

# **KAMARAJ COLLEGE (Autonomous)**

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

**(6 Pages)**

**Reg. No: .....**

**Question Code No: 25001603**

**Course Code: 25PEMB11**

**PG Degree - End Semester Examinations, November 2025**

**First Semester**

**M.Sc. MICROBIOLOGY**

**Forensic Science**

**(For those who joined in July 2025 onwards)**

**Time: 3 Hours**

**Maximum: 75 Marks**

**PART – A (10 × 1 = 10 Marks)**

**Answer ALL Questions**

**Choose the correct answer:**

1. The term forensic is derived from the Latin word meaning  
(a) Crime (b) Evidence  
(c) Forum (d) Courtroom
2. Which of the following is not a duty of a forensic scientist?

- (a) Collecting evidence      (b) Preserving evidence  
(c) Prosecuting criminals    (d) Giving expert testimony
3. Which of the following is a function of a mobile forensic science laboratory?
- (a) On-site evidence analysis      (b) Hospital autopsy  
(c) Legal prosecution      (d) Witness interrogation
4. *Bacillus anthracis* is significant in forensic science because it is associated with \_\_\_\_\_.
- (a) Bioterrorism      (b) Food poisoning  
(c) Malaria      (d) Tuberculosis
5. Which enzyme is commonly used as a marker in semen identification?
- (a) Amylase      (b) Catalase  
(c) DNA polymerase      (d) Acid phosphatase
6. The medullary index of hair is useful to distinguish
- (a) Male from female      (b) Human from animal  
(c) Healthy hair from diseased hair      (d) Dyed hair from natural hair

7. Who is credited with the development of DNA fingerprinting in 1985?
- (a) Watson (b) Crick  
(c) Alec Jeffreys (d) Kary Mullis
8. Short Tandem Repeats (STR) analysis in forensic science involves in \_\_\_\_\_.
- (a) Long DNA sequences (b) Repeated short DNA sequences  
(c) Protein profiling (d) Enzyme digestion only
9. Cyanide causes death by inhibiting \_\_\_\_\_.
- (a) Haemoglobin (b) Cytochrome oxidase  
(c) Myoglobin (d) Catalase
10. Which type of poison is *arsenic* classified as?
- (a) Neurotoxin (b) Heavy metal poison  
(c) Plant toxin (d) Alkaloid

**PART - B (5 X 5 = 25 Marks)**

**Answer ALL Questions choosing either (a) or (b).**

**Answer should not exceed 250 words.**

11. (a) Explain the scope of forensic science in the present scenario.

**(OR)**

(b) Analyse the role of different branches of forensic science.

12. (a) Illustrate the organizational setup of a forensic science laboratory.

**(OR)**

(b) Examine the significance of microbial forensics.

13. (a) Explain the forensic examination of blood and semen samples.

**(OR)**

(b) Differentiate between forensic analysis of hair and fiber.

14. (a) Describe the steps involved in DNA extraction from blood.

**(OR)**

(b) Analyse the differences between RFLP and STR in DNA profiling.

15. (a) Discuss the medico-legal importance of post-mortem examination.

**(OR)**

(b) Evaluate the toxicological effects of cyanide poisoning.

**PART - C (5 X 8 = 40 Marks)**

**Answer ALL Questions choosing either (a) or (b).  
Answer should not exceed 600 words.**

16. (a) Elaborate on the history and development of forensic science.

**(OR)**

(b) Evaluate the duties and ethical responsibilities of a forensic scientist.

17. (a) Illustrate the structure and functions of mobile forensic science laboratories.

**(OR)**

(b) Assess the role of forensic microbiology in criminal investigations.

18. (a) Explain the forensic analysis techniques for saliva, sweat and urine.

**(OR)**

(b) Design a protocol for forensic fiber analysis.

19. (a) Compare PCR and STR techniques in forensic DNA analysis.

**(OR)**

- (b) Construct a case study showing the application of DNA fingerprinting in solving a crime.
20. (a) Discuss different types of poisons and their forensic significance.

**(OR)**

- (b) Evaluate the medico-legal role of forensic toxicology in modern society.