

# **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: 25002205**

**Course Code : 24PSCH31**

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

**Third Semester**

**M.Sc. CHEMISTRY**

**Forensic Chemistry**

**(For those who joined in July 2024 onwards)**

**Time : 3Hours**

**Maximum : 75 Marks**

**PART – A (10 × 1 = 10 Marks)**

**Answer ALL Questions**

**Choose the correct answer:**

1. The word "forensic" is derived from the Latin word "forensis," which means
  - (a) Crime scene
  - (b) Court or public forum
  - (c) Evidence
  - (d) Investigation
2. Forensic science primarily deals with
  - (a) Providing medical treatment

- (b) Studying the stars and planets
  - (c) Collecting and analysing evidence to solve crimes
  - (d) Designing buildings and structures
3. The most common fingerprint pattern is
- (a) Loop
  - (b) Whorl
  - (c) Arch
  - (d) Tented arch
4. The dry powder method is primarily used on which type of surface?
- (a) Rough and absorbent
  - (b) Smooth and non-porous
  - (c) Textured and porous
  - (d) Metallic surfaces
5. Heroin is chemically classified as a
- (a) Stimulant
  - (b) Opioid
  - (c) Hallucinogen
  - (d) Cannabinoid
6. Which of the following analytical methods is most suitable for identifying organic functional groups in ink or paint binders?
- (a) TLC
  - (b) FT-IR Spectroscopy
  - (c) Fluorescent Microscopy
  - (d) Optical Microscopy
7. Forensic toxicology is primarily concerned with
- (a) Studying infectious diseases
  - (b) Determining the cause of accidents

- (c) Detecting and interpreting drugs and poisons in biological samples
  - (d) Performing surgical procedures on crime victims
8. Breath analyzers detect alcohol by measuring
- (a) Temperature
  - (b) Carbon dioxide levels
  - (c) Ethanol in exhaled breath
  - (d) Oxygen consumption
9. The primary purpose of forensic databases is to
- (a) Store and compare evidence-related data for criminal investigations
  - (b) Store personal data for hospitals
  - (c) Create user profiles for marketing
  - (d) Encrypt social media accounts
10. Forensic image databases are primarily used for
- (a) Watching surveillance videos
  - (b) Comparing visual evidence such as shoeprints, tool marks or faces
  - (c) Tracking mobile phones
  - (d) Storing biometric passwords

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

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

**Answer should not exceed 250 words.**

11. (a) Highlight the role of forensic laboratory in criminal justice system.

**(OR)**

(b) Assess the applications of biometrics.

12. (a) Interpret the reason why fingerprint is considered an infallible method for forensic investigation.

**(OR)**

(b) Classify the blood stain pattern that is used to reconstruct events at crime scene.

13. (a) Delineate the process of ink analysis by TLC.

**(OR)**

(b) Analyze the mechanisms of action of a drugs.

14. (a) Sketch the structure of DNA and explain.

**(OR)**

(b) How is Breath alcohol test (BrAC) carried out?

15. (a) Categorize crimes related to computers and explain.

**(OR)**

(b) How is forensic DNA database used for solving crimes?

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

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

**Answer should not exceed 600 words.**

16. (a) (i) Evaluate the role of biometric authentication.  
(ii) List the process involved in face identification.

**(OR)**

- (b) Examine the role of IRIS and retina recognition in identifying the individuals.

17. (a) Describe the chemical test used for detecting fingerprint.

**(OR)**

- (b) (i) How is saliva tested in forensic laboratory?  
(ii) Explain the dry powder method used for developing finger print.

18. (a) Discuss the various analytical methods available for the analysis of ink and paints.

**(OR)**

(b) Explain the effect of the following drugs on the human body.

- Gamma hydroxyl butyric acid
- Marijuana
- Heroine
- Cocaine

19. (a) Discuss the various methods of DNA typing.

**(OR)**

(b) With suitable examples elaborate the types of forensic toxicology.

20. (a) Asses the usage of networks in forensic science.

**(OR)**

(b) Discuss the framework for investigating computer related crimes in detail.

