



The Hong Kong College of Anaesthesiologists

Intermediate Fellowship Examination

Written Paper in Physiology
Friday, 26 February 1999, 09:00 h. – 11:00 h.

Answer ALL questions

1. Define oliguria and explain the physiological basis for the definition. Outline the physiological mechanisms of oliguria in hypovolaemic patients.
2. Outline the physiological processes accounting for the changes in body temperature during general anaesthesia in the operating room.
3. Describe the factors that modulate the perception of nausea.
4. Compare and contrast the metabolism of carbohydrate during starvation and surgery.
5. Discuss the factors that affect the accuracy of invasive arterial pressure measurement.
6. Outline the physiological changes in ventilation associated with pregnancy during the first trimester. Indicate the arterial blood gases expected at the end of the first trimester.
7. Explain the physiological mechanism for the “all-or-none” phenomenon of an action potential.
8. Explain the differences between static and dynamic lung compliance.
9. Discuss the changes in myocardial oxygen supply and demand in a healthy 70 kg adult who suffers an acute blood loss of 1000 ml without any fluid replacement.
10. Outline the metabolism of citrate during massive transfusion. Explain the acid-base and electrolyte disturbances of citrate toxicity during massive transfusion.
11. Outline the factors that affect jugular bulb venous oxygen saturation.
12. Draw a left ventricular pressure-time curve for a healthy 25 year old adult. Explain how this might change for an 80 year old, in the absence of any cardio-vascular diseases.