



QP CODE: 25050435



25050435

Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION DECEMBER 2025

First Semester

M Sc MOLECULAR BIOLOGY AND GENETIC ENGINEERING

Core Courses - BS030101 - FUNDAMENTAL GENETICS

2019 Admission Onwards

62B12902

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. State cell theory.
2. State Mendelian laws.
3. What is co-dominance?
4. What are the criteria for determining gene order in a three-point cross?
5. How do heritability help in predicting phenotypic variation?
6. What is maternal inheritance?
7. What is pedigree analysis?
8. Explain the significance of Lod score.
9. What is transduction?
10. What is the role of homeotic genes in drosophila development?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Discuss the importance of genetics in Agriculture
12. Jacob and Susan have seven children, all of whom are boys. What is the probability that the next child will be a girl?
13. Discuss on haploid mapping.
14. Explain the statistical methods employed to calculate quantitative traits





15. Briefly describe the organization of genes on the chloroplast genome.
16. Explain different patterns of inheritance in humans.
17. How is eugenics relevant in genetic counseling?
18. Explain the role of environment in the expression of a genotype.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Explain the complex genetics of coat colour in dogs.
20. Discuss on the concept of linkage and crossing over.
21. Explain cytoplasmic inheritance with suitable examples.
22. Explain in detail about the molecular variations in populations.

(2×5=10 weightage)

