

QP CODE: 25050439



Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION, DECEMBER 2025

First Semester

M Sc BIOINFORMATICS

Core Courses - BT010102 - INTRODUCTION TO GENETICS AND MOLECULAR BIOLOGY

2019 Admission Onwards

872E439C

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What are pleiotropic genes? Site an example .
2. What are complementary genes?
3. Explain the role of histone proteins in chromatin condensation .
4. Describe the structure of telomere sequences.
5. How thymine dimers cause mutations?
6. Give an example for cut and paste transposition.
7. Why genetic code is non ambiguous?
8. Comment on the mode of action of hsp70 in protein folding.
9. How cAMP regulates expression of lac structural genes.
10. What is a repressible operon?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Write a short note on maternal effect genes with example.
12. Describe different types of chemical mutations.
13. Explain the experiments that proved DNA as genetic material.





14. What are the functions of Topoisomerase?
15. How eukaryotic mRNA stability achieved?
16. What effect does the deletion of the Shine- Dalgarno sequence from an mRNA have on its translation.
17. How can inducible and repressible enzymes of microorganisms be distinguished.
18. What does each type of enzymes do to chromatin? a.HATs b.HDACs c.HMTs

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Discuss linkage phenomenon in detail. How it differ from crossing over?
20. Differentiate between Euchromatin and heterochromatin. Explain the role of introns in eukaryotic DNA
21. List ways in which the mRNAs of eukaryotes differ from the mRNAs of prokaryotes.
22. Describe RNA interference pathways in detail.

(2×5=10 weightage)

