



**The Hong Kong College of Anaesthesiologists**  
**Intermediate Fellowship Examination**  
**Written Paper in Physiology**

**Friday, 20 February 2009, 09:00 - 11:00**

The questions carry equal marks. Answer ALL of them.

1. Describe the factors that affect gastric emptying.
2. Describe the physiological changes in early postoperative hypoxaemia after recovery from general anaesthesia.
3. Describe the pain pathway that becomes activated when you prick your finger with a pin. List the neurotransmitters involved.
4. Describe the physiological consequences of sepsis.
5. With respect to direct intra-arterial blood pressure monitoring, Outline the physiological information that can be obtained from the visual analysis of the pressure tracing. Briefly explain the possible sources of errors that may occur in the measurement system.
6. Outline the movement of sodium and potassium at the renal tubules during hypovolemic shock.
7. What factors determine tissue oxygen delivery during moderate exercise? How does ageing affect these changes?
8. Describe the metabolic adaptation to two weeks of starvation in an otherwise healthy adult.
9. What hormone(s) is(are) secreted by the posterior pituitary gland? Describe the effects and regulation of release of these hormone(s).
10. With respect to the coronary circulation. Define the term “coronary perfusion pressure”. With the aid of a clearly labelled diagram, explain the fluctuations of coronary blood flow during a cardiac cycle, including the difference between the left and the right coronary circulation. Outline the factors affecting coronary blood flow.
11. Explain the ABO blood groups. Outline the principles of compatibility testing for allogeneic blood transfusion.
12. Explain the physical principles of ultrasound imaging.

**END OF PAPER**