



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

Monday, 3 August 2026
(9:30 am - 12:00 nn)

15 Questions (Question 1 – 15)

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 candidate number on the cover of each book and hand in all books.
- (F) Use ink or ball-point pen

Question 1

A 32-year-old male is admitted to the ICU following a high-speed motorcycle accident. Imaging confirms a C5–C6 unstable cervical spinal fracture with a complete cord injury. On arrival, he is hypotensive (BP 80/50 mmHg) and bradycardic (HR 42 bpm).

- a. Explain the pathophysiological difference between **spinal shock** and **neurogenic shock**. (3 marks)
- b. Outline the acute hemodynamic management goals and specific therapeutic strategies for this patient in the first 7 days. (4 marks)
- c. Identify three specific, life-threatening complications (other than hemodynamic instability) that require proactive monitoring in cervical spine injured patient. (3 marks)

Question 2

Explain how echocardiography can be used to assist the management of percutaneous mechanical circulatory support. (10 marks)

Question 3

Discuss the use of intravenous immunoglobulin (IVIG) in the management of patients admitted to the ICU with acute neurological conditions. (10 marks)

Question 4

Tabulate the types of patient-ventilator dys-synchrony, their respective causes and management (10 marks).

Question 5

Regarding Heparin-Induced Thrombocytopenia (HIT),

- a. List 4 clinical features used in the "4Ts Score" to assess the probability of HIT. (2 marks)
- b. Apart from HIT, list 4 common differential diagnoses for thrombocytopenia encountered in ICU. (2 marks)
- c. A patient presented with 4Ts score of 7, indicating high probability of HIT. Outline the immediate anticoagulation management steps. (4 marks)
- d. Name the definitive laboratory diagnostic pathway for HIT. (2 marks)

Question 6

- a. List the causes of early (<72 hours) post-tracheostomy bleeding. (1.5 marks)
- b. List the causes of late (>72 hours) post-tracheostomy bleeding. (2.5marks)
- c. Profuse bleeding is noted at the site of tracheostomy which was inserted two weeks ago for prolonged intubation. Describe your assessment and management in this case. (6 marks)

Question 7

- a. Explain what stress ulcers are in critically ill patients. (3 marks)
- b. Which critically ill patients are considered to have high risk of stress ulceration? (2.5 marks)
- c. Describe the recommended agents for stress ulcer prophylaxis, route of administration and duration. (3.5 marks)
- d. What are the potential risks of Stress Ulcer Prophylaxis? (1 mark)

Question 8

Regarding the management of raised intracranial pressure in a patient with severe traumatic brain injury, who is intubated, with an external ventricular drain, and not on sedation:

- a. List four initial non pharmacological interventions for raised intracranial pressure other than decompressive craniectomy. (2 marks)
- b. List four initial pharmacological interventions for raised intracranial pressure. (2 marks)
- c. Discuss the rationale, risks and relevant evidence when considering decompressive craniectomy in traumatic brain injured patients. (6 marks)

Question 9

- a. List causes of hypokalaemia (4 marks)
- b. For each of the following diuretics, explain its mechanism of action within the kidney and its subsequent impact on potassium levels in the body. (3 marks)
 - i. Loop diuretics
 - ii. Thiazide diuretics
 - iii. Aldosterone antagonists
- c. How many mmol of Potassium is contained in 2g of syrup KCl? (1 mark)
- d. How would you safely prescribe and administer intra venous KCl? (2 marks)

Question 10

Critically ill patients suffer from altered pharmacokinetics (PK) and this will affect optimal dosing of antimicrobials.

- a. List 4 factors affecting dosing in the critically ill. For each factor, give an example of a clinical condition and medication affected. (4 marks)
- b. What are the strategies that can be taken for dose optimization? (6 marks)

Question 11

A 47-year-old female who just returned to Hong Kong from Europe was brought to the accident and emergency department with chest pain and shortness of breath. She was in sinus tachycardia and her blood pressure was 80/50mmHg. SpO₂ was 87% and she was intubated. She required a 0.5mcg/kg/min of Noradrenaline to sustain her blood pressure. Assessment and investigations showed that she has a pulmonary embolism occupying bilateral proximal pulmonary arteries.

- a. How would you classify her pulmonary embolism? (1mark)
- b. What are the trans thoracic echo features that will aid in the diagnosis of pulmonary embolism? (3 marks)
- c. What are the therapeutic options for the treatment of **her** pulmonary embolism and reason/s for choosing each option? (6 marks)

Question 12

A 69-year-old man with septic shock and prolonged ICU stay is receiving mechanical ventilation and nutrition support. The team wishes to assess his energy requirement more accurately.

- a. What is indirect calorimetry and what does it measure? (2 marks)
- b. Outline 4 advantages of indirect calorimetry over predictive equations in ICU. (4 marks)
- c. List 4 limitations or practical problems with indirect calorimetry in ICU. (4 marks)

Question 13

- a. List 4 major risk factors that predispose to invasive candidiasis in ICU. (2 marks)
- b. State the minimum recommended duration of antifungal therapy for uncomplicated candidemia, and name 2 essential adjunctive management steps that significantly improve survival. (3 marks)
- c. List 4 infection prevention and control measures that must be implemented immediately upon identification of *Candida auris* in blood cultures to prevent nosocomial transmission in the ICU. (4 marks)
- d. What is the first-line antifungal therapy for *Candida auris* blood stream infection? (1 mark)

Question 14

- a. List the preconditions and exclusions that must be satisfied **before** proceeding with brain death testing. Give details on each point. (7 marks)
- b. Explain the physiological basis and clinical justification for giving thyroid hormone replacement in the management of an imminent brain dead patient. (3 marks)

Question 15

You are the Consultant-in-charge of the Intensive Care Unit (ICU). You are informed about a critical incident involving your ICU patient, who experienced cardiac arrest after his ventilator was inadvertently switched to standby mode following suction. CPR was initiated, resulting in return of spontaneous circulation (ROSC), but the patient remains in critical condition and on sedation.

Outline how you would handle this critical incident, utilizing relevant frameworks or strategies.

(10 marks)

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