

D 111106

(Pages : 2)

Name.....

Reg. No.....

**THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)  
EXAMINATION, NOVEMBER 2024**

(CBCSS)

Botany

BOT 3C 09—BIOTECHNOLOGY AND BIOINFORMATICS

(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

**Section A (Short Answer Type Questions)**

*Answer any four questions.**Each question carries 2 weightage.*

1. What is a bioreactor used for in plant tissue culture ?
2. What is Cryopreservation ?
3. What is the main difference between a Northern blot and a Southern blot ?
4. What are the applications of DNA fingerprinting ?
5. What is the goal of the Human Genome Project ?
6. What is the function of DNA chips in molecular analysis ?
7. What is the significance of the Open Archive Initiative (OAI) in online publications ?

(4 × 2 = 8 weightage)

**Section B (Short Essay Type Questions)**

*Answer any four questions.**Each question carries 3 weightage.*

8. What is the terminator technology in transgenic plants ?
9. What is gene piracy in the context of patenting genes and GMOs ?
10. How has computational biology contributed to the study of genetics and genomics ?
11. Define HTML and its significance in web development.
12. Briefly explain the structure of GenBank entries.

Turn over

13. Describe the concept of DNA microarrays and their role in functional genomics.
14. What does chemoinformatics deal with in the field of bioinformatics?

(4 × 3 = 12 weightage)

**Section C (Long Essay Type Questions)**

*Answer any two questions.*

*Each question carries 5 weightage.*

15. Explain the composition of culture media used in plant tissue culture. What are the key components and their importance?
16. Explain the principles and applications of Fluorescent In Situ Hybridization (FISH) in molecular cytogenetics. Give the examples of how FISH has been used in genetic research.
17. Outline the strategies involved in constructing and screening gene and cDNA libraries. How are these libraries valuable resources for molecular biology research?
18. Explain the different gene cloning strategies employed in the development of transgenic plants including vector-dependent and vector-independent methods.

(2 × 5 = 10 weightage)