

Report on the Constructed Response Question Paper – September 2020

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 September 2020 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 the basic and intermediate sections of the training curriculum as specified by the Royal College of Anaesthetists. It is partly factual recall but also tests judgment, and the ability to prioritise information within the answer.

The questions for each written paper reflect the breadth of knowledge required for intermediate training and currently they are all new questions.

Structure of the CRQ paper

The September 2020 CRQ paper consists of 12 questions to be answered in 3 hours, 6 based on topics from each of the 6 mandatory units of training and 6 from the general duties, optional and advanced science modules. A maximum of one question is based on the optional modules.

- 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 is written to contain questions with varying levels of difficulty: There is an equal balance of questions adjudged to be difficult, moderately difficult, and easy

- The level of difficulty and the pass mark are finalised using modified Angoff referencing, which takes place during the Paper Checking 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. All the CRQ questions are mapped to a specific section of the basic or intermediate curriculum. To facilitate an objective and reproducible marking process, a model answer template is provided for each question. The number of marks available for each section of the answer is shown in the question. All questions are subjected to an exhaustive editing and peer review process before use in an examination. This is explained below.

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Quality Control for the September 2020 CRQ

Due to the Coronavirus pandemic, all the meetings to discuss and review this paper were conducted online.

Monday 22nd June 2020 CRQ group meeting

- The CRQ group convened 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 30th September 2020 – Standard Setting Day (SSD)

- The Final examiners were divided into six teams of 8-10 people, each chaired by a member of the CRQ group. Each team was given two questions and their associated model answer templates. The groups then marked 4 anonymized answer booklets (without candidate or College reference numbers). College officials 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 team ensured that all these scripts were awarded the correct marks as allowed 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 then divided amongst the team and then marked. This process leads to the 12 questions for each candidate being marked by 6 different examiners. This eliminates any risk of bias that could arise with a single examiner marking all 12 questions. The Examination Department staff scrutinise the submitted marks and clarify any ambiguities within the marked scripts before individual scores are ratified.

Results – Friday 23rd October 2020

The overall pass rate for this paper was 69.7%

This compares with recent CRQ / SAQ papers:

- March 2020 83%
- September 2019 80%
- March 2019 74.73%
- September 2019 58.4%
- March 2018 72.2%

Analysis of Results

The pass rate for this exam was good, and it is reassuring that candidates are starting to get used to the CRQ format.

Despite this 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 1(b) clearly asks for the predictors of a difficult facemask ventilation yet some candidates listed the predictors of a difficult intubation.

Similarly, in question 6(a) candidates were asked for features in the history. However, answers included clinical signs.

- 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. The candidate instructions clearly state that only the first distinct answer per line will be awarded 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 three differential diagnoses. You need to think what would be the most important 3-4 diagnoses in this case and answer as appropriate. Writing the tenth or eleventh most common diagnoses, though correct, will not guarantee marks.

- Poor knowledge of clinical sciences.

Candidates should be reminded that clinical science forms an important part of the intermediate syllabus and it is an area of the exam that is often underestimated. As in previous exams, knowledge of clinical sciences applied to anaesthesia was poor when compared to clinical knowledge. Questions (3), (9), incorporated elements of physiology in the questions. These stems were poorly answered. Similarly, the stems in question (1) and (11) relating to anatomy and pharmacology, performed poorly

Results for Individual Questions

Question 1: Airway

Pass rate 45.1%

As with the previous sitting of the exam, candidates struggled with the diagram. This was reflected by a low pass rate for part (a) of this question. Advanced sciences are part of the intermediate curriculum, so knowledge of anatomy is expected. In part (b) candidates may have misread the question. Several candidates gave answers relating to predictors of a difficult intubation as opposed to the predictors of difficult mask ventilation. Overall the examiners were surprised at the lack of knowledge on this topic. Knowledge of the airway and airway management is fundamental to anaesthetic practice.

Question 2: Persistent post-operative pain

Pass rate 61.4%

The management of patients with persistent post-operative pain is becoming a common clinical problem and this was reflected in a good pass rate for this question.

Question 3: Post-operative pulmonary complications

Pass rate 63.5%

This question correlated very well with overall performance. It was well answered question, with candidates giving very comprehensive answers. It was only the last stem, on the pathophysiology of atelectasis, that candidates struggled with.

Question 4: Remifentanil PCA in labour

Pass rate 29.1%

This question scored poorly with many candidates seemingly have little knowledge or experience of PCA Remifentanil. Many did not know the dose or optimal timing, and few knew anything about the necessary protocols to ensure safe delivery of the drug in an Obstetric unit.

Question 5: Middle ear surgery

Pass rate 65%

This is an area of the syllabus that candidates would be expected to know. The question was deemed by the examiners to be one of the easier questions on the paper and this was reflected in the good pass rate for this question.

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Question 6: Paediatrics-Atrial septal defect

Pass rate 51.3%

This is an important topic, as children with congenital heart disease are susceptible to the same ailments as healthy children, and so can present to their local hospital for emergency and elective surgery. There was a lot of repetition of answers in sections (a) and (b). Section (a) asked for features in the history whereas section (b) asked for features of the examination. Though the words history and examination were in bold, several candidates wrote about clinical signs in the history section.

Question 7: Liver surgery

Pass rate 49.6%

This question was judged to be one of the more difficult questions on the paper. The initial sections on liver anatomy and physiology were answered well, but the majority of candidates lost marks on parts (d) and (e) which required a more detailed knowledge of hepatic anaesthesia.

Question 8: Neuro-monitoring

Pass rate 88.1%

This question had the highest overall pass rate for this paper. The knowledge-based components of this question were answered well. Candidates performed poorly on the components relating to jugular venous oxygen saturation. Most notably on the last section which required the physiological and pathophysiological causes of a low jugular venous oxygen saturation.

Question 9: Obesity

Pass rate 46%

For a condition that is extremely prevalent, the scores for this question were disappointing. This question showed familiar failings in basic sciences. Less than half the candidates knew the correct dose of rocuronium and the reasons why. Similarly the effects of obesity on the respiratory system was poorly answered.

Question 10: Intra-aortic balloon pump

Pass rate 70.6%

This was well answered by most candidates. Especially since one assumes many candidates will have had relatively limited exposure to the use of an intra-aortic balloon pump. The stems that required factual recall were answered well but section(e) on applied physiology was the worst performing stem for this question

Question 11: Post-operative nausea and vomiting

Pass rate 36.2%

Examiners were surprised at the lack of knowledge in what is a very common anaesthetic topic. Some candidates continued to write as much as they could and adopted a scattergun approach to their answers. As per candidate instructions, only the first distinct answer per line was marked. There were familiar failings with this question. Candidates showed a lack of knowledge of basic sciences and failed to read the question. Part (a) asked for patient related risk factors, but many answers were not specific and included anaesthetic factors such as drugs and bag mask ventilation. The pharmacology of anti-emetics was surprisingly poorly answered.

Question 12: ITU-asthma

Pass rate 67.7%

This question had a good pass rate, and showed the best correlation with overall performance. In part (a) several candidates failed to read the question and gave answers such as hypoxia and low saturations when the question quite clearly asks for signs. In part (e) it appeared that many candidates did not understand the question. The question specifically asks for the adverse effects on respiratory mechanics. The answers given were vague such as barotrauma and pulmonary oedema. In some cases, candidates answered a completely different question explaining the physiological effects of poor gas exchange or high airway pressure.

Summary

The pass rate of this written paper was slightly down from previous sittings, but nevertheless the overall standard was good. We congratulate the successful candidates on the standard and breadth of their knowledge.

On this occasion the questions relating to mandatory units of training were generally answered well. Candidates did less well on certain parts of the general curriculum and on questions containing applied clinical sciences

We would remind candidates that a certain level of clinical experience is needed to pass the Final FRCA. It is aimed at an anaesthetist with roughly 18 months' experience at specialist registrar level. We would encourage candidates to consider this before attempting the exam, to maximise their chances of passing at the first attempt.

This is the second full CRQ paper. It is good to see that the majority of candidates have adapted their style of writing to the new format. However, some candidates continue to try to write as much as possible in the space provided. Doing so, may continue to disadvantage candidates.

As illustrated in this exam, CRQ's may include data and other artefacts. Candidates may need to consider how they approach their revision for the Final written paper.

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

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