The Hong Kong College of Anaesthesiologists

Intermediate Fellowship Examination January/March 2000

Physiology Questions

Q1. What is the composition of gastric juice? Briefly write an account of the factors that control the composition and volume of gastric juice.

Q2. Write a brief account of the factors that determine myocardial oxygen demand and supply.

Q3. Outline the physiological effects and compensatory changes in a patient with metabolic acidosis.

Q4. Outline the factors that determine intracranial pressure and explain the physiological mechanisms that control it.

Q5. List the hormones that increase blood sugar concentration, and briefly describe the mechanisms for their effects on glucose metabolism.

Q6. State Poiseuille’s law, and discuss the limitations of this law when applied to blood flow in an artery.

Q7. Describe the renal factors that affect urinary sodium excretion.

Q8. Discuss the maternal and foetal factors that facilitate oxygen transfer to the foetus.

Q9. Explain the effects of a decrease in plasma oncotic (colloid osmotic) pressure on the microcirculation. Also outline the effects on lung functions.

Q10. Explain the physiologic factors that prevent regurgitation of gastric contents.

Q11. Describe the role of nitric oxide in the modulation of vascular tone.

Q12. Define ventilation-perfusion inequality. Explain how ventilation-perfusion inequality occurs in a normal person and discuss the consequences.