

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – November 2009

PB 5512 - PLANT BIO-TECHNOLOGY

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

Max. : 100 Marks

PART – A

(20 marks)

I. Choose the correct answer

(5x1=5)

1. Which of the following chemical is used as a fusogen
a. PEP b. PEG c. POP d. PAS
2. _____ is used in media for absorption of tannins from the explant
a. Charcoal b. Soil c. Sand d. Filter paper
3. *Agrobacterium tumefaciens* causes _____ formation
a. Gall b. Hairy root c. Both d. None
4. Stanley was the scientist who crystallised the _____
a. TMV b. Yellow Virus c. Turnip Virus d. None
5. The entire plant genome was mapped for the first time
a. Rice b. Wheat c. Maize d. Arabidopsis

II. State whether the following statements are True or False

(5x1=5)

6. Bt cotton is resistant to insects.
7. For proteins Southern Blotting is used.
8. Chloroplast and mitochondrion are considered to be endosymbionts.
9. Cryopreservation is used to preserve plant genome.
10. Filter sterilisation is used for sterilisation of heat sensitive media components.

III. Complete the following

(5x1=5)

11. Undifferentiated mass of cells is known as _____.
12. In protoplast isolation the cell wall is removed using _____ enzyme.
13. _____ genes in *Rhizobium* are involved in nitrogen fixation.
14. The bombardment of DNA into plant is done using _____.
15. The expansion of RFLP is _____.

IV. Answer the following within 50 words

(5x1=5)

- 16. RAPD**
- 17. Electroporation**
- 18. Cytoplasmic Male Sterility**
- 19. Somatic Hybridization**
- 20. Surface sterilization**

PART – B

(5x7=35 marks)

Answer the following, each within about 350 words only. Draw diagrams and flowcharts wherever necessary.

- 21. a) Explain the production of artificial seeds. Add a note on its Significance.
(OR)
b) Describe organogenesis in plant tissue culture.**
- 22. a) Describe the mitochondrial genome.
(OR)
b) Explain the molecular mechanism involved in transformation of plants.**
- 23. a) Discuss Gene library.
(OR)
b) Discuss PCR in detail. Explain in detail about the PCR.**
- 24. a) Explain the concept of plant genome marking.
(OR)
b) Elaborate on transgenic plants resistant to abiotic stress.**
- 25. a) Write about the scope and importance of Plant tissue culture.
(OR)
b) Discuss the different types of media used in Plant tissue culture.**

PART-C

(3 x 15=45 marks)

Answer any THREE of the following within 1500 words only. Draw diagrams and flowcharts wherever necessary.

- 26. Write in detail the procedure of inoculation, incubation and acclimatization in plant tissue culture.**
- 27. Discuss protoplast isolation and fusion.**
- 28. Explain the interaction between Rhizobium and leguminous plants.**
- 29. Describe the methods used for gene delivery into plants.**
- 30. Elaborate on plant genome mapping and the markers used in mapping.**

