

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION FOR MD (EMERGENCY MEDICINE)
NOVEMBER 2022

Date: - 18th November 2022

Time:- 1.30 p.m. – 4.30 p.m.

ESSAY PAPER

Answer all six (06) questions.

Answer each question in a separate book.

1.

1.1. Briefly describe the fascial arrangement in the leg and the anatomical basis of compartment syndrome. (40 marks)

1.2. A blow on the head results in clear fluid dripping from the nose and anosmia.
Explain, giving the anatomical basis for the sign and symptom observed above. (30 marks)

1.3. A rugby player is kicked in the back between the left rib cage and the vertebral column causing fractures of the left lower ribs. There was severe internal bleeding, haematuria and shortness of breath.
Explain the anatomical basis of this presentation. (30 marks)

2. A 50-year-old carpenter falls 12 feet from a roof. On examination, he is noted to be conscious and lucid but unable to move his legs. He has a flaccid paralysis of both lower limbs and absence of all sensations below the level of the umbilicus.
Six months later, he is noted to have hyperreflexia with extensor plantar responses in his feet.

2.1. Explain the basis for the knee jerk reflex in a healthy adult. (30 marks)

2.2. Outline the basis for

2.2.1. absence of the knee jerk reflex in this patient immediately after the injury. (10 marks)

2.2.2. the exaggerated knee jerk six months after the injury. (20 marks)

2.3. Outline normal bladder control in a healthy adult. (25 marks)

2.4. Outline the regulation of bladder emptying immediately after the injury. (15 marks)

Contd...../2-

3.

3.1. Discuss five (05) factors which affect the bioavailability of medicines when given orally. (20 marks)

3.2.

3.2.1. Describe the pharmacokinetics of morphine. (20 marks)

3.2.2. List five (05) indications and five (05) adverse effects of morphine. (10 marks)

3.3. Discuss the pharmacodynamics of aspirin as an antiplatelet agent. (30 marks)

3.4. Briefly discuss the important phases of pre-marketing clinical trials. (20 marks)

4.

4.1.

4.1.1. What are the two types of gas flow that exist? (10 marks)

4.1.2. Indicate the factors that determine the type in each of the flow you mentioned in 4.1.1. (20 marks)

4.1.3. Draw graphs of Pressure vs Flow in each of the types you mentioned in 4.1.1. (20 marks)

4.2.

4.2.1. What are the types of diathermy used in clinical practice? (20 marks)

4.2.2. Draw and explain the physical principle/s of diathermy. (20 marks)

4.2.3. List two (02) complications that can occur to the patient during the use of diathermy. (10 marks)

Contd...../3-

5.

5.1. A 57-year-old man presents with a chronic cough and haemoptysis.

5.1.1. Give three (03) differential diagnoses. (15 marks)

5.1.2. State five (05) investigations required to arrive at a diagnosis of this patient. (15 marks)

5.1.3. Outline the pathogenesis of one of the conditions mentioned in 5.1.1. (30 marks)

5.1.4. State two (02) complications associated with one of the diagnoses mentioned in 5.1.1. (15 marks)

5.2. A 70-year-old man complains of backache. Multiple myeloma was suspected and investigated.

5.2.1. List five (05) biochemical investigations you would do in this patient with the expected findings. (15 marks)

5.2.2. List five (05) complications that this patient may develop. (10 marks)

6. A 45-year-old man was admitted to hospital with pleuritic chest pain and dyspnoea. On examination, he was noted to have a respiratory rate of 25/min. His temperature was 39 degrees Celsius.

Chest X ray confirmed the presence of a right middle and lower lobe consolidation. He was started on inhaled oxygen therapy.

His blood gas analysis revealed the following

pH	7.31	(7.35-7.45)
paCO ₂	30 mmHg	(35-45 mmHg)
pO ₂	60 mmHg	(75-100 mmHg)
HCO ₃ ⁻	18 mEq/L	
BE	-8	

6.1 Explain the blood gas report. (20 marks)

6.2

6.2.1. Outline the normal regulation of respiration. (25 marks)

6.2.2. Explain the basis for the high respiratory rate in this patient. (20 marks)

6.3 Discuss the basis of oxygen therapy in this patient. (35 marks)

