

DIPLOMA OF FELLOW OF THE ROYAL COLLEGE OF ANAESTHETISTS FINAL EXAMINATION

Tuesday 6 March 2018
9:30 am to 12:30 pm

Candidates MUST answer all 12 questions. Candidates will fail the written section if one or more questions on the SAQ paper are not attempted.

All 12 questions carry equal marks, although their pass marks may vary. Questions are printed in the appropriate coloured book:

1 & 2 in Book A (Blue)	5 & 6 in Book C (Green)	9 & 10 in Book E (Orange)
3 & 4 in Book B (Pink)	7 & 8 in Book D (Yellow)	11 & 12 in Book F (Grey)

One question will be printed on the first page and the second question will be printed half-way through the book. Candidates must write their answer underneath the question in each of their six books. Questions answered in the wrong book will not normally be marked (and the candidate will fail the written section). Please write clearly e.g. a, b, c etc. for which section of the question you are answering.

Where examiners have indicated the way marks are allocated, candidates are advised to spend their time accordingly.

Question 1 (Blue Book)

A 35-year-old woman is listed for a mastectomy and free-flap breast reconstruction for breast cancer.

- What are the causes of flap failure (3 marks) and what physiological goals are important for a healthy free flap outcome? (5 marks)
- What are the important anaesthetic considerations for this type of surgery? (7 marks)
- What specific monitoring of the free-flap is required post-operatively? (5 marks)

Question 2 (Blue Book)

- What are the causes of pain in a patient with advanced cancer? (8 marks)
- How can side effects from opioid medications be minimised in these patients? (3 marks)
- What other pharmacological (6 marks) and non-pharmacological treatments (3 marks) are available to help relieve cancer pain?

Question 3 (Pink Book)

- List the possible indications for the insertion of cardiac implantable electronic devices. (5 marks)
- What factors would you check pre-operatively in a patient with these types of devices? (5 marks)
- Outline your relevant perioperative management of a patient with an automatic implantable cardioverter-defibrillator (AICD) who is having elective surgery under general anaesthetic. (6 marks)
- A patient with a pacemaker develops severe bradycardia with circulatory compromise and no pacemaker response. What specific therapies should you consider in this situation? (4 marks)

Question 4 (Pink Book)

- Define delirium. (2 marks)
- List the key clinical features that are used to diagnose delirium in critical care. (4 marks)
- In a delirious critical care patient what are the most common potentially treatable causes? (9 marks)
- When is pharmacological treatment indicated (2 marks), and which classes of drugs can be used? (3 marks)

Question 5 (Green Book)

A 20-year-old man is brought to the emergency department having been pulled from a river following a near drowning.

- What relevant features in the history are important? (5 marks)
- What investigations are required? (8 marks)
- He has a Glasgow Coma Score of 13 but is found to have an arterial oxygen partial pressure of 6kPa (45mmHg) breathing 4l/min of oxygen via a variable performance mask. Outline your management of this patient. (7 marks)

Question 6 (Green Book)

A 54-year-old male with acromegaly presents for a trans-sphenoidal hypophysectomy.

- a) What is acromegaly? (2 marks)
- b) List the clinical features of acromegaly which are of relevance to the anaesthetist. (8 marks)
- c) What other clinical presentations of a pituitary adenoma may be encountered? (2 marks)
- d) What specific considerations, including surgical factors, may influence the conduct of anaesthesia in this patient? (8 marks)

Question 7 (Yellow Book)

- a) What physiological factors determine the rate of fall in arterial oxygen saturation in an apnoeic patient (3 marks), and which patient groups are most likely to show a rapid fall? (4 marks)
- b) How may alveolar oxygenation, prior to intubation, be optimised during a rapid sequence induction (8 marks), and how can its effectiveness be measured? (1 mark)
- c) What are the possible respiratory complications of prolonged delivery of 100% oxygen? (4 marks)

Question 8 (Yellow Book)

An 8-yr-old child is scheduled for an elective right femoral osteotomy due to impending dislocation of the hip. She has severe cerebral palsy.

- a) What is cerebral palsy? (3 marks)
- b) List typical clinical features of severe cerebral palsy, with their associated anaesthetic implications. Do this for the central nervous system (3 marks), respiratory system (2 marks), musculoskeletal system (3 marks) and gastrointestinal system. (2 marks)
- c) What are the expected problems in providing adequate postoperative analgesia in this patient? (2 marks)
- d) Outline a management plan to optimise analgesia in this patient. (5 marks)

Question 9 (Orange Book)

A 45-year-old patient is reviewed in the preoperative assessment clinic prior to surgery to excise a pheochromocytoma.

- a) What are the characteristic clinical features of a pheochromocytoma? (7 marks)
- b) Which specific biochemical (2 marks) and radiological (2 marks) investigations might confirm the diagnosis of a pheochromocytoma?
- c) Describe how you would pharmacologically optimise the cardiovascular system prior to surgery? (7 marks)
- d) How would you assess the adequacy of cardiovascular optimisation preoperatively? (2 marks)

Question 10 (Orange Book)

A 25-year-old pregnant woman at 35 weeks gestation is admitted to labour ward with a blood pressure of 180/110 mmHg. She is known to have pre-eclampsia and there is a plan to deliver her baby within the next 24 hours.

- a) What is the definition of pre-eclampsia? (1 mark)
- b) What symptoms may this woman complain of due to her pre-eclampsia? (4 marks)
- c) What are the important priorities in her management when she arrives on the labour ward? (10 marks)
- d) A decision has been made to proceed to Caesarean section (CS) and the patient insists on having a general anaesthetic (GA). Explain potential changes to your normal GA technique for CS due to her pre-eclampsia. (5 marks)

Question 11 (Grey Book)

- a) What are the indications for total intravenous anaesthesia (TIVA)? (7 marks)
- b) What are the main components of a target-controlled infusion (TCI) system? (3 marks)
- c) What are the potential technical problems with TIVA (4 marks) and how might each be prevented? (4 marks)
- d) What are the potential patient complications with this technique? (2 marks)

Question 12 (Grey Book)

A 24-year-old lady is listed for a bimaxillary osteotomy.

- a) What would be your peri-operative airway concerns with such a patient? (7 marks)
- b) How can blood loss be minimised in this case? (4 marks)
- c) What are the clinical advantages in using remifentanyl for this operation? (3 marks)
- d) What precautions would you take to reduce the risk of a retained throat pack post-surgery? (6 marks)