

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

Tuesday 2nd September 2014
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)

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

- a) What respiratory problems could result from inadequate pain relief in this patient? (5 marks)
- b) How can the effectiveness of his pain relief be assessed? (8 marks)
- c) What other methods are available to improve management of this patient's pain? (7 marks)

Question 2 (Blue Book)

A recent meta-analysis of studies of the utility of the Mallampati score in the prediction of a difficult airway found that it had a sensitivity of 60% and a specificity of 70%.

- a) Outline what is meant by meta-analysis and the factors that ensure a high quality conclusion from the process. (10 marks)
- b) Explain what is meant by sensitivity and specificity as applied to the interpretation of the Mallampati data given above. (6 marks)
- c) Rank the levels of scientific proof used to grade medical evidence. (4 marks)

Question 3 (Pink Book)

A 28 year-old woman presents for acute appendicectomy - she is 22 weeks pregnant.

- a) List the risks to the fetus during anaesthesia for the mother. (5 marks)
- b) How can the risks to the fetus be minimised? (10 marks)
- c) What additional pre and intraoperative steps would you take to ensure foetal safety if she was 27 weeks pregnant? (5 marks)

Question 4 (Pink Book)

- a) What are the purposes (3 marks), typical composition (4 marks) and physiological actions of cardioplegia solutions? (5 marks)
- b) By which routes can solutions of cardioplegia be administered? (2 marks)
- c) What are the possible complications of cardioplegia solution administration? (6 marks)

Question 5 (Green Book)

A patient is to receive a cadaveric renal transplant.

- a) Detail the aspects of your pre-operative assessment specific to chronic kidney disease (CKD). (11 marks)
- b) How can the function of the transplanted kidney be optimised intraoperatively? (3 marks)
- c) How may this patient's postoperative pain be optimally managed? (3 marks)
- d) Explain why some common post-operative analgesic drugs should be avoided. (3 marks)

Question 6 (Green Book)

A 5 year-old child presenting for day case dental surgery under general anaesthesia is found to have a heart murmur that has not been documented previously.

- What features of the history (5 marks) and examination (5 marks) might suggest that the child has a significant congenital heart disease (CHD)?
- If the murmur is caused by an atrial septal defect (ASD) what ECG findings would you expect? (2 marks)
- Which imaging modalities might be used in the assessment of the ASD (2 marks) and what specific additional information may be obtained? (2 marks)
- List the current national guidelines regarding prophylaxis against infective endocarditis in children with CHD undergoing dental procedures. (4 marks)

Question 7 (Yellow Book)

A 54 year-old patient with base of tongue cancer presents for a hemiglossectomy and radial forearm free flap reconstruction

- Which specific factors must the anaesthetist consider when assessing this patient prior to surgery? (10 marks)
- List the benefits of a free flap reconstruction. (2 marks)
- What are the causes of flap failure and how may they be prevented in the peri-operative period? (8 marks)

Question 8 (Yellow Book)

- What is Propofol-Related Infusion Syndrome (PRIS) and what are its clinical effects? (7 marks)
- List the risk factors for PRIS. (5 marks)
- What specific laboratory findings might be expected in a case of PRIS? (3 marks)
- How may PRIS be prevented (3 marks) and managed? (2 marks)

Question 9 (Orange Book)

- Outline the basic principles of ultrasound signal and image generation. (6 marks)
- How may physical factors influence the image quality of an ultrasound device? (6 marks)
- Which two needling techniques are commonly used in ultrasound guided nerve blocks and what are the advantages and disadvantages of each? (8 marks)

Question 10 (Orange Book)

A 72 year-old patient with longstanding severe rheumatoid arthritis (RhA) presents for total knee replacement.

- Which joints may be affected in RhA and indicate why this involvement is of relevance to anaesthesia. (4 marks)
- Which systemic features of RhA may be elicited during preoperative assessment? (10 marks)
- Outline the preoperative investigations that are specifically indicated in this patient and the derangements that each may show. (6 marks)

Question 11 (Grey Book)

A 35 year-old man presents for a laparoscopic cholecystectomy. He was diagnosed with myotonic dystrophy 10 years ago.

- What is myotonic dystrophy and how is it inherited? (2 marks)
- What are the problems of myotonic dystrophy relevant to anaesthesia? (10 marks)
- Outline the important aspects of preoperative assessment and intraoperative management that are specific to myotonic dystrophy. (8 marks)

Question 12 (Grey Book)

- List five nerves that can be blocked at ankle level for foot surgery? (5 marks)
- For each of these nerves, describe the sensory distribution within the foot. (5 marks)
- Give the anatomical landmarks for an ankle block which aid correct placement of local anaesthesia for each nerve. (5 marks)
- What are the advantages and disadvantages of an ankle block? (5 marks)

You may use a table for this answer if you wish.