



Faculty of Medicine University of Ruhuna
Third Examination for Medical Degrees (Part II) – September 2019

Forensic Medicine Paper I

Tuesday 10th September 2019

9.00 am to 12.00 noon
Three hours

Answer **ALL FIVE** questions.
Answer each **PART** in a **SEPARATE** book.

Part A

1. A 39 year-old man was found in an unconscious state with a single stab injury to the left front chest wall in his house. He died on the way to the hospital.

1.1 Define stab injury. *(10 marks)*

1.2 What is the difference between a stab and a cut? *(10 marks)*

The offending weapon was recovered from the scene. It was a knife with a 10 cm long single cutting blade which has a 3 cm maximum width and has a tapering at the free end.

1.3 Describe the features of the wound that you would expect to see on the chest wall. *(20 marks)*

The autopsy revealed penetrating injury to the chest cavity with 1500 ml of blood in it and through and through injury to the right ventricle.

1.4 How would you write the cause of death of the deceased according to the WHO guidelines? *(10 marks)*

1.5 Briefly describe the mechanism of death of the deceased. *(15 marks)*

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

The police have a doubt regarding the manner of death.

1.7 How would you assist the police regarding determining the possible manner of death? *(20 marks)*

2. A middle-aged female was found dead with bleeding injuries in side a main bus stand early morning. The police have called you to the crime scene.

2.1 How would you prepare for the scene visit in this instance? *(15 marks)*

2.2 List the samples you would collect at the scene stating the purpose of collection of each sample. (except DNA) *(15 marks)*

DNA studies are an important medico legal investigation done all over the world.

2.3 Discuss the importance of DNA studies in this case scenario. *(20 marks)*

- 2.4 What are the samples you would collect for DNA studies? (15 marks)
- 2.5 Describe the collection, storage and dispatch of the above-mentioned samples. (15 marks)
- 2.6 How you would determine the identification of this individual (20 marks)

Part B

- 3.
- 3.1 A 15 year-old girl was produced to the on-call judicial medical officer at a tertiary care hospital by the police following an alleged incident of sexual abuse by her boyfriend. She was found to be in pain.
- 3.1.1 List 5 important medico-legal issues in this case. (10 marks)
- 3.1.2 Define statutory rape. (10 marks)
- 3.1.3 List 5 important samples that you would collect at the time of examination. (15 marks)
- 3.1.4 List 4 different type of injuries that you would expect to see in this patient and briefly describe their mechanism of causation. (15 marks)
- 3.2 A 31-year-old foreigner was found unconscious at his hotel room. A bag full of white colour cubes, a pipe and a lighter were found on his table by the attending paramedics. On admission to the hospital, he was found to have a heart rate of 120 beats per minute, a blood pressure of 220/140 mmHg, sweating and dilated pupils.
- 3.2.1 List 5 important medico-legal issues in this case. (10 marks)
- 3.2.2 What could be the possible substance of abuse in this case? (10 marks)
- 3.2.3 Briefly outline the mechanism of action of this substance. (15 marks)
- Despite treatment, the patient has passed away after 12 hours of admission.
- 3.2.4 List 5 important macroscopic findings that you might see at the autopsy. (15 marks)

Part C

4. A 70 year-old male was found unresponsive on the bed in the early morning by his family members at home. Despite the advanced age he was apparently well and walked to the bed by himself on the previous day night after being in the living room for a while. No resuscitative measures were attempted at home. An inquest was held into the death and a post-mortem examination was ordered.
- 4.1 State the steps of initial action that should be taken by the relatives if a death occurs at home. (10 marks)
- 4.2 Briefly describe how you would confirm death if you are called in such an occasion. (20 marks)
- 4.3 State 5 responsibilities of police officers in relation to 'inquest' process. (10 marks)

During the post-mortem examination, the JMO has detected bilateral rib fractures and haemothorax. No major injuries were observed in other regions of the body except for few localized abrasions. The post-mortem examination was temporarily halted, and the findings were informed to the inquirer. The family members were re-interviewed regarding the exact nature of circumstances. As no significant information is received, the inquirer into deaths referred the case to the magistrate of the area and requested him to take over the inquest. The scene of crime officers (SOCO) were also asked to conduct a complete death scene investigation.

4.4 Explain the action taken by the inquirer into death according to the law of 'inquest' in Sri Lanka. (15 marks)

4.5 Briefly describe major causes for bilateral rib fractures and haemothorax of an adult person. (15 marks)

It was revealed during the magisterial inquest that the deceased was accompanied to home by the daughter-in-law when she saw him sitting near the 'Kitul' tree situated in the garden. She confessed that she has not seen the deceased climbing the Kitul tree and the deceased walked by himself to the home. She further stated that he did not mention about any traumatic incident.

A retrospective death scene examination was also performed by the JMO. It was confirmed from other witnesses that the deceased used to climb the 'Kitul' tree previously and he managed to do it on his own. The height of the 'Kitul' tree was above 50 feet. The ground area surrounding the 'Kitul' tree was covered with grass.

4.6 Briefly describe the essential steps of the retrospective death scene examination of this case. (15 marks)

4.7 Briefly describe the most likely circumstances that would have caused injuries in the deceased referring to post-mortem findings. (15 marks)

5. The vehicle of a team of state employees returning from an official field event in the northern region of Sri Lanka met with a road traffic accident in the late night on a spacious main road leading to Colombo. Their double cab had a frontal impact with a three-wheeler and both vehicles were located in the right side of the road by the investigating police. The three-wheeler was deformed and rolled over to a side of the road.

After arriving to the scene, the police have conducted the breathalyzer test on the alleged driver of the double cab, and it was negative. There were many empty liquor bottles inside the vehicle, but the driver and vehicle occupants denied consumption of liquor during their travel. All occupants and the driver of the double cab were produced to the on call medical officer of the hospital for examination for drunkenness.

5.1 State 5 medico-legal issues pertaining to this case. (10 marks)

5.2 Briefly describe how the breathalyzer test is conducted by the police. (20 marks)

5.3 Describe how you would examine the alleged driver and other vehicle occupants for drunkenness at the hospital. (25 marks)

5.4 State the Sri Lankan law related to examination of a driver for drunkenness. (15 marks)

The two adult occupants of the three-wheeler have sustained severe injuries. The four occupants of the double cab including the driver had only minor injuries. The victims in the three-wheeler were rushed to nearby hospital by local residents who arrived at the scene prior to police. The driver of the three-wheeler was declared dead on admission to the hospital.

5.5 Briefly describe the possible injury pattern of the passengers travelling in the three-wheeler. (15 marks)

It was alleged subsequently that the wrong person has claimed responsibility as the driver of the double cab during the initial investigations of the police.

5.6 Briefly describe how you can assist the police to determine the driver of the double cab scientifically in this case. (15 marks)