



Royal College of Anaesthetists

**DIPLOMA OF FELLOW OF THE ROYAL COLLEGE OF ANAESTHETISTS
FINAL EXAMINATION**

**Tuesday 13th September 2016
9:30 am to 12:30 pm**

Question 1 (Blue Book)

A 60-year-old man is having an elective knee arthroscopy and has just aspirated a significant amount of gastric fluid during anaesthesia. He has a supraglottic airway device in place and is breathing spontaneously. His inspired oxygen fraction is 1.0 and the pulse oximeter shows an oxygen saturation of 91%.

- a) Describe your immediate management of this patient. (4 marks)
- b) List the respiratory complications he could develop in the next 48 hours. (2 marks)
- c) What are the possible pre-operative risk factors for regurgitation and aspiration of gastric contents in this case? (6 marks)
- d) Describe the strategies available to reduce the risk and impact of aspiration of gastric contents in any patient. (8 marks)

Question 2 (Blue Book)

- a) In a patient with diabetes mellitus, what clinical features may indicate autonomic involvement? (4 marks)
- b) What are the other microvascular (3 marks) and macrovascular (3 marks) complications of diabetes mellitus?
- c) List the classes of oral hypoglycaemic agents that are available. (5 marks) Describe their mechanisms of action. (5 marks)

Question 3 (Pink Book)

A 20-year-old patient who satisfies the criteria for brainstem death has been accepted as an organ donor.

- a) List the main adverse cardiovascular changes associated with brainstem death. (5 marks)
- b) What are the physiological goals (with values) required to ensure optimisation of this donor? (7 marks)
- c) Outline the measures and drugs that may be used to achieve these goals. (8 marks)

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Question 4 (Pink Book)

- a) Which methods of testing may be used to confirm the adequacy of a spinal (intrathecal) block for elective Caesarean section? (4 marks)
- b) Describe the actions you could take if your spinal block proves inadequate on testing prior to starting surgery for an elective (category 4) Caesarean section. (3 marks)
- c) What are the early symptoms and signs of a spinal block that is ascending too high? (5 marks)
- d) How should you manage a patient who complains of pain during elective Caesarean section under spinal anaesthesia? (8 marks)

Question 5 (Green Book)

A 79-year-old man with a 6cm infra-renal abdominal aortic aneurysm is to undergo an endovascular aneurysm repair (EVAR). He is known to have chronic obstructive pulmonary disease.

- a) What are the advantages of an EVAR compared to an open repair of the aneurysm for this patient? (8 marks)
- b) List the risk factors for acute kidney injury (AKI) during any EVAR procedure. (6 marks)
- c) Describe perioperative measures to prevent AKI following EVAR. (6 marks)

Question 6 (Green Book)

- a) What is Guillain Barré syndrome and what are its causes? (3 marks)
- b) What are the clinical features of Guillain Barré syndrome? (6 marks)
- c) List the investigations with their findings that may be used to support the diagnosis. (2 marks)
- d) What are the specific considerations when anaesthetising a patient recovering from Guillain Barré syndrome? (9 marks)

Question 7 (Yellow Book)

A 5-year-old child with Down's syndrome (trisomy 21) is scheduled for adenotonsillectomy.

- a) List the cardiovascular (2 marks), airway / respiratory (5 marks) and neurological (3 marks) problems that are associated with this syndrome in children and are of relevance to the anaesthetist.
- b) What are the potential problems during induction of anaesthesia and initial airway management in this patient? (6 marks)
- c) What are the possible specific difficulties in the postoperative management of this child? (4 marks)

Question 8 (Yellow Book)

You are asked to review a 65-year-old woman on the cardiac intensive care unit who has undergone coronary artery bypass surgery earlier in the day.

- a) What clinical features might suggest the development of cardiac tamponade? (9 marks)
- b) Describe specific investigations with their findings that could confirm the diagnosis of cardiac tamponade. (2 marks)
- c) Outline the management of acute cardiac tamponade in this patient. (9 marks)

Question 9 (Orange Book)

A 74-year-old patient is scheduled for a primary total hip replacement.

- a) What are the potential benefits of an enhanced recovery ("fast-track") programme for this type of surgery? (4 marks)
- b) List the preoperative (6 marks), intraoperative (7 marks) and postoperative (3 marks) measures that should be included in the enhanced recovery programme for this patient.

Question 10 (Orange Book)

A 52-year-old woman, who has completed 3 cycles of primary chemotherapy for ovarian malignancy, is to undergo an open laparotomy for surgical treatment of her disease. She has massive ascites.

How do the specific features of this case affect your approach to the patient with regard to:

- a) Pre-operative assessment? (12 marks)
- b) Intra-operative management? (8 marks)

Question 11 (Grey Book)

- a) List the signs and symptoms of Complex Regional Pain Syndrome (CRPS). (9 marks)
- b) What other features, apart from signs and symptoms, are essential for the diagnosis of CRPS? (2 marks)
- c) What are the available treatments for CRPS? (9 marks)

Question 12 (Grey Book)

You are asked to transfer an intubated intensive care patient for a magnetic resonance imaging (MRI) scan.

- a) What is meant by the terms magnetic resonance (MR) safe, and MR conditional, in relation to equipment used in the MRI scanner room? (2 marks)
- b) What precautions can be taken to prevent burns caused by monitoring equipment used in an MRI scanner? (6 marks)
- c) List other precautions you would take to minimise the risks associated with MRI. (7 marks)
- d) What are the contraindications to an MRI scan? (5 marks)