

**THE HONG KONG COLLEGE OF ANAESTHESIOLOGISTS**  
**FINAL FELLOWSHIP EXAMINATION (INTENSIVE CARE)**  
**SHORT ANSWER PAPER**

**15 Questions**

**Friday 31 July 2020 (9:00 am - 11:30 am)**

**NOTICE**

- (A) Write your answers to the 15 questions in separate books.
- (B) It is not necessary to rewrite the question in your answer book.
- (C) You should answer each question in ten minutes or less.
- (D) The questions are worth equal marks.
- (E) Record your number on the cover of each book and hand in all books.
- (F) Use ink or ball-point pen

**Question 1**

- i) List four causes of bronchopleural fistula. (1 mark)
- ii) Outline the treatment options for persistent air leak resulting from bronchopleural fistula in a mechanically ventilated patient. (9 marks)

**Question 2**

Compare and contrast the mechanisms (2 marks), advantages and disadvantages (8 marks) of intraventricular catheter and intra-parenchymal transducer for intra cranial pressure monitoring.

**Question 3**

- i) Define hypertensive emergency. (2 marks)
- ii) Outline your approach and rationale when treating a patient with hypertensive emergency. (4 marks)
- iii) List four situations that you will deviate from the usual blood pressure targets when treating hypertensive emergency. (1 mark)
- iv) How would you lower the blood pressure in a patient with Stanford type B aortic dissection? (3marks)

**Question 4**

Critically evaluate the role of Tranexamic Acid in trauma (10 marks)

**Question 5**

A patient developed repeated vomiting and deranged liver function after ingestion of wild mushroom.

- i) What is the most likely toxin from mushroom causing the toxicity? (1 mark)
- ii) Outline the management of the patient. (9 marks)

### Question 6

- i) What are the clinical presentations of hypocalcaemia? (2 marks)
- ii) List five most frequent causes of hypocalcaemia in critically ill patients. (5 marks)
- iii) Why is 10% Calcium Gluconate often recommended over 10% Calcium Chloride in correcting hypocalcaemia? (0.5 mark)
- iv) What is the disadvantage of using 10% Calcium Gluconate? (0.5 mark)
- v) What is the expected rise in plasma calcium level after a dose of 10ml 10% Calcium Gluconate (0.23 mmol/mL) given over 5-10 minutes, assuming the patient's body weight is 70kg. (2 marks)

### Question 7

Compare and contrast Guillain-Barré syndrome (GBS) and critical illness polyneuropathy (CIP) in terms of:

- i) Prodromal and clinical features (4 marks)
- ii) Investigations (4 marks)
- iii) Specific treatment (2 marks)

### Question 8

You are the Intensive Care Unit (ICU) consultant in charge of a regional hospital with 18 mixed medical and surgical beds. The attending microbiologist just informed you that a cluster of five patients in your ICU grew Multidrug Resistant *Acinetobacter baumannii* in their endo tracheal aspirate this week.

Please outline how you would handle this situation. (10 marks)

### Question 9

Regarding patient suffering from massive hemorrhage requiring resuscitation, please outline advantages and disadvantages of transfusion protocol guided by viscoelastic coagulation test (TEG/ROTEM) as opposed to transfusion protocol with fixed ratio of blood products. (10 marks)

### Question 10

What are the principles of antibiotic therapy for intra-abdominal (gastrointestinal tract) infections? (10 marks)

### Question 11

A thirty year old man suffered a pulseless electrical activity (PEA) cardiac arrest after a road traffic accident. He regained spontaneous circulation after cardio pulmonary resuscitation and insertion of bilateral chest drains. The total down time was one hour. Apart from the chest injuries he had no other injuries.

- i) What is the neuro-prognosis of this gentleman? Please give reasons. (3 marks)
- ii) Targeted temperature management was not done due to the risk of bleeding. His vitals remained stable during his stay in the Intensive Care Unit and he triggered the ventilator by himself. How would you assess and predict his neurological outcome? (7 marks)

### Question 12

Discuss the methods that can protect staff from being infected by airborne respiratory pathogens during cardiopulmonary resuscitation. (10 marks)

### Question 13

You are asked to attend a trauma call for a 50-year-old male pedestrian who was hit by a taxi at speed of 70km/hr.

On arrival at the Accident and Emergency Department, the patient's vital signs are as follows:

GCS was 15/15,  
BP 60/30mmHg,  
HR 140/min,  
SpO2 91% with 15L/min of oxygen via non-rebreathing mask.

Both neck collar and pelvic binder have already been placed. There is no obvious external source of bleeding or deformity of his four limbs.

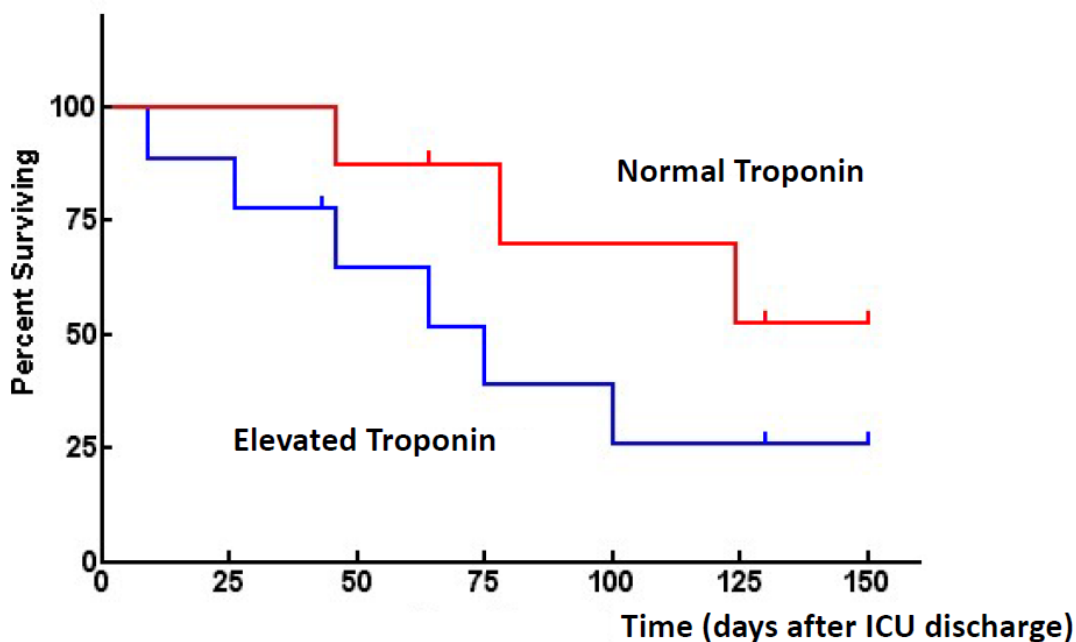
- i) List 3 common preventable causes of early death in trauma (1.5 marks)
- ii) Subsequent physical examination shows multiple bruising over left lower chest wall, absence of breath sound and stony dull percussion over his left hemithorax. The right hemi thorax is normal. Describe your management. (6 marks)
- iii) The patient develops cardiac arrest with pulseless electrical activity(PEA) during your management. List five potential roles of resuscitative thoracotomy in this case (2.5 marks)

### Question 14

Write short notes on sodium citrate (1 mark) and its physiologic effects when exogenously infused. (9 marks)

### Question 15

A prospective observational cohort study on the long term survival of patients with elevated troponin after discharged from intensive care unit (ICU) was conducted. The estimates of survival of the patients with elevated troponin as opposed to those without elevated troponin are shown below.



- i) What is the name of this graphical method of presentation? (1 mark)
- ii) What is the main advantage of this method? (1 mark)
- iii) List two assumptions for this method. (2 marks)
- iv) Name three ways to compare the two groups of patients (curves). (3 marks)
- v) What other risk factors may contribute to the difference in the survival of the two groups of patients? (2 marks)
- vi) What statistical analysis could be used to relate other risk factors to the survival time? (1 mark)

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