Report on the Constructed Response Question Paper – February 2023

This report has been compiled by the Chairs of the Constructed Response Question Group to provide information for candidates and trainers about how the Constructed Response Questions (CRQs) are written, how the paper is put together, how pass marks are set and how marking is standardised. It is partly generic and partly specific to the February 2023 paper. There is a section at the end with comments about the individual questions which we hope you will find useful.

The CRQ paper examines a candidate's knowledge of stages 1 and 2 of the training curriculum as specified by the Royal College of Anaesthetists. It is partly a test of knowledge and understanding but also tests judgment, and the ability to prioritise information within the answer.

Structure of the CRQ paper

The February 2023 CRQ paper consists of 12 questions to be answered in 3 hours. All CRQ questions are mapped to a specific section of the curriculum. Despite the curriculum change in 2021, the CRQ paper retained the same format as previous papers: 6 questions taken from each of the previous mandatory units of training and 6 from the general duties, optional and advanced science modules, as described below. In the immediate future, the CRQ paper will maintain this format, although there may be less emphasis placed on some of the mandatory areas of training.

- Mandatory units: anaesthetic practice relevant to neurosurgery, neuroradiology and neurocritical care, cardiothoracic surgery, intensive care medicine, obstetrics, paediatrics and pain medicine.

- General duties: airway management, day surgery, critical incidents, general/urology/gynaecology surgery, ENT/maxillofacial/dental surgery, management of respiratory and cardiac arrest, non-theatre duties, orthopaedic surgery, regional anesthesia, sedation practice, transfer medicine, trauma, and stabilisation practice.

- Optional modules: anaesthetic practice relevant to ophthalmic surgery, plastics & burns surgery, vascular surgery

- Advanced sciences: anatomy, applied clinical pharmacology, applied physiology/biochemistry, physics/clinical measurement, and statistical basis of clinical trial management.

The CRQ paper has been designed to comprise questions with varying levels of difficulty, however, there is always an equal balance of questions judged to be difficult, moderately difficult, and easy.

The level of paper difficulty and the pass mark are set using modified Angoff referencing, which takes place during the CRQ Group and Standard Setting meetings of the Final examiners. Angoff referencing uses the experience of the examiners to set a pass mark for each question. All questions must be attempted but candidates do not have to pass all the questions to pass the paper.

To facilitate an objective and reproducible marking process, a model answer template is provided for each question, which shows the number of marks available for each part of a question. All questions are subjected to an exhaustive editing and peer review process before use in an examination and this is explained below in the section on quality control.

Quality Control for the February 2023 CRQ

Monday 5th December 2022 CRQ group meeting

The CRQ group convened at the College on the Monday of the Final FRCA SOE week for paper checking. This was a final review of the paper to check for factual accuracy, clarity of language and ease of understanding. The group made any necessary amendments and assigned a provisional pass mark to each question.

Wednesday 15th March 2023 – Standard Setting Day (SSD)

The Final examiners were divided into six groups of 8-10 people, each chaired by a member of the CRQ group. Each group was given two questions and their associated model answer templates. The groups then marked 4 anonymised answer booklets (without candidate or College reference numbers). The lead coordinator for CRQ chose the 4 sets of booklets based on MCQ scores, to represent the spectrum of ability within the candidate cohort. The MCQ results for the anonymous candidates were not given to the examiners. Subsequent discussion within each group ensured that all these scripts were awarded the correct marks as permitted by the answer template, and that each examiner applied a consistent standard across all 4 sets of booklets. At the end of SSD, a finalised Angoff- referenced pass mark was confirmed for each question.

The candidate answer papers for each set of 2 questions were divided amongst the group and marked. This process means that for each candidate the 12 questions are marked by 6 different examiners, which helps eliminate any risk of bias that could arise when a single examiner marks all 12 questions. The Standard Setting and Psychometrics Manager liaised with staff from the examinations department to scrutinise the submitted marks and clarify any ambiguities within the marked scripts before the exam was moderated and individual scores ratified.

Results – Monday 17th April 2023

The overall pass rate for this paper was 71.94%

This compares with recent CRQ (SAQ) papers:

- September 2022.   77.42%
- March 2022   73.35%
- March 2021   73.18%
- September 2020   69.73%
- March 2020   83.00%
- September 2019   80.00%
- March 2019   74.73%

Analysis of results

Despite an encouraging pass rate, candidates continue to disadvantage themselves in several familiar ways:

- Failure to answer the question asked.

It is very important to read the question carefully and answer what is asked. This remains a constant reason why candidates drop marks. For example, question 9 (e), candidates were asked for the consequences of cardiovascular instability during carotid endarterectomy (stroke, MI, haematoma etc) but wrote "hypertension", "bradycardia" i.e.. didn't read the stem clearly and defined cardiovascular instability.

- Failure to prioritise answers.

Candidates should remember that CRQs are looking for specific answers and writing as much as possible in the hope of hitting the correct answer will not guarantee marks. When answering the questions, the candidate needs to think about what are the most important points that need to be

included in the answer. For example, if asked for 3 differential diagnoses, you need to think what would be the most important 3-4 diagnoses in this case and answer appropriately. Writing the tenth or eleventh most common diagnoses, though correct, will not guarantee marks. The candidate instructions clearly state that only the first distinct answer per line will be awarded marks. If a candidate writes several answers on one line, the first will be marked and the rest discounted.

- Poor knowledge of some of the sub specialities.

Although the paediatric and obstetric questions were answered well, the cardiac, neuro and ICU questions were not. This may reflect differing attitudes towards the sub specialities as there are no specific cardiac and neuro modules in the new curriculum but trainees must still obtain competencies in these areas (the triple C assessments).

Results for individual questions

Question 1: Intra-aortic balloon pump
Pass rate 43.9%

A question from the cardiac module and relatively commonly used in cardiac anaesthesia so trainees may well encounter them. Some of the practicalities were well answered but the working principles and therefore the haemodynamic effects were not well answered. This may reflect the fact that some trainees are sitting the exam without prior exposure to cardiac anaesthesia.

Question 2: Chronic post surgical pain
Pass rate 65.5%

This was a well answered question. As well as the definition, most candidates had a good idea about the risk factors and treatments.

Question 3: Obstetric haemorrhage
Pass rate 71.9%

Reassuringly this was a well answered question, most trainees will have encountered this in their day to day job.

Question 4: Airway stents
Pass rate 56.1%

This was thought to be a difficult question at standard setting and although the finer points of jet ventilation were not well answered, potential complications were well answered.

Question 5: Spinal cord injury
Pass rate 53.0%

This topic has appeared in various guises in the Final FRCA for many years. The practical side of things were well answered but surprisingly doses of induction agents and when it is safe to use suxamethonium post cord injury were not well answered.

Question 6: Fractured neck of femur
Pass rate 66.8%

A well answered question, again a topic which most candidates will have experience of in their day to day practice.

Question 7: Pyloric stenosis (paediatric anaesthesia)
Pass rate 70.8%

Another topic that appears periodically in the final FRCA. This was well answered although many candidates did not know why the pre-operative alkalosis needs to be corrected prior to surgery.

Question 8: Anaesthesia for renal transplantation
Pass rate 67.9%

This question tested candidates' clinical and science knowledge. Many candidates will have anaesthetized such cases and reassuringly it was well answered.

Question 9: Carotid endarterectomy
Pass rate 69.7%

A well answered question. Statistically though it did not differentiate between candidates who did well overall and those who did not, which may suggest that some of the questions were a bit generic.

Question 10: Daycase spinal
Pass rate 52.8%

A test of both pharmacological and clinical knowledge. This was thought to be one of the easier questions although the finer points of local anaesthetic pharmacology were not well answered.

Question 11: Ventilator associated pneumonia (intensive care medicine)
Pass rate 30.3%

This question had the lowest pass rate. Despite being a common condition in intensive care this might reflect that candidates are seeing intensive care medicine as a different speciality. However, core parts of intensive care medicine are in the anaesthetic curriculum. Not many candidates knew the definition of a care bundle.

Question 12: Ophthalmic anaesthesia
Pass rate 77.3%

Despite being thought to be a difficult question this had the highest pass rate. The only poorly answered stems were about the anatomy of Tenon's fascia – a small proportion of the overall marks for the question.

Summary

The overall standard of the written paper was good based on the rigorous statistical analysis, with a pass rate similar to previous sittings. We congratulate the successful candidates on the standard and breadth of their knowledge.

As with the previous exam, candidates did less well in the mandatory units of training - the lowest pass rates were the cardiac, neuro and ICU questions. The reasons for this may be that candidates have not completed the speciality blocks prior to sitting the exam and as far as intensive care medicine is concerned, candidates may be overlooking this.

Analysyis of the poorly answered stems showed that marks are still being lost on clinical science questions but perhaps reassuringly, the best answered stems were predominantly clinical questions.

Some candidates are still trying to write as many answers as possible per question but in doing so are potentially disadvantaging themselves. As mentioned previously, only the first answer per line will be marked and all other answers on that line will be discounted (correct or not) and writing too much may cause time pressures.

Finally, the conduct of the written paper would be impossible without the hard work of the Final FRCA examiners and the staff of the Examinations Department and we are extremely grateful for their continued and enduring support.

Dr Dafydd Lloyd, Dr John Jones
Chairs, Constructed Response Question Group - April 2023