



The Hong Kong College of Anaesthesiologists

Intermediate Fellowship Examination

Written Paper in Pharmacology

17 July 2026 (Friday)

14:00 - 16:00 hours

Instructions:

- a. There are twelve pre-labelled answer books. Please make sure you answer the questions in the respective answer book.
- b. Write your candidate number on the cover of each answer book.
- c. Use ink or ball-point pen.
- d. Answer ALL questions. They are worth equal marks and you should spend approximately **ten minutes** for each question. For questions with multiple parts, allocation of marks is indicated in the brackets.

1. Describe the mechanism of action of the following drugs used in the management of patients with hyperthyroidism before thyroidectomy.
 - i. Carbimazole (20%)
 - ii. Propranolol (20%)
 - iii. Potassium iodide (30%)
 - iv. Hydrocortisone (30%)
2. Outline the mechanism of action and principal route(s) of metabolism and elimination for apixaban. (50%)
Describe two methods for rapid reversal of apixaban. (50%)
3. Outline the signs of opioid toxicity. (20%)
Outline the pharmacology of a drug that can be used to reverse opioid toxicity, including its expected clinical effects and possible side effects. (80%)
4. Define and explain the terms 'potency', 'efficacy', 'therapeutic index' and 'tolerance' by using the dose-response curves of opioid as illustration.
5. Describe the structural components of a local anaesthetic molecule. (20%)
Explain the significance for each structural component of structure to its function(s) and illustrate with examples, where appropriate. (80%)
6. Describe the pharmacokinetic changes in obese adults, indicate the potential clinical implications with relevant examples.
7. Describe the mechanism(s) by which neostigmine reverses muscle relaxation. (25%)
Compare and contrast the use of atropine or glycopyrrolate when co-administered with neostigmine. (75%)
8. Explain the differences of induction with propofol in a 90-year-old man and a 4-year-old child, with respect to dosage, onset time and duration of action/offset time.
9. Classify anti-emetic drugs according to their mechanism of action. Give examples and describe side effects of each class.
10. Define minimum alveolar concentration (MAC). (20%)
Discuss whether MAC is an appropriate indicator of consciousness. (30%)
List four factors that decrease MAC and four factors that increase MAC. (50%)
11. Describe the mechanisms of action of amiodarone (60%) and its side effects. (40%)
12. Compare and contrast oxytocin with carbetocin as uterotonic agents.