TM243170X

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, NOVEMBER 2024

2023 ADMISSIONS REGULAR

SEMESTER III - CORE COURSE BOTANY

BO3C10TM20 - Biotechnology, Bioinformatics and Bio- Nanotechnology

Time : 3 Hours **Maximum Weight : 30**

Part A

I. Answer any Eight questions. Each question carries 1 weight **(8x1=8)**

1. What is meant by submerged fermentation?
2. What is the significance of pollen cultures?
3. Distinguish between organ culture and callus culture.
4. Write a brief note on biotechnology and its potential harm to the environment.
5. What are shuttle vectors? Why is it significant?
6. Write any two ethical issues related to recombinant DNA techniques.
7. Describe Taq polymerase and its significance.
8. Why is invitro mutagenesis significant in genetic studies.
9. Write an account on RasMol.
10. What are the types of nanoparticles. Discuss their merits and demerits.

Part B

II. Answer any Six questions. Each question carries 2 weight **(6x2=12)**

11. Briefly explain the mode of operation of a bio process.
12. Explain PCR.
13. Discuss the advantages and disadvantages of micropropagation.
14. Give two examples of endonucleases with their properties.
15. Explain automated sequencing
16. What is BLAST? Explain its different versions.
17. Describe the molecular clock hypothesis and explain its significance.
18. Write a note on the effect of nanoparticles on germination and seedling emergence.

Part C

III. Answer any Two questions. Each question carries 5 weight **(2x5=10)**

19. 'Shoot tips are excellent explant materials for micropropagation'. Describe the process of culture of shoot tips and its advantages.
20. Write an essay on the steps involved in Agrobacterium mediated gene transfer in plants.
21. Give an account on cDNA synthesis and its significance.
22. What are the strategies for protein structure prediction?