

TB176175W

Reg. No : .....

Name : .....

**B. Sc. DEGREE (C.B.C.S.S) EXAMINATION, MARCH 2023**  
**(2015, 2016 and 2017 Admissions Supplementary)**  
**SEMESTER VI - CORE COURSE (BOTANY)**  
**BO6B12TB - BIOTECHNOLOGY AND BIOINFORMATICS**

**Time : 3 Hours**

**Maximum Marks : 60**

**Part A**

**I. Answer all questions. Each question carries 1 mark**

**(5x1=5)**

1. What is PEG?
2. What is microprojectile?
3. What are transgenic crops?
4. Give an example of an organismal database.
5. What are dideoxynucleotides?

**Part B**

**II. Answer any Five questions. Each question carries 2 marks**

**(5x2=10)**

6. Provide a brief account on meristem culture.
7. Explain the process of cybrid production.
8. What is microinjection? Why is it carried out?
9. What are ligases? Where is it used?
10. What are the benefits of GM crops?
11. Describe composite databases. Give an example.
12. Differentiate orthologous sequences and paralogous sequences.
13. What do you mean by protein expression mapping?

**Part C**

**III. Answer any Five questions. Each question carries 5 marks**

**(5x5=25)**

14. What is the significance of haploid plants in plant tissue culture?
15. Explain plant tissue culture media as an in vitro environmental matrix for vegetative plant materials.
16. Explain the principle of Southern blotting.
17. Describe with examples the action of DNA ligases.
18. Give an account on the application of biotechnology to crops. Add a note on its benefits and risks.
19. What is sequence alignment? Explain the different sequence alignment types.
20. What are homologous sequences? Explain the different types.
21. Briefly explain microarray analysis and its application in functional genomics.

**Part D**

**IV. Answer any Two questions. Each question carries 10 marks**

**(2x10=20)**

22. Give an account of Micropropagation. Explain the different phases of micropropagation.
23. Write an essay on the different vectors employed in genetic engineering.

24. Outline the production of insulin through rDNA technology.
25. Explain the Sanger's method of DNA sequencing. Add a note on automation.