



# **The Hong Kong College of Anaesthesiologists Intermediate Fellowship Examination**

**Written Paper in Physiology**  
**Friday, 18 February 2005, 09:00 h. – 11:00 h.**

The questions carry equal marks. Answer ALL of them.

- 1. Define the term “anion gap”. Why does it exist? List the circumstances that give rise to abnormalities of the anion gap.**
- 2. How does the respiratory system respond to exercise? Outline how the ventilatory changes are initiated.**
- 3. Compare and contrast the electrophysiology of the cardiac action potential at the sino-atrial node to that of the ventricular myocyte.**
- 4. Outline the physiology and factors affecting the airway humidification in the normal adult. List the advantages of artificial humidification in the ventilated patient.**
- 5. Outline the production of carbon dioxide and factors affecting the arterial carbon dioxide tension in the body.**
- 6. Briefly comment on factors that determine cardiac contractility of the left ventricle. Outline how this may be quantitatively assessed in man.**
- 7. Explain the differences in the effects of true shunt *versus* scatter of ventilation/perfusion (V/Q) ratio on arterial oxygenation.**
- 8. Use a table to compare and contrast skeletal and smooth muscle.**
- 9. Describe the circulatory changes that occur at birth.**
- 10. Where is aldosterone produced in the body? What are its physiological effects and how is its secretion controlled?**
- 11. Define the terms “accuracy” and “precision”. Briefly comment on some of the important properties of a continuous measuring system.**
- 12. Discuss with examples the factors determining the movement of fluid across the intravascular and interstitial compartments.**