QP Code: PV25C004

Reg. No : .....

Name : .....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

III SEMESTER (CBCSS - VPG) DEGREE EXAMINATIONS, OCTOBER 2025

M. Voc. Applied Biotechnology

SDC3AB05 : FORENSIC SCIENCE

2024 Admission Onwards

Time:3 Hours **Maximum Weightage:30**

Part A

*Short answer type questions. Answer **any four**. Weightage **2** for each.*

(4x2 = 8 Weightage)

1. Define a microarray and mention two of its applications.
2. List the main areas where police and forensic scientists work together.
3. Differentiate between community genome arrays and phylogenetic oligonucleotide arrays.
4. Enumerate and explain the basic principles of forensic science.
5. Apply the concept of modus operandi to a burglary case and explain how it aids identification of suspects.
6. Assess the growth of forensic laboratories in India in terms of effectiveness and limitations.
7. Evaluate the importance of hybridization techniques in establishing genetic identity in forensic cases.

Part B

*Short essay-type questions. Answer **any four**. Weightage **3** for each.*

(4x3 = 12 Weightage)

8. State the importance of dot and slot blot techniques in crime investigation.
9. Explain the role of tool mark analysis in linking a suspect to a crime.
10. Explain how microarrays can be applied in drug discovery and personalized medicine.
11. Examine the limitations of relying solely on modus operandi in crime detection.
12. Illustrate how molecular probes are designed and applied in forensic investigations.
13. Describe the workflow of a metagenomic array experiment from sample preparation to data analysis.

Turn Over

14. Compare the Southern, Northern, and Western blotting techniques in terms of principle, procedure, and forensic applications.

Part C

*Essay-type questions. Answer **any two**. Weightage **5** for each.*
(2x5 = 10 Weightage)

15. State the scope and importance of biotechnology in Forensic science.
16. Differentiate between genomic and cDNA libraries.
17. Demonstrate how forensic science helps prevent wrongful convictions.
18. Compare forensic approaches in violent crimes (murder, rape) vs property crimes (burglary).

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