BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – M.Sc.(MLT)-2023
Course Name – Forensic Science & Toxicology
Course Code - MMTC02003
(Semester II)

Time : 2:30 Hours

Full Marks : 60

[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) Which of the following factors can influence the toxicity of a substance?

a) Route of exposure
b) Color of the substance
c) Odor of the substance
d) Brand name of the substance

(ii) Which organ is primarily responsible for removing toxins from the bloodstream?

a) Heart
b) Lungs
c) Kidneys
d) Liver

(iii) What is a core function of forensic laboratories?

a) Providing legal counsel to defendants
b) Conducting autopsy examinations
c) Analyzing and interpreting evidence
d) Offering psychiatric evaluations for witnesses

(iv) comparison of teeth between a missing person and a dead body is done by gross examination and

a) superimposition
b) radiography
c) anthropometry
d) spectrophotometry

(v) Blood is stored at what temperature

a) 4°C
b) -20°C
c) -70°C
d) Room temperature

(vi) Select the following conditions is associated with elevated levels of cyanide in cases of death

a) Hypothermia
b) Scalds
c) starvation
d) Thermal burns

(vii) Select the test for detection of old blood stain is

a) gel diffusion
b) precipitin test

c) absorption elusion test
d) benzidine test

(viii) Choose the instrument which is commonly used to quantify the amount of blood in trace evidence samples?

a) spectophotometer
b) mass spectrometer
c) NMR spectrometer
d) Flurescence microscope

(ix) It is a forensic subspecialty that studies the different waysthat blood lands on a surface

a) blood stain analysis
b) DNA extraction
c) confirmatory test
d) nitrate test

(x) The examination of chemical residues such as druga and poisond in the human body to determine the cause of death is known as

a) forensic toxicology
b) forensic anthropology
c) forensic pathology
d) forensic botany

(xi) Which of the following is an example of an individual characteristic that can definitely be associated with one individual?

a) fingerprint ridges
b) custom paint on a vihicle
c) blood types
d) materials in plastic bags

(xii) Which of the following units applied at a crime lab would most likely be used to difinitely convict a suspect in the commission of a crime

a) The Firearms Unit
b) The Polygraph Unit
c) The Latent Fingerprint unit
d) The Voiceprint Analysis Unit

(xiii) 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 test
b) luminol test
c) Drug test
d) Psychological Test

(xiv) 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
b) pregnancy test
c) Kastle Meyer test
d) Midtrem test

(xv) Select the three basic types of fingerprint pattern are

a) arches, loops and rings
b) whorls, arches and accidentals
c) loops, arches and whorls
d) whorls, accidentals and loops

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the significance of a bone saw in postmortem examinations (3)
3. What is the primary role of fingerprints in forensic science? (3)
4. Describe the different methods of postmortem (3)
5. Explain the preservation techniques vary for different types of postmortem samples like , blood (3)
6. Explain in-vivo experiment in research:1) Experiment-30 days, Rats-32, Treated1-sodium arsenite, Medicine-Selenium. Make a diagram with cages in co-administration mood (3)

OR

A murder scene is found with multiple fingerprints on various surfaces. How would you prioritize which prints to analyze first? (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. A possible blood stain is identified on a floor tile. Describe the instrument used to measure the quantity of blood present, and discuss its application in forensic investigations (5)
8. Explain the blood stain pattern analysis be utilized to differentiate between human and animal blood stains? (5)
9. IN-vivo experimental research on mice model: Duration-8 days, Rats-30, Control- Treate1- sodium fluoride (10 mg/Kg BW). Medicine-1- Vitamin-E, (15 mg/ Kg BW) + sodium fluoride (10 mg/Kg BW). Medicine-2-Vitamin-E, (20 mg/ Kg BW) + sodium fluoride (10 mg/Kg BW). Medicine-3- Vitamin-E (10 mg/ Kg BW) + sodium fluoride (10 mg/Kg BW). Make a diagram with cages in Co-administration mood (5)
10. Describe the different forensic laboratories units (5)
11. Explain ADME process in toxicokinetic (5)
12. Explain How do forensic pathologists analyze specific anatomical findings in postmortem examinations to differentiate between various forms of hanging in victims? (5)

OR

What are the main steps involved in conducting a luminol blood stain analysis in a forensic laboratory, from sample collection to interpretation of results? (5)

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