.
19. Elaborate on the importance of *Agrobacterium tumefaciens* in transgenic production.
20. Discuss the merits and demerits of Bt. Cotton plants produced using genetic engineering.

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