



QP CODE: 26019486



Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, MARCH 2026

Fourth Semester

M Sc MOLECULAR BIOLOGY AND GENETIC ENGINEERING

ELECTIVE - BS860402 - MOLECULAR MARKERS & GENOME ANALYSIS

2019 Admission Onwards

071F3787

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. What is the importance of genetic recombination?
2. Define transposons.
3. What is SSR?
4. What is forward genetic approach?
5. What is DArT sequencing?
6. What is tertiary gene pool?
7. Define DNA hybrid purity test.
8. What is mapping population in genetics?
9. What is complex trait?
10. What is positional cloning ?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Significance of genetic diversity in nature.
12. Explain gene structure and organization of mitochondrial DNA.





13. Explain two different types of markers based on inheritance.
14. What is the difference between SNP and a mutation?
15. What is genetic diversity explain? How are genetics and geography related?
16. Explain Genotyping tools as plant variety protection.
17. Linkage mapping software packages and interfaces.
18. What is marker assisted selection and its application?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Species I has $2n = 14$ and species II has $2n = 20$. Give all possible chromosome numbers that may be found in the following individuals. A. An autotriploid of species I, B. An autotetraploid of species II, C. An allotriploid formed from species I and species II, D. An allotetraploid formed from species I and species II.
20. What are the advantages of molecular markers in plant breeding?
21. What are molecular markers and discuss its application in detail?
22. Explain the significance of QTLs using SSR markers.

(2×5=10 weightage)

