K24P 3084

Reg. No. : .....

Name : .....

III Semester M.Sc. Degree (C.B.C.S.S. – OBE – Regular) Examination, October 2024
(2023 Admission)
BOTANY
MSBOT03 C13 : Genetic Engineering, Plant Biotechnology and Bioinformatics

Time : 3 Hours Max. Marks : 60

PART – A

Answer **any five** questions. **Each** question carries **3** marks.

1. How can you produce a virus free plant using an *in vitro* system ?
2. What are synthetic seeds, and how are they produced ? Enlist the applications.
3. Name and explain a medical database.
4. Enlist the importance of gene editing in crop improvement.
5. Differentiate Northern and Western blotting.
6. Write about edible vaccine. **(5×3=15)**

PART – B

Answer **any three** questions. **Each** question carries **6** marks.

7. Can you explain how Bt cotton and Golden rice is produced ?
8. How can you isolate and culture the protoplast ? How can you test the viability of protoplast ?
9. Enumerate importance of Arabidopsis thaliana genome.
10. Analyze the importance of RNAi and CRISPR-Cas9.
11. Enlist and explain importance of somaclonal variation. **(3×6=18)**

P.T.O.

PART – C

Answer **any three** questions. **Each** question carries **9** marks.

12. Explain how secondary metabolites can be produced in *vitro* and how the production can be elicited.

13. Analyze different methods for gene amplification. Elaborate the protocols of each method.

14. Write about pollen, embryo and endosperm culture. Point out the applications and media used for it.

15. 'Many methods can be used for gene transfer in plants' . Mention two physical and two vector mediated methods and mention the significance of each.

16. Write an account on nucleotide and protein sequence databases. **(3×9=27)**
