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N – 6273

Reg. No. : .....

Name : .....

Fourth Semester M.Sc. Degree Examination, June 2022

Botany

Special Paper II – Elective

BO 242 a : BIOTECHNOLOGY

(2019 Admission Onwards)

Time : 3 Hours

Max. Marks : 75

Instruction : Draw diagrams and illustrate with examples wherever necessary.

I. Answer the following questions.

1. What are the desirable features of a cloning vehicle?
2. What is a palindrome?
3. What is the significance of *Ori C* site?
4. What is the actual function of restriction enzymes in a bacterial system?
5. Name any two bacteria and fungi used for alcohol fermentation.
6. What is a starter culture?
7. What are adapters?
8. What are probes?
9. What is biopiracy?
10. Define cybrids.

(10 × 1 = 10 Marks)

II. Answer the following questions in not more than **50** words.

11. (a) Why is callus culture a prerequisite for somaclonal variations?

OR

(b) How is virus elimination done via plant tissue culture?

P.T.O.

12. (a) How is aeration maintained in a bioreactor?

OR

(b) What are the methods available for the microbial production of citric acid?

13. (a) What is the use of HAT medium?

OR

(b) What is a selectable marker?

14. (a) How is the enzyme polygalacturonase manipulated in flavr savr tomato?

OR

(b) What is bioaugmentation? Explain.

15. (a) What are the methods used for isolation of protoplasts? Explain.

OR

(b) What is the significance of liposomes in gene transfer?

(5 × 2 = 10 Marks)

III. Answer the following questions in not more than **150** words.

16. (a) Discuss various direct gene transfer methods.

OR

(b) Distinguish between RAPD and RFLP.

17. (a) Give an account on transposons.

OR

(b) List any five applications of biotechnology in medicine.

18. (a) Discuss the production of organic acids by microbial fermentation.

OR

(b) Write an account on cDNA library.

19. (a) Describe the steps in Polymerase Chain Reaction.

OR

(b) Comment on Sanger's dideoxy method of DNA sequencing.

20. (a) Discuss the social and ethical issues related to transgenic research.

OR

(b) Elaborate on hairy root culture.

21. (a) Describe the procedure of monoclonal antibody production.

OR

(b) Write an account on cell immobilization techniques.

22. (a) Give an account on vectors used in genetic engineering.

OR

(b) Describe the replication of DNA n bacteria.

(7 × 5 = 35 Marks)

IV. Answer the following in not more than **250** words.

23. (a) What are molecular markers? Explain various markers and their importance in genetic engineering.

OR

(b) Describe in detail the microbial production of enzymes and antibiotics.

24. (a) Write a detailed account on Genetically modified crops by citing any two examples.

OR

(b) Discuss the design and types of bioreactors.

(2 × 10 = 20 Marks)
