



FACULTY OF MEDICINE UNIVERSITY OF RUHUNA

Third Examination for Medical Degrees (Part II) – December 2016

FORENSIC MEDICINE - PAPER I

14.12.2016

Answer ALL FIVE Questions.

9.00 a.m. to 12.00 noon (3 hours)

Answer each PART in a SEPARATE BOOK.

Part A

1. A 30 year-old security officer was found dead near his security post of a factory with a pool of blood around the head early in the morning. The CCTV camera records at the main entrance revealed a stranger entering through the main gate in the night. The doctor who performed the crime scene investigation identified a 10 cm linear laceration on the left side of the head.

- 1.1 Define laceration and describe the features of a laceration. (15 marks)
- 1.2 Describe how you would perform the crime scene investigation in this case. (20 marks)
- 1.3 Describe briefly how you would dissect the brain at the autopsy in this case. (15 marks)

The following findings were recorded at the autopsy.

10 x 1 cm linear laceration was on the left side of the head with underlying depressed skull fracture. There was an extradural haemorrhage and brain contusion over left parietal area. There was gross cerebral oedema. There were abrasions and contusions on the body.

- 1.4 How would you write the cause of death according to WHO guidelines based on the above findings in the post mortem report? (15 marks)
- 1.5 Discuss the possible manner of death in this case. (20 marks)

The police want to know from you whether the victim was able to speak, walk or run before his death after sustaining injuries.

- 1.6 Discuss about the possible volitional activities of this deceased. (15 marks)

2. A 18 year-old student was missing from the home in the night. Two days later the body was recovered from the river which was about one mile away from home.

- 2.1 Briefly describe the death investigation procedure in this case. (15 marks)
- 2.2 Describe the possible external features you would expect to see at the autopsy. (20 marks)
- 2.3 List the ancillary investigations you would request after the autopsy. (15 marks)
- 2.4 What are the samples you would collect at the autopsy for above investigations? (10 marks)

- 2.5 How would you confirm the cause of death as 'Drowning'? (20 marks)

The body was identified by the parents from the clothing. However there was a doubt about exact identification.

- 2.6 Describe how you would confirm the identification of this individual. (20 marks)

Part B

3

3.1 A group of youth was admitted to a hospital with multiple injuries following a brawl at a night club in a major city. Their behaviour was aggressive towards staff and some of them had palpitations, hyperpyrexia and hyponatraemia during initial assessment. The police have recovered various drug paraphernalia in the vehicle they have used to travel to the night club. It was also reported that significant damages have been caused to the property of the night club during the incident.

- 3.1.1 What is the most likely drug abused by the said group of youth? (5 marks)
3.1.2 Describe the pathophysiology of the abuse of this drug. (15 marks)
3.1.3 Describe the acute and chronic clinical manifestations of its abuse. (20 marks)
3.1.4 How would you assess their culpability to the night club incident during the medico-legal examination? (10 marks)

3.2 A 29 year-old carpenter gave a dying declaration to the ward staff regarding an incident of forcible ingestion of a greenish liquid poison by four known persons after striking him with a club on the previous day. The victim had two lacerations on the right side of the face and forehead. He had ulceration of lips, tongue and buccal mucosa on clinical examination. He developed icterus 5 days after admission and died in two weeks despite optimum medical care.

- 3.2.1 Describe the process and value of obtaining a dying declaration. (20 marks)
3.2.2 What is the most likely poison ingested by the victim? (10 marks)
3.2.3 Describe the pathophysiology of its range of effects. (20 marks)

Part C

4. A popular artist sustained inhalational injury due to a fire originated during an indoor performance in a countryside venue. He was initially admitted to a peripheral hospital but later transferred to a tertiary care hospital. His early manifestations were tachypnoea, tachycardia, hypoxia, and respiratory alkalosis. He developed diffuse pulmonary infiltrates in chest radiographs and respiratory failure within 48 hours.

- 4.1 What is the most likely clinical diagnosis of the victim? (5 marks)

- 4.2 Describe the pathophysiology and causes of it. (15 marks)
4.3 What are the medico-legal issues of this case? (10 marks)
4.4 How would you determine the "Category of Hurt" in this case? (5 marks)

Despite optimum medical care to save the life, his clinical parameters deteriorated gradually. His family members were duly informed about the prognosis and they were receptive of the clinical outcome. The organ transplantation unit of the hospital approached the immediate family members regarding the possibility of harvesting liver and kidneys upon the declaration of brain death. The family members consented for the request. However an inquest was also ordered as the circumstances of fire were undetermined.

- 4.5 Describe how you would confirm the brain death of this victim. (15 marks)
4.6 Describe the ethical principles involved in organ transplantation. (20 marks)
4.7 How could the inquest be conducted when permission for organ transplantation is granted? (15 marks)
4.8 Discuss the legal provisions related to brain death and organ transplantation in Sri Lanka. (15 marks)

5. An executive officer sustained multiple injuries following an alleged motor traffic incident said to have occurred in a major city during early hours of the day. He was found dead inside the car and there was evidence of possible post-crash fire according to police investigations. Multiple trace evidences were found during the death scene investigation. However there were no eye witnesses to the incident.

- 5.1 What are the medico-legal issues of this case? (10 marks)
5.2 What are the likely causes of death you need to consider during the autopsy? (10 marks)
5.3 Discuss the samples you would retain for further investigations in this case with reasons. (15 marks)

Few months later there were allegations that the above person had died of a vehicular homicide and courts directed his remains to be exhumed.

- 5.4 What are the legal provisions for exhumation in Sri Lanka? (5 marks)
5.5 How would you plan the exhumation of remains of the deceased in this case? (15 marks)

It was also informed during the conduct of second post-mortem examination that several essential bony samples retained from the deceased during the initial post-mortem examination were missing from the mortuary. The judicial medical officer who performed the first post-

mortem examination was charged for negligence in relation to missing tissue samples and a complaint was also lodged in Sri Lanka Medical Council (SLMC) against him for serious professional misconduct.

- 5.6 How would you establish medical negligence in this case? *(10 marks)*
- 5.7 Discuss the procedure adopted by SLMC in a disciplinary inquiry. *(15 marks)*
- 5.8 Describe the concept and components of serious professional misconduct. *(20 marks)*