



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – M.Sc.(MLT)-2024

Course Name – Forensic Science & Toxicology

Course Code - MMTC02003

(Semester II)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) A dead body with suspected poisoning is having hypostasis and mark red brown in color. It is suggestive of poisoning due to:
 - a) Nitrites Aniline
 - b) CO
 - c) Cyanides
 - d) Barbiturates
- (ii) Lung is NOT preserved in which poisoning?
 - a) HCN
 - b) Chloroform
 - c) Organophosphate
 - d) Kerosene
- (iii) In autopsy spinal cord is opened through which approach?
 - a) Anterior
 - b) Posterior
 - c) Lateral
 - d) Anterolateral
- (iv) In toxicological studies, which method is commonly apply to preserve specimens for analysis?
 - a) 10% of formaldehyde
 - b) Alcohol
 - c) Saturated solution of common salt
 - d) Normal saline
- (v) The test for detection of old blood stain is?
 - a) gel diffusion
 - b) precipitin test
 - c) absorption elution test
 - d) benzdine test
- (vi) Acid phosphatase test used for detecting what?
 - a) blood stains
 - b) seminal stains
 - c) blood groups
 - d) bone typing
- (vii) Hanging differs from strangulation by the following features except?

- a) always suicidal
c) neck is elongated and stretched
- b) ligature mark is oblique
d) subcutaneous tissue under the mark is white hard and glistening
- (viii) Select the death pattern caused due to regurgitation and inhalation of food into the respiratory tract is called?
- a) Smothering
c) choking
- b) burking
d) gagging
- (ix) In roadside vehicular accidents police bring the body of the victim for autopsy. Which type of autopsy applied is?
- a) clinical autopsy
c) anatomical autopsy
- b) medicolegal autopsy
d) All of these
- (x) A test that detects invisible bloodstains when sprayed as it reveals a slight phosphorescent light in the dark where bloodstains are present.
- a) Kastle Meyer
c) drug test
- b) luminol test
d) psychological test
- (xi) The analysis of DNA to identify individuals and link them to a crime is known as?
- a) forensic serology
c) forensic genetics
- b) forensic anthropology
d) forensic botany
- (xii) A baby has been found unconscious and non-responsive. He is cold when emergency personnel arrives. During her examination, the medical examiner notices marks on the baby neck that appeared to be from a rope or cord. She believes that the baby had been strangled. For this scenario, what would be the manner of death?
- a) Homicide
c) Natural causes
- b) Suicide
d) An accident
- (xiii) Select the artificial way of preserving the body after death by injecting 6 to 8 quarts of an antiseptic solutions of formalin.
- a) embalming
c) inhumation
- b) burial
d) none of these
- (xiv) Which part of the hair is used for DNA typing to establish identity?
- a) Medulla
c) cuticles
- b) roots
d) all of these
- (xv) A test uses phenolphthalein that when it comes contact with hemoglobin, it releases peroxidase enzymes that cause bright pink color to form?
- a) luminol test
c) Kastle Meyer test
- b) pregnancy test
d) Midtrem test

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Define toxicology & the terms used in toxicology. (3)
3. Write any four differences between venomous and nonvenomous snakes. (3)
4. How does the texture of a target surface influence the appearance of bloodstains in a forensic investigation? (3)
5. Analyze how the interpretation of DNA electropherograms affects forensic case resolutions. (3)
6. Classify the different sources of DNA contamination and explain their impact on forensic evidence reliability. (3)

OR

Compare and contrast the forensic implications of autosomal DNA and mitochondrial DNA (mtDNA) analysis. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. A 65-year-old individual is bitten by a snake while gardening. How would you differentiate between a venomous and non-venomous snake bite based on the wound characteristics? (5)
8. What are the main types of fingerprint patterns and how do they help in identification? (5)
9. How does gel electrophoresis aid in the analysis of trace evidence, such as proteins, enzymes, or other biological substances found at crime scenes? (5)
10. Explain the differentiation between somatic and molecular death. (5)
11. Explain the key forensic indicators that differentiate between a suicide by hanging and a homicide staged to appear as a suicide? (5)
12. Analyze the significance of medico-legal reports in criminal investigations and their role in establishing evidence in court. (5)

OR

Evaluate the role of different types of inquests in investigating unnatural deaths and how they influence legal proceedings. (5)

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