



The Hong Kong College of Anaesthesiologists

Intermediate Fellowship Examination

Written Paper in Physiology
Friday, 24 June 2005, 09:00 h. – 11:00 h.

The questions carry equal marks. Answer ALL of them.

1. List and explain the differences in physiological effects after rapid infusion of 1 Litre of Normal Saline and 1 Litre of Ringer's Lactate Solution over 1 hour.
2. Explain the physiological effects associated with peri-operative fasting for 5 days.
3. Briefly describe the role of the muscle spindle in the myotatic (muscle stretch) reflex and indicate its significance.
4. Describe how the plasma calcium ion concentration is regulated in the body.
5. Briefly describe what happens at a molecular level when a myocardial muscle contracts then relaxes? Explain the role of calcium in these events.
6. A patient has chronic renal failure as a result of bilateral renal artery stenosis. Briefly describe the endocrine manifestations you might expect to see in this patient.
7. Describe the haemodynamic effects of 30 degrees of Trendelenberg position.
8. Briefly describe how blood pressure is derived using an oscillometric blood pressure machine and list the sources of inaccuracies.
9. What is the difference between the terms "heat" and "temperature"? Briefly explain the principles of a thermistor. List the advantages and disadvantages in the use of it.
10. Describe the physiological effects of positive pressure mechanical ventilation on the respiratory system.
11. Define preload of the heart. Briefly explain the rationales and limitations in the use of central venous pressure for the assessment of preload of the heart.
12. Draw a set of arterial blood gases for a pregnant woman at term. Give reasons for these values.

END OF PAPER