



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

Written Paper in Physiology

11 July 2008

The questions carry equal marks. Answer ALL of them.

1. Describe the sequence of cardiovascular and respiratory changes that occur at birth in a newborn baby.
2. What are the functions of cerebrospinal fluid? Describe how it is produced, circulated and absorbed and relate them to the intracranial pressure.
3. What are the functions of red blood cells and briefly mention how these functions are interrelated?
4. Explain the cardiovascular changes that occur during a Valsalva manoeuvre. What would happen to the changes if a patient had congestive cardiac failure?
5. Describe peripheral and central sensitization of pain.
6. Define pH and base excess (BE). Describe how the variables pH and BE on a blood gas report are derived.
7. What are the determinants of plasma osmolality? Describe how plasma osmolality is regulated.
8. Briefly explain the principles of capnography. List the potential sources of error.
9. Describe the process of vomiting and the neural pathways regulating it.
10. Give an account of the factors that are involved in the control of arteriolar smooth muscle tone.
11. When an airway becomes obstructed explain why an infant becomes hypoxic more quickly than an adult.
12. In the respiratory system, what is meant by the term “dead space”? Explain the principles behind the measurement of anatomical and physiological dead space.

END OF PAPER