The Hong Kong College of Anaesthesiologists

Intermediate Fellowship Examination
June/July 2000

Questions Physiology

Q1. Explain the mechanisms that produce dyspnoea in a patient with exacerbation of chronic obstructive airway disease.

Q2. Outline the transport of carbon dioxide in the blood.

Q3. What are the differences between the action potentials in the sino-atrial node and a ventricular muscle fibre? What are the effects of hypokalaemia on the shape of the action potential in the sino-atrial node?

Q4. List the factors and explain the renal mechanisms that increase potassium excretion in the urine.

Q5. What is respiratory dead space? What factors may alter respiratory dead space during anaesthesia?

Q6. Explain the applicability and limitations of using haemodynamic parameters from the pulmonary artery catheter to demonstrate Starling's law of the heart.

Q7. Describe the effects of anaesthesia on body temperature in the normal patient.

Q8. Explain the effects of late pregnancy on oxygen stores of the body and the efficacy of preoxygenation.

Q9. Define the following terms used in clinical measurement
gain
hysteresis
drift
damping
resonant frequency

Q10. Describe briefly how a pneumotachograph works, including factors that affect its accuracy.

Q11. Describe the sequence of events leading to platelet plug formation during haemostasis.

Q12. What is an osmole? Explain the physiological response when the plasma osmolality is increased to 300mOsm/kg by infusion of osmotically active solutes.