LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**
FIFTH SEMESTER – NOVEMBER 2017

PB 5518/PB5512/PB5504 - PLANT BIOTECHNOLOGY

Date: 04-11-2017   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

PART –A

ANSWER THE FOLLOWING, EACH WITHIN 50 WORDS.   **(10x2=20 marks)**

1. Define totipotency.

2. Define suspension culture.

3. What is meant by embryo rescue?

4. Mention the role of PEG.

5. What are *nif* genes?

6. What initiates formation of tumors or galls?

7. What is a restriction enzyme? Give two examples.

8. Mention the importance of electroporation.

9. Define a selective herbicide. Give an example.

10. State any two applications of transgenic plants.

PART –B

ANSWER THE FOLLOWING, EACH WITHIN 500 WORDS. DRAW DIAGRAMS AND FLOWCHARTS WHEREVER NECESSARY.   **(5x7=35 marks)**

11.a) State the contributions of the following scientists in the field of plant tissue culture:

  i)Gottlieb Haberlandt ii) S. G. Guha and S.C. Maheshwari

     (OR)

 b) Is "Hardening" necessary? If "yes" how is it carried out?

12.a) Write the procedure for anther culture.

     (OR)

 b) List the factors responsible for somaclonal variation.

13. a) State the functions of *nod* and *nif* genes.

    (OR)

 b) Give a brief account on T-DNA

14. a) What is the difference between sticky ends and blunt ends?

(OR)

b) Give a brief account on the working principle of a gene gun.

15. a) What are the steps involved in RFLP technique?

(OR)

b) How does *Bt* toxin work?

PART –C

**ANSWER ANY THREE OF THE FOLLOWING, EACH WITHIN 1200 WORDS.
DRAW DIAGRAMS AND FLOWCHARTS WHEREVER NECESSARY.**
(3x15=45 marks)

16. Explain in detail the role of growth regulators in Plant Tissue Culture.

17. Elaborate on the process of Protoplast culture.

18. Describe in detail the molecular mechanism involved in transformation of plants by *Agrobacterium tumefaciens*.

19. Explain the process of Western blotting and Southern blotting.

20. Discuss on the development of herbicide resistant transgenic plants.

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