



MAR IVANIOS COLLEGE (AUTONOMOUS)
THIRUVANANTHAPURAM

Reg. No.:.....

Name:.....

Sixth Semester B.Sc. Degree Examination, April 2018

First Degree Programme under CBCSS

Elective Course: Botany – I

AUBO691: Biotechnology and Nano Biotechnology

(Common for **Regular** – 2015 and **Reappearance** – 2014 Admn.)

Time: 3 Hours

Max. Marks: 80

SECTION – A

Write short notes on ALL of the following.

1. Define callus.
2. What is a somatic embryo?
3. Define totipotency.
4. Dendrimers.
5. Name a growth inhibitor.
6. Name the enzyme that is called molecular scissors.
7. Name the stain used in gel- electrophoresis.
8. What is down stream process?
9. What is elution?
10. Who constructed the first artificial recombinant DNA molecule?

(10 × 1 = 10 Marks)

SECTION – B

Answer any EIGHT questions, not exceeding one paragraph.

11. Comment on GM food.
12. What is restriction endonuclease III? Give an example.
13. What is the difference between c DNA library and genome library?
14. With two examples explain biomimetics.
15. Write notes on LB and PDA medium.
16. What is homopolymer tailing?
17. Write notes on the application of recombinant microbes in medicine.
18. In a typical PCR reaction, what phenomena occur at temperature ranges:
(a) 90-95°C (b) 50-70°C and (c) 70-75°C?

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19. Explain IPR.
20. What are somaclonal variations? What is its significance in plant tissue culture?
21. Give a brief account of vectors used for cloning genes in plants.
22. Explain Dedifferentiation and redifferentiation.

(8 × 2 = 16 Marks)

SECTION – C

Short essay type: Answer any SIX questions.

23. Write short notes on Southern Blotting.
24. Explain the economic importance of microbes in biotechnology.
25. Explain the steps involved in recombinant DNA technology.
26. Explain the action of restriction endonuclease.
27. Explain production of edible vaccines from plants.
28. Explain ELISA and its importance.
29. Give an account of Sanger's method of DNA sequencing.
30. Write a note on synthetic seeds and its production.
31. Give an account of microbial culture.

(6 × 4 = 24 Marks)

SECTION – D

Long essay type: Answer any Two questions.

32. What are the characteristics of nanomaterials? Explain the application of nanotechnology in life sciences.
33. Explain isolation and purification of DNA from plant cells.
34. Write an essay on Agrobacterium mediated gene transfer in plants.
35. Write an essay on protoplast culture and its applications.

(2 × 15 = 30 Marks)