



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

**Friday, 6 September 2013, 09:00 AM - 11:00 AM**

**The questions carry equal marks. Answer ALL of them.**

1. Describe the sequence of events leading to formation of a platelet plug after blood vessel damage.
2. Outline the role of Antidiuretic hormone (ADH) in the regulation of urine volume and concentration.
3. Classify the causes of hypotension in the early post-operative period with examples.
4. Define Functional Residual Capacity (FRC). Explain the physiological consequences of decreasing FRC by one Litre in a 70 Kg adult?
5. Outline the physiological effects induced by thyroxine.
6. Using labeled diagrams,
  - (I) Compare and contrast the action potential of cardiac and skeletal muscle.
  - (II) Describe the sequence of changes of ionic conductance.
7. Discuss the potential complications of oxygen therapy.
8. Briefly outline the role of hypothalamus in regulation of body temperature.
9. With respect to metabolic acidosis,
  - (I) List the changes in arterial blood gas values.
  - (II) Classify and explain the potential causes.
10. With the help of a labeled diagram, explain the shape of the jugular venous pressure waveform. Outline the changes observed in (1) Tricuspid regurgitation (2) Complete heart block (3) Atrial fibrillation.
11. Discuss the principles, application and drawback of using the jugular venous bulb saturation to measure oxygen delivery to the brain.
12. Compare and contrast the systemic and pulmonary circulations.

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