



Royal College of Anaesthetists

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

**Tuesday 12th September 2017
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) What are the indications for renal replacement therapy (RRT) in the intensive care setting? (8 marks)
- b) List the types of RRT available in intensive care. (6 marks)
- c) Outline the principle mechanisms of solute and water removal by filtration (3 marks) and dialysis (3 marks) during RRT.

Question 2 (Blue Book)

- a) List the anaesthetic factors that predispose to perioperative dental damage. (6 marks)
- b) List the dental factors that predispose to perioperative dental damage. (4 marks)
- c) You have anaesthetised a 22 year-old man and you notice a missing front tooth after intubation. What is your initial management of this situation? (6 marks)
- d) How would you follow this patient up? (4 marks)

Question 3 (Pink Book)

- a) Outline the basic physical principles involved in formation of an ultrasound image. (6 marks)
- b) What patient factors (3 marks) and acoustic artefacts (4 marks) may influence the ultrasound image quality?
- c) Which two needling techniques are commonly used in ultrasound guided nerve blocks? (2 marks). List the advantages and disadvantages of one of these techniques. (5 marks)

Question 4 (Pink Book)

- a) What is meant by counter pulsation in the context of an intra-aortic balloon pump (IABP)? (1 mark)
- b) Briefly explain the effect of counter pulsation from an IABP on coronary blood flow and the left ventricle. (4 marks)
- c) What are the indications for (6 marks) and contraindications to (3 marks) the use of an IABP in an adult?
- d) List possible complications of an IABP. (6 marks)

Question 5 (Green Book)

A 35-year-old woman presents for splenectomy for idiopathic/immune thrombocytopenic purpura which is not controlled with medical management.

- a) Which vaccinations should this patient receive (3 marks) and when should they be given? (2 marks)
- b) List three immunological functions of the spleen in the adult. (3 marks)
- c) What are the pre-operative considerations related to this patient's condition? (8 marks)
- d) Describe the rationale for (1 mark) and principles of (3 marks) conservative management for traumatic splenic rupture.

Question 6 (Green Book)

A 19 year-old patient has suffered a complete transection of the spinal cord at the 6th cervical vertebral level due to a fall, he has no other injuries.

- Explain the sequence of neurological effects that may develop in the first three months following injury. (6 marks)
- What disturbances of the cardiovascular (3 marks), respiratory (3 marks) and gastrointestinal systems (2 marks) may occur after three months?
- List the advantages of choosing a regional anaesthetic technique if this patient is subsequently listed for lower limb surgery. (4 marks)
- When, and why, may suxamethonium be contraindicated in this patient? (2 marks)

Question 7 (Yellow Book)

You are called to the Emergency Department to assess a 63-year-old man with known chronic obstructive pulmonary disease (COPD). He has sustained fractures to his 9th, 10th and 11th ribs but has no other injuries. Paracetamol and codeine phosphate have not provided adequate pain relief.

- What are the possible effects on the respiratory system of inadequate pain relief in this patient? (6 marks)
- How can the effectiveness of his pain relief be monitored? (5 marks)
- What methods, other than the drugs that have already been given, are available to improve management of this patient's pain? (9 marks)

Question 8 (Yellow Book)

- List the main measures of fitness that are obtained by a cardio-pulmonary exercise test (CPET). (4 marks)
- What abnormalities seen at the time of testing in a CPET may suggest cardio-respiratory disease? (4 marks)
- When might CPET, using a bike, be impractical (3 marks) and how else can patients' functional capacity be assessed? (3 marks)
- What scoring systems can help predict perioperative risk before major (non-cardiac) surgery? (6 marks)

Question 9 (Orange Book)

A woman, who has had an intrauterine fetal death (IUFD) at 36 weeks gestation in her first pregnancy, is admitted to your delivery suite for induction of labour.

- Describe the important non-clinical aspects of her management. (4 marks)
- What are the considerations when providing pain relief for this woman? (13 marks)
- If this patient requires a caesarean section what are the advantages of using regional anaesthesia, other than the avoidance of the effects of general anaesthesia? (3 marks)

Question 10 (Orange Book)

- List all of the elements of the STOP-BANG assessment for a patient with suspected obstructive sleep apnoea (OSA) (4 marks) and explain how it is used to quantify their risk. (3 marks)
- What are the cardiovascular consequences of OSA? (3 marks)
- How can perioperative risks be minimised in a patient with known severe OSA, but no other cardiovascular or respiratory comorbidities, who is having peripheral surgery involving at least one night in hospital? (10 marks)

Question 11 (Grey Book)

- Define pulmonary hypertension. (2 marks)
- What are the causes of pulmonary hypertension? (5 marks)
- What are the specific anaesthetic goals when anaesthetising a patient with pulmonary hypertension? (7 marks)
- What pharmacological treatments are available for this condition? (6 marks)

Question 12 (Grey Book)

A 5-year-old boy presents for a myringotomy and grommet insertion as a day case. During your pre-operative assessment you notice that he has a nasal discharge.

- List the features in the history (5 marks) & examination (6 marks) that would potentially cause an increased risk of airway complications?
- Why would it be inappropriate to cancel the operation? (6 marks)
- What social factors would prevent this child being treated as a day case? (3 marks)