

Part II – Sample Questions for candidates

Basic Science A

How is the action potential generated and conducted in the heart? Discuss the relationship between cardiac action potential, muscle contraction and refractory periods. How are the electrical and mechanical events of the cardiac cycle related?

Basic Science B

Discuss the pharmacodynamics and pharmacokinetics of long-term continuous intravenous infusion of morphine, given at a constant rate. Explain, with the aid of a diagram, how and why you think plasma concentration of morphine and its metabolites may change with time. What would happen if the infusion is stopped?

Clinical A

A 70-year-old man presents for a total hip replacement. He has no significant past medical history. At the anaesthetic assessment he is noted to have a grade III ejection systolic murmur at the right sternal edge, radiating to his neck. Describe and justify the preoperative investigations you think should be undertaken and explain how the results would affect your anaesthetic management.

Clinical B

A 52-year-old female, front-seat passenger is in a head-on automobile collision. She did not wear a seat belt. Apparently she was not unconscious, and to her best recollection she did strike the interior car door and dashboard. She suffered multiple facial lacerations, a fracture and posterior dislocation of the left hip, and fractures of the fourth and fifth left anterior ribs, which were diagnosed at the local hospital. An attempt at a closed reduction of the hip was unsuccessful. Two days after the accident she was transferred to your hospital. On admission she was alert, oriented and normotensive, but moderately tachypnoeic. Her blood gases on room air were pH 7.52, PaO₂ 41 mm Hg (5.5 kPa) and PaCO₂ 36 mm Hg (4.8 kPa). She was transferred to your ICU with supplemental oxygen by face mask. How would you manage this patient?
