POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION FOR MD (EMERGENCY MEDICINE)
APRIL/MAY 2017

Date :- 25th May 2017 **Time :-** 9.00 a.m. – 12.00 noon

ESSAY PAPER

Answer **all six (06)** questions.
Answer each question in a separate book.

1.

1.1. Describe briefly the common fractures that could occur in pelvic bones and the structures which are liable to be damaged in such fractures. (30 marks)

1.2. Describe briefly the boundaries and contents of the cubital fossa. State its clinical relevance. (35 marks)

1.3. Describe briefly the surface marking of the apex of the lung and structural relations of the apex. (35 marks)

2. A 45 year-old fisherman who was recovered from an open boat drifting in the sea for several days, was brought to the Emergency Department. He was found to be dehydrated on admission. On catheterization of bladder about 100 mL of very concentrated urine was found. During the next one hour he produced about 15mL of urine despite receiving 2 L of Normal Saline.

2.1. Explain the reasons for the presence of low volume of very concentrated urine in his bladder. (50 marks)

2.2. Explain why he produced only 15mL of urine despite receiving 2L of fluid. (25 marks)

2.3. On arrival at the Emergency Department, a nurse has started him on oxygen at a rate of 6 L/minute via simple face mask. Patient's tidal volume is 600 mL and respiratory rate is 20/minute with I:E ratio of 1:2.

Based on the above parameters calculate the highest possible FiO_2 of this patient showing the steps of the calculation. (25 marks)

Contd..../2-

3.

3.1.

3.1.1. Describe the pharmacological actions of the following drugs and give one specific indication for the use of each drug in an emergency setting. (15 marks)

Noradrenaline
Dobutamine
Adrenaline

3.1.2. Explain the pharmacological basis of using each drug for the indications you mentioned. (30 marks)

3.2. A 25-year-old female was brought to the Emergency Department with a history of fever for 2 days and drowsiness for 6 hours. On examination, she was drowsy, febrile and had neck stiffness. A clinical diagnosis of bacterial meningitis was made. The doctor in charge of the Emergency Department decides to start antibiotics for the patient.
Explain the pharmacodynamic and pharmacokinetic basis of selecting an antibiotic regime for this patient. (55 marks)

4. A 25 year-old man was admitted to Emergency Department with circulatory dysfunction. He was resuscitated and connected to a multi parameter monitor which can display arterial blood pressure wave form.

4.1. What are the main components of an Intra-arterial blood pressure measuring system? (10 marks)

4.2. Draw the wave form obtained from a peripheral arterial line of a healthy person. (20 marks)

4.3. Explain the information that can be determined from the arterial waveform. (40 marks)

4.4. Draw an overdamped and underdamped arterial wave forms in relation to the normal arterial wave form. (15 marks)

4.5. What features of an arterial blood pressure measurement system help to reduce errors from overdamping? (15 marks)

Contd..../3-

5. A 60 year-old man presents to the Emergency Department with retrosternal chest pain of two hours duration. He is a known patient with hypertension for 15 years. The clinical diagnosis is acute myocardial infarction.

5.1. Explain the pathogenesis of acute myocardial infarction in this patient. (40 marks)

5.2. Name the most suitable biochemical marker to confirm the above diagnosis and outline the pathological basis and time course of its alterations. (20 marks)

5.3. List three (03) other clinical conditions which lead to the elevation of the biochemical marker mentioned in 5.2. (10 marks)

5.4. Six months later the patient presents with a stroke. The CT scan shows a right temporal lobe infarction.
Discuss the possible pathogenetic mechanism/s for the stroke in this patient. (30 marks)

6.

6.1. Briefly explain the following terms in disaster management :

6.1.1. Incident command post (05 marks)

6.1.2. Disaster mitigation (05 marks)

6.1.3. Internal perimeter (05 marks)

6.1.4. Minimally acceptable care (05 marks)

6.2. List five (05) units used in radiation dosimetry with their symbols. (15 marks)

6.3. State five (05) different modes of action exhibited by chemical agents commonly associated with man-made disasters giving an example for each. (35 marks)

6.4. A communicable disease spreads across a community and a biological attack is suspected.
Briefly explain the features favoring biological attack over a natural epidemic. (30 marks)