

SECTION A

PART I: Multiple Choice Questions (30 marks)

Choose the correct answer and write down the letter of your chosen answer in the Answer Booklet against the question number e.g. 31 (d). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. The Latin term for "forensic" means
 - a) Forum, a public place.
 - b) Science applied to the law.
 - c) Solving crimes.
 - d) Finding evidence.

2. Forensic science is often called
 - a) Law science
 - b) Forensics
 - c) Public science
 - d) Crime Science

3. Which law in Bhutan permits a forensic scientist or technician as expert witness in legal proceedings at any Royal Court of Justice?
 - a) Penal Code of Bhutan
 - b) Civil and Criminal Procedures Code of Bhutan
 - c) Evidence Act of Bhutan
 - d) Anti-Corruption Act of Bhutan

4. Who decides if someone is qualified as an expert witness in any Royal Court of Justice in Bhutan?
 - a) Hon'ble Supreme Court
 - b) Hon'ble High Court
 - c) The Prosecutor
 - d) The Judge

5. The primary duty of a forensic expert in a court of law is to
 - a) explain scientific procedures.
 - b) help defendant or accused.
 - c) help prosecutor.
 - d) tell the truth.

6. In what way is forensic scientist different from other scientists?
 - a) They use forensics.
 - b) They use specialized lab equipment.
 - c) They have legal obligations to which they must conform their conduct.
 - d) None of the above.

7. All evidence in a court must
 - a) be legally obtained.
 - b) have a chain of custody.
 - c) have a warrant attached.
 - d) be approved by the defendant.

8. Many field tests in forensic science involve a colour change. What is a term used for such a test?
 - a) Complexometric
 - b) Absorption test
 - c) Adsorption test
 - d) Presumptive test

9. The fundamental purpose of the criminal justice system is to
 - a) punish the convicted.
 - b) protect law enforcement agencies.
 - c) protect the rights of the accused.
 - d) protect the rights of victims of crime.

10. The forensic field using auditing, accounting, and investigative skills is
 - a) Forensic Accounting
 - b) Forensic Auditing
 - c) Forensic Investigation
 - d) None of the above.

11. Graphology can be defined as examination of handwriting for purpose of determining
 - a) sex of the writer
 - b) stature of the writer
 - c) age of the writer
 - d) personality of the writer

12. A normal handwriting in which letters of the word are connected with each other is called as
 - a) Graphic writings
 - b) Cursive writings
 - c) Printed writings
 - d) Ambidextrous writings

13. Which of the following characteristic a handwriting examiner need not consider while comparing two handwritings to establish the forgery or otherwise?
 - a) Ratio of height of the letters.
 - b) Slant of the writing strokes.
 - c) Choice of words written in the text.
 - d) Connections between the writing strokes.

14. The study of fingerprints is also known as
- Anthropometry
 - Dermatology
 - Dermatoglyphics
 - Ergonomics
15. Which technique is used in DNA finger printing?
- Northern Blotting
 - Western Blotting
 - Flow Cytometry
 - Southern Blotting
16. In which of the following substances would you NOT find DNA?
- Blood
 - Saliva
 - Urine
 - Skin
17. Which method is used for determining the age of an ink by tracking the degradation of certain dyes?
- Thin layer chromatography (TLC)
 - Gas chromatography (GC)
 - Laser desorption mass spectrometry (LDMS)
 - High Performance Liquid Chromatography (HPLC)
18. The writing on charred document can be restored by
- Reflected light
 - Ultraviolet rays
 - Infrared photography
 - None of the above.
19. The following are sketching methods in crime scene, EXCEPT
- Rectangular co-ordinate method
 - Spiral method
 - Triangular co-ordinate method
 - Polar co-ordinate method
20. A building was razed to the ground with victims inside. Which is the BEST way for forensic scientists to identify the victims?
- Eyewitness account
 - Blood analysis
 - Teeth
 - Personal documents

21. When investigators search a fire scene, the first focus must be on
- point of origin.
 - witnesses.
 - sketches and photographs.
 - signs of other crimes.
22. Which of the following test is used to determine whether the blood belongs to human or animal?
- Benzidine test
 - Phenolphthalein test
 - Precipitin test
 - O-toulidine test
23. The name 'Keeler' is associated with
- Chromatograph
 - Polygraph
 - Spectrograph
 - Monograph
24. In the case of firing through windowpane glass, spiral fractures are found on
- side of impact.
 - other side of impact.
 - edge of fractured sheet.
 - edge of the shattered glass.
25. Sherlock Holmes was a character in the novel of
- Arthur Conan Doyle
 - Agatha Christie
 - Perry Mason
 - Victor Hugo
26. Human hair when examined under microscope will reveal
- thick cortex and thin medulla.
 - thin cortex and thick medulla.
 - cortex and medulla with equal thickness.
 - None of the above.
27. The following are the causes of death in drowning, EXCEPT
- Gagging
 - Asphyxia
 - Ventricular fibrillation
 - Laryngeal spasm
28. Which of the following test is used to determine the blood group from a blood stain?
- Haemin crystal test
 - Kastle-Meyer test
 - Lattes crust method
 - Luminol spray test

29. Exhumation means
- execution of a death sentence.
 - examination of skeletal remains.
 - digging out of a buried body.
 - injecting formalin into body for preservation.
30. Graying hair is as a result of loss of
- Tyrosinase activity
 - Proteinase activity
 - Pectinase activity
 - Glucomylase activity

PART II – Short Answer Questions (20 marks)

This part has 4 Short Answer Questions. Answer ALL the questions. Each question carries 5 marks.

1. Explain Locard's principle of exchange with suitable example.
2. Explain any five important branches of forensic science.
3. Describe the functions of computer forensic laboratory.
4. Explain the admissibility of scientific evidence in the court of law.

SECTION B: Case Study (50 marks)

Choose either CASE I or CASE II from this section. Each case study carries 50 marks. Mark for each sub-question is indicated in the brackets.

CASE I

A 53 year old man murdered 11-month-old baby after he repeatedly hit with a religious instrument (dorji) while performing ritual. The matter was investigated by Police.

1. What are the physical evidences found at the crime scene? (10 marks)
2. Mention various steps taken for crime scene investigation. (15 marks)
3. Discuss the proper technique for collection and packaging of blood samples from the crime scene. (15 marks)
4. Discuss what information can be drawn from the blood as a physical evidence. (10 marks)

CASE II

A cashier working in a financial institution had embezzled Nu 130 million by manipulating its financial records, clients' bank accounts, and also forging signatures on the cheques.

1. Describe the role of forensic expert and the techniques used in investigating the embezzlement case. (20 marks)
2. How is the embezzlement case different from a murder case? (20 marks)
3. What are the evidences in this case? (10 marks)

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