



QP CODE: 26019519



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Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, MARCH 2026

Fourth Semester

M Sc BIOTECHNOLOGY

ELECTIVE - BT830403 - ADVANCED MOLECULAR TECHNIQUES

2019 Admission Onwards

62116381

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. What is the significance of representational difference analysis?
2. Give the role of potassium permanganate in modification of mismatched nucleotides.
3. Molecular Beacons are more sensitive than Taqman Probe. Discuss.
4. RCA is an isothermal amplification process. Justify.
5. Describe the applications of Illumina sequencing.
6. Illustrate the advantages of paired-end sequencing over single-end reading.
7. What is the advantage of PCR based DNA profiling over RFLP?
8. Which agency is responsible for providing certification and accreditation to a DNA profiling lab?
9. How can DNA profiling be applied to identify child swapping?
10. Describe the disadvantages of DNA profiling.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Outline the steps involved in Serial Analysis of Gene Expression.
12. Prove that heteroduplex DNA can be used in the detection of mutations.





13. Assess the significance of NASBA over RT-PCR.
14. How will you prove that point mutations can be detected by Ligase Chain Reaction?
15. Explain the principle of next generation sequencing.
16. Name different mutation types and what are their effects.
17. Give details of the Y-STR typing.
18. What are the benefits of DNA fingerprinting in agriculture?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Explain DNA extraction by Phenol Chloroform method. How is it useful in nucleic acid analysis?
20. Explain gene amplification by PCR.
21. Write an essay on 454/Roche GS FLX also explain the technology behind it and its research applications.
22. Describe the procedural and ethical concerns related to DNA profiling.

(2×5=10 weightage)

