

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**MD (EMERGENCY MEDICINE) EXAMINATION - DECEMBER, 2024**

**Date:-** 13<sup>th</sup> December 2024

**Time:-** 9.00 a.m. - 12.00 noon

**STRUCTURED ESSAY QUESTION PAPER**

Answer **all ten (10)** questions.

Answer each question in a separate book.

1. A 40-year-old woman arrives at the A & E with sudden onset difficulty in breathing, swelling of lips and tongue and a generalized rash. The onset of symptoms was shortly after a meal at a restaurant. Her accompanying friends were unaware of any similar episodes in the past. She is wheezing and in respiratory distress. Her respiratory rate is 28/minute, heart rate is 120 beats/minute, and blood pressure is 70/40 mmHg.
  - 1.1. What is the most likely diagnosis? (10%)
  - 1.2. State the immediate management. (40%)
  - 1.3. Outline the pathophysiology of the symptoms observed. (30%)
  - 1.4. State measures to prevent and minimise the dangers of a recurrent episode. (20%)
  
2. A 68-year-old man with type 2 diabetes is brought to the A & E with fever and headache of 3 days and altered behaviour of one day. His temperature is 39°C, GCS is 14/15, pulse rate is 100 beats/minute and blood pressure is 100/60 mmHg.
  - 2.1. State the most likely diagnosis. (10%)
  - 2.2. List three (3) physical signs you will elicit in the initial evaluation. (15%)
  - 2.3. State three (3) immediate investigations required giving reasons. (15%)
  - 2.4. State the indications for neuroimaging in this scenario. (05%)

In the A & E, he develops recurrent generalized tonic-clonic seizures.

  - 2.5. Outline the immediate management of his seizures. (30%)
  - 2.6. List the medications indicated for the diagnosis stated in 2.1 and their pharmacological basis. (25%)

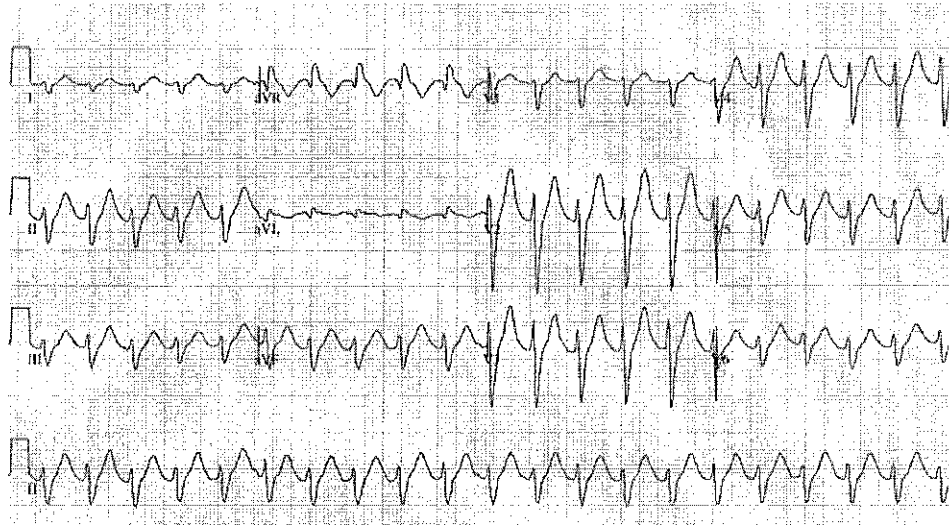
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3. A 37-year-old transit passenger at the Colombo International Airport, is brought by airport security to the A & E as a suspected internal drug trafficker (SIDT).

3.1. State the challenges you anticipate when managing this person. (20%)

While gathering information, he becomes agitated and develops a generalized tonic clonic seizure. Following the seizure, his pulse rate is 138 beats/minute, blood pressure is 180/100 mmHg and SpO<sub>2</sub> is 94% on room air. He is sweating, the GCS is 6/15, and both pupils are dilated.

His ECG is as follows:



3.2. What is the ECG diagnosis? (10%)

3.3. State the two (2) most likely substances responsible for his condition (10%)

3.4. Outline the immediate management. (40%)

An abdominal CT shows several small bags in the gastrointestinal tract.

3.5. What is the further management? (20%)

4. A 72-year-old woman presents to A & E with abdominal distension, pain and bilious vomiting for one day. She has not opened bowels for two days. She is on dual anti-platelet therapy following coronary artery stenting done 2 years back. She has had a laparotomy for an ovarian cyst 10 years back and a subsequent incisional hernia mesh repair. She is afebrile and not pale. The abdomen is soft, non-tender and distended. Rectal examination reveals an empty rectum.

4.1. Outline her initial management. (35%)

4.2. State the investigations required, giving reasons. (25%)

The surgical team decide on a trial of non-operative management.

4.3. State the circumstances under which non-operative management should be aborted and surgery performed. (20%)

While in the A & E, she suddenly becomes dyspnoeic and tachycardic.

4.4. List the likely causes of her deterioration. (20%)

5. A 25-year-old rider is brought by paramedics following a high velocity motorcycle crash. He was found about 10 meters from the bike and was wearing a helmet. He is on a spinal board with a semirigid cervical collar. He is on high flow oxygen and an IV bolus of saline has commenced. He is shouting in pain. His respiratory rate is 30/minute, heart rate is 140 beats/minute and blood pressure is 70/40 mmHg. The left hemithorax is hyper-resonant on percussion with reduced breath sounds. There is no external bleeding.

5.1. State the immediate life-threatening injury. (10%)

5.2. Outline the management of the above injury. (20%)

After management of the above injury his respiratory rate drops to 18/minute and breath sounds return to the left hemithorax. However, the heart rate stays at 130 beats/minute and the blood pressure shows only a minor rise to 80/50 mmHg.

5.3. State likely reasons for the continuing shock. (10%)

5.4. Outline his management in the primary survey from this point onwards. (60%)

6. A 55-year-old motor mechanic presents to the A & E with nausea and vomiting after ingestion of an unknown substance. His temperature is 36.4°C. He is drowsy with a GCS of 12/15. His heart rate is 72 beats/minute, blood pressure is 170/85 mmHg, respiratory rate is 30/minute and SpO<sub>2</sub> is 100% on room air.

His arterial blood gas analysis:

pH	7.141
PaO <sub>2</sub>	95 mmHg
PaCO <sub>2</sub>	28 mmHg
Sodium	141 mmol/L
Potassium	5.6 mmol/L
Chloride	101 mmol/L
HCO <sub>3</sub> <sup>-</sup>	0.5 mmol/L
Base excess	-24.5 mmol/L
Lactate	>15 mmol/L

His biochemistry results:

Serum creatinine	2.1 mg/dL
Blood urea nitrogen	7 mmol/L
Random blood sugar	5.8 mmol/L
Serum osmolality	310 mOsm/kg

- 6.1. State the acid base abnormality. (10%)
- 6.2. Calculate the osmolar gap and the anion gap. (10%)
- 6.3. List three (3) toxins likely responsible for the above presentation. (15%)
- 6.4. What is the most likely diagnosis? (05%)
- 6.5. State the investigation to confirm the diagnosis. (05%)
- 6.6. Outline the underlying toxicokinetic mechanisms. (20%)
- 6.7. State two (2) antidotes. (10%)
- 6.8. Outline his management in the A & E. (25%)

Contd...../5-

7. A 17-year-old schoolgirl is brought by her class teacher to the A & E after she developed right side abdominal pain and fainted at school. She is in distress and there is abdominal tenderness with guarding.

Her vital signs are as follows:

Pulse rate	120 beats/minute
Blood pressure	80/50 mmHg
Respiratory rate	26/minute
SpO <sub>2</sub>	96% on room air

Point of care ultrasound shows fluid in the hepato-renal pouch and pelvis.

- 7.1. What are the likely diagnoses? (15%)
- 7.2. Outline the clinical features that will help to differentiate between the diagnoses stated in 7.1. (25%)
- 7.3. List the investigations you will request. (25%)
- 7.4. Outline her immediate management at the A & E. (20%)

The class teacher requests information on her diagnosis to convey to her parents.

- 7.5. How will you respond to this request? (15%)
8. A 13-year-old boy is brought to the A & E by his mother with vomiting and a reduced level of consciousness. He has been on long-term follow-up for a hormonal disorder for which he is on two oral medications. The mother had returned home the previous day after a week away. He is thin and dark in complexion. His GCS is 10/15, he is dehydrated, and the temperature is 38°C. He has a tachycardia with a low volume pulse and the blood pressure is 80/50 mmHg. His condition does not improve with IV fluids.
- 8.1. What is the likely acute condition? (10%)
- 8.2. State three (3) likely causes for the condition stated in 8.1. (15%)
- 8.3. What are the two (2) likely oral medications he is on? (20%)
- 8.4. List two (2) urgent biochemical investigations required, giving reasons. (15%)
- 8.5. State the immediate management of this patient. (40%)

9. A 4-year-old boy is brought to the A & E by his parents, with difficulty in walking. The child has been previously well and is fully immunised.

- 9.1. State the likely differential diagnoses. (15%)
- 9.2. Outline the clinical features that will help to distinguish between the diagnoses stated in 9.1. (35%)
- 9.3. List the investigations you will request, giving reasons. (30%)
- 9.4. Outline his management. (20%)

10. Write notes on:

- 10.1. Levels of evidence in medical practice. (50%)
- 10.2. Management of a needle prick injury in a healthcare worker. (50%)