17/10/25

TM253890M

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, OCTOBER 2025

2024 ADMISSIONS REGULAR

SEMESTER III - CORE COURSE

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. Differentiate old and modern biotechnology.
2. Distinguish between static cultures and suspension cultures.
3. Differentiate between a chemostat and a turbidostat culture.
4. What is the significance of plasmids in gene cloning? Explain.
5. What is electroporation? Explain.
6. Differentiate between cloning vectors and expression vectors with examples.
7. What is FISH? Enlist its applications.
8. What is Dot blotting?
9. Describe phylogenetic trees and their parts.
10. Describe the mechanism of nanoparticle synthesis using bacteria.

Part B

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

11. Write a note on the industrial production of enzymes using microorganisms.
12. Briefly explain the mode of operation of a bio process.
13. Write on golden rice.
14. Give two examples of endonucleases with their properties.
15. What is the procedure for DNA footprinting?
16. What are gaps and gap penalties in sequence alignments? Explain the types of gap penalties.
17. Explain the different approaches of sequence alignment.
18. Discuss the sources of biosynthesis of nanoparticles.

Part C

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

19. Give an account on sterilization methods adopted in tissue culture.
20. Write an essay on the steps involved in Agrobacterium mediated gene transfer in plants.
21. Outline the procedures of blotting techniques that you have studied and list out its applications.
22. What is INSDC? Write an explanatory note on its components.