



**The Hong Kong College of Anaesthesiologists**  
**Intermediate Fellowship Examination**  
**Written Paper in Pharmacology**  
**1 March 2024 (Friday)**  
**14:00 - 16:00 hours**

**Instructions:**

- There are twelve pre-labelled answer books. Please make sure you answer the questions in the respective answer book.
- Write your candidate number on the cover of each answer book.
- Use ink or ball-point pen.
- 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.

- Classify tocolytics, with examples, according to their mechanisms of action. Describe in each class their potential side effects and clinical uses.**
- What are the mechanisms of effects of nitroglycerin on improving myocardial oxygen supply and demand balance (60%)? How different routes of administration affect its action (40%)?**
- Describe the factors determining the sample size when you are planning to conduct a randomized controlled trial (RCT) to evaluate the effect of preoperative paracetamol on postoperative pain control in patients undergoing laparoscopic cholecystectomy.**
- Briefly outline the principles of surgical antibiotic prophylaxis.**
- What are the mechanisms of action (60%) and pharmacokinetic properties (40%) of sugammadex?**
- A patient on amiodarone for treatment of cardiac arrhythmia presents for anaesthesia. Outline the mechanism of action of amiodarone (40%) and its cardiovascular and respiratory adverse effects (60%).  
(Please do not include cardiac action potential GRAPH.)**
- What is pharmacogenetics (25%)? How could genetic factors affect the metabolism and response of drugs? Please illustrate with examples (75%).**
- Describe, with examples of clinical application, the relationship of structure and pharmacological characteristics of local anaesthetics.**

- 9. Compare the pharmacodynamic effects of Isoflurane, Sevoflurane, and Desflurane on the cardiovascular system, focusing their impacts on heart rate, blood pressure, myocardial contractility, and systemic vascular resistance.**
- 10. Describe and explain the pharmacokinetic principles of transdermal fentanyl patch (30%). Discuss the advantages, potential complications, and clinical considerations in its use for pain management (70%).**
- 11. Discuss the advantages and disadvantages of etomidate to be an ideal intravenous induction agent of anaesthesia.**
- 12. Describe the pharmacokinetic changes in obese adults and the potential clinical implications with relevant examples.**

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