

III Professional MBBS Part I Degree Supplementary (SAY) Examinations

May 2025

Forensic Medicine and Toxicology
(2019 Scheme)

Time: 3 Hours

Total Marks: 100

- Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers
- Indicate the question number correctly for the answer in the margin space
- Answer all parts of a single question together • Leave sufficient space between answers
- Draw table/diagrams/flow charts wherever necessary

1. Multiple Choice Questions

(20x1=20)

The MCQ questions (Q.No. i to Q.No. xx) shall be written in the space provided for answering MCQ questions at page No. 51 of the answer book (the inner portion of the back cover page (PART III)).

Responses for MCQs marked in any other part/page of the answer book will not be valued

Question numbers i - v are case scenario- based questions.

A 32-year-old man found dead laying face down in his apartment. There was a blood stained knife, half empty wine bottle with finger prints in the room. Postmortem revealed incised wounds on right palm and incised penetrating wounds to heart and spleen. Rigor mortis was fully established and retained all over the body. Postmortem staining seen on back

- The time since death could be within ----- hours of postmortem examination
 - 1 to 4
 - 6 to 18
 - 18 to 24
 - 24 to 48
- The incised wound has following features
 - Tissue bridges in the subcutaneous tissue
 - Clean margins
 - Crushing of hair bulb
 - Depth is more than length
- Which evidence suggests the manner of death in this case
 - Injuries on right palm
 - Blood stained knife with finger prints
 - Presence of alcohol
 - Presence of stab wound to heart
- The following measurements helps to identify whether the same weapon in the scene caused the stab wound
 - Width of the blade and width of the wound
 - Length of the blade and length of the wound
 - Width of the blade and length of the wound
 - Length of the blade and width of the wound
- The postmortem staining in this case indicates,
 - Exact manner of death
 - Cause of death
 - Underlying medical condition
 - Body was moved after death

For questions vi - x, there are two statements marked as Assertion (A) and Reason (R). Mark your answers as per the options provided:

- Assertion (A): Chronic lead poisoning causes Burtonian line on the gums
Reason (R): Lead reacts with hydrogen sulfide produced by oral bacteria to form Lead sulfide
 - Both A and R are true, and R is the correct explanation of A
 - A is true but R is false
 - Both A and R are true, and R is not the correct explanation of A
 - A is false but R is true
- Assertion (A): Viper is usually nocturnal and its head scales are small
Reason (R): Viper venom contains hemotoxins that cause capillary damage and coagulation abnormalities
 - Both A and R are true, and R is the correct explanation of A
 - A is true but R is false
 - Both A and R are true, and R is not the correct explanation of A
 - A is false but R is true
- Assertion (A): Barrel of a shot gun is scored internally with grooves called choking
Reason (R): Tattooing occurs due to the deposition of unburnt gunpowder particles on the skin
 - Both A and R are true, and R is the correct explanation of A
 - A is true but R is false
 - Both A and R are true, and R is not the correct explanation of A
 - A is false but R is true
- Assertion (A): Methanol poisoning causes blindness
Reason (R): Methanol is metabolized to formic acid, which damages the optic nerve
 - Both A and R are true, and R is the correct explanation of A
 - A is true but R is false
 - Both A and R are true, and R is not the correct explanation of A
 - A is false but R is true
- Assertion (A): Fern like pattern of erythema in skin is seen in lightning
Reason (R): Electric current disrupts the normal cardiac rhythm, causing fibrillation
 - Both A and R are true, and R is the correct explanation of A
 - A is true but R is false
 - Both A and R are true, and R is not the correct explanation of A
 - A is false but R is true

(PTO)

Question numbers xi-xv are multiple-response type questions. Read the statements & mark the correct answers appropriately.

- xi. Which of the following conditions are associated with cadaveric spasm
- | | |
|---|--|
| 1) Sudden death with intense nervous activity | 2) Stiffening without primary relaxation |
| 3) Occurs in all muscles simultaneously | 4) Commonly seen in drowning cases |
| a) 1 and 2 are correct | c) 1, 2 and 4 are correct |
| b) 1, 2 and 3 are correct | d) 2 and 3 are correct |
- xii. Which of the following are late postmortem findings in fresh water drowning
- | | |
|------------------------------|------------------------------------|
| 1) Emphysema aquosum | 2) Ventricular fibrillation |
| 3) Positive hydrostatic test | 4) Hydrocution is typical drowning |
| a) 1 and 2 are correct | c) 1, 2 and 4 are correct |
| b) 1, 2 and 3 are correct | d) 2 and 3 are correct |
- xiii. Which of the following are typical features of strangulation
- | | |
|---|--|
| 1) Horizontal ligature mark below thyroid cartilage | 2) Fracture of lamina of thyroid cartilage |
| 3) Subconjunctival haemorrhage | 4) Pale and glistening subcutaneous tissue |
| a) 1 and 2 are correct | c) 1, 2 and 4 are correct |
| b) 1, 2 and 3 are correct | d) 2 and 3 are correct |
- xiv. Which findings are seen in barbiturate poisoning
- | | |
|---|--------------------------------------|
| 1) Putrefaction increases blood levels | 2) Central nervous system depression |
| 3) Accidental poisoning due to automatism | 4) Metabolic alkalosis |
| a) 1 and 2 are correct | c) 1, 2 and 4 are correct |
| b) 1, 2 and 3 are correct | d) 2 and 3 are correct |
- xv. Which of the following dental characteristics help in age estimation
- | | |
|----------------------------|---------------------------|
| 1) Eruption of molar tooth | 2) Degree of attrition |
| 3) Carabellis cusp | 4) Boyde's method |
| a) 1 and 2 are correct | c) 1, 2 and 4 are correct |
| b) 1, 2 and 3 are correct | d) 2 and 3 are correct |

Question numbers xvi-xx are single-response type questions.

- xvi. Which of the following is a component of bioethics, as per Belmond's Report
- | | | | |
|-------------|--------------------|----------------|--------------------|
| a) Autonomy | b) Confidentiality | c) Paternalism | d) Implied consent |
|-------------|--------------------|----------------|--------------------|
- xvii. Dead born child is one who has died
- | | | | |
|---------------------|-----------------|-------------|----------------------|
| a) Soon after birth | b) During birth | c) In utero | d) None of the above |
|---------------------|-----------------|-------------|----------------------|
- xviii. Which poison causes "garlic-like" odour in breath and tissues
- | | | | |
|------------|------------|---------------|-------------|
| a) Cyanide | b) Arsenic | c) Phosphorus | d) Selenium |
|------------|------------|---------------|-------------|
- xix. Which test is used as a confirmatory test for human blood
- | | |
|----------------------|--------------------|
| a) Kastle-Meyer test | c) Precipitin test |
| b) Luminol test | d) Benzidine test |
- xx. Forensic medicine deals with
- | | |
|----------------------------|------------------------------|
| a) Post mortem examination | c) Legal aspects of medicine |
| b) Medical aspects of law | d) Investigation of crime |

Long Essays:

(2x10=20)

2. A 35 year old man found hanging with a shawl tied around neck and attached to ceiling hook, kneeling on the floor. On examination an oblique incomplete ligature mark was seen on neck. There was no signs of struggle in the room
- What is your opinion as to cause of death in this case and explain the reason
 - Explain the special autopsy technique adopted in this case
 - Discuss the distinguishing features of homicide staged as hanging
 - Describe the role of toxicology and other laboratory tests to support your final diagnosis
- (2+3+2+3)
3. A pedestrian hit by a car brought for autopsy. On examination there was (i) fracture of right tibia and (ii) contusions of scalp with fracture of occipital base and brain contusion
- Explain the different types of injuries expected in this type of traffic accidents
 - List four cause/mechanisms of death after sustaining these injuries
 - Reconstruct the incident occurred with the help of the postmortem findings
 - Legally classify these two injuries based on their fatality and explain
- (2+2+3+3)

(PTO)

Short Essays:**(6x6=36)**

4. Discuss the causes of sudden death following strenuous exercise and explain factors that may increase the risk of such events (4+2)
5. Warning Notice
6. A child accidentally consumed a mango like fruit was brought to casualty with abdominal pain and vomiting; ECG showed variation. List two toxic constituents in the fruit, its fatal dose and describe the management (2+1+3)
7. List the samples to be collected for chemical analysis during postmortem examination. Describe how these samples are collected, preserved and sent for chemical analysis maintaining the chain of custody (2+4)
8. Define Dying declaration. Explain its procedure, role of doctor and its medico legal significance (2+4)
9. Explain sexual paraphilia in forensic medicine. Discuss its different types and relevant investigations in sexual assault cases

Short Answers:**(6x4=24)**

10. Describe pathophysiology and findings in 'Hide and Die' syndrome. State its medico legal significance (2+2)
11. Draw and label differences in the head of viper and cobra (2+2)
12. Define consent. Briefly explain the rules of informed consent (2+2)
13. Explain Locard's Exchange Principle in forensic practice. Discuss its significance in criminal investigations and how it aids in linking suspects, victims and crime scenes
14. Discuss the differences between sea water drowning and salt water drowning
15. Super Imposition Technique
