



**CAI**  
SALUS DUM VIGILAMUS

College of Anaesthesiologists of Ireland

# FELLOWSHIP (FCAI) EXAMINATION

From November 2022



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## 1.0 Introduction

To become a **Member** (MCAI) or **Fellow** (FCAI) of the College of Anaesthesiologists of Ireland by examination, candidates must pass the Membership and the Fellowship Examinations respectively.

The Examinations are set and supervised by the CAI through a specialist group of Examiners who are Consultant Anaesthesiologists and experts in their fields. The College is committed to maintaining the **highest possible standards** for its Examinations. In order to maintain this position, the MCAI / FCAI examiners and the Examinations Department **rigorously quality assures all its processes** and actively follows best medical education practice to ensure the pre-eminence of the Membership and Fellowship Examinations.

The CAI overriding concern is to ensure our **assessments endorse**:



## College of Anaesthesiologists of Ireland Examination Department Mission Statement

**“The choice of assessment method(s) is appropriate to the content and purpose of that element of the curriculum”**

Methods are **chosen** based on validity, reliability, feasibility, cost effectiveness, opportunities for feedback, and impact on learning.

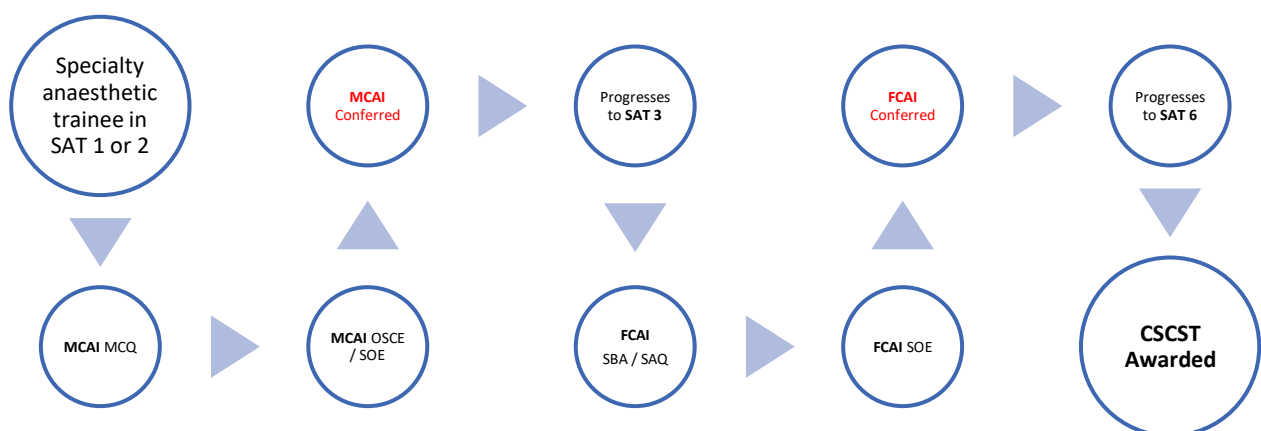
The rationale for the choice of each assessment method is documented and evidence based.

*Over the past four years, the CAI has made **significant changes** to all elements of their examinations, from examiner training, question drafting and review, standard setting, examiner and examinee feedback and quality assurance. These changes have been fully supported by best medical education and assessment practice.*

The Examination Committee feels confident that our **programme of assessment** is valid, fair, acceptable, feasible and effective. It supports examiners to make reliable judgements and is blueprinted to the curriculum, including the generic, shared, and specific learning outcomes.

The CAI **assessment processes** are **fully aligned** to the **stated learning outcomes** in the National Specialist Anaesthesiology Training Programme Curriculum: <https://www.anaesthesia.ie/wp-content/uploads/2020/07/CAI-Curriculum-2020.pdf>

We have **defined levels of performance** at **critical progression points** in our training and assessment programme.



## 2.0 The Fellowship Written Examinations

**The FCAI Single Best Answer (SBA) and Short Answer Question (SAQ) examinations are completed on the SAME DAY**

### 2.1 FCAI Single Best Answer (SBA) examination

For the Fellowship examination, we expect candidates to be able to show us that they can **apply knowledge** and **interpret data** and **clinical information**. This is where SBAs are invaluable and have a robust evidence base.

The SBA questions are written by a core group of examiners who are highly experienced in producing them. We use 5 distractors (answer options) and develop questions with a detailed clinical scenario.

The SBA paper has **90 compulsory questions** in it and is completed in **180 minutes**. The paper will be **split** into two sections, each containing **45 questions** to be completed in **90 minutes**.

#### Example FCAI Single Best Answer Question

A 58-year-old man who had an elective right-sided hemicolectomy develops a tachyarrhythmia in the post anaesthesia care unit. He has a past history of hypertension treated with bendroflumethiazide and ischaemic heart disease.

**Which of the following serum electrolyte abnormalities is most likely to contribute to the arrhythmia?**

- A. Ionised calcium  $1.43 \text{ mmol L}^{-1}$
- B. Magnesium  $0.4 \text{ mmol L}^{-1}$
- C. Phosphate  $0.6 \text{ mmol L}^{-1}$
- D. Potassium  $3.3 \text{ mmol L}^{-1}$
- E. Sodium  $129 \text{ mmol L}^{-1}$

Answer: B: Magnesium  $0.4 \text{ mmol L}^{-1}$

### 2.2 Blueprint

All questions are mapped to a detailed blueprint, with explicit coverage of the **entire** fellowship curriculum. Advanced sciences which underpin anaesthesiology will also be tested.

### 2.3 Testing format

This examination will be **completed online** using **remote proctoring**. The College of Anaesthesiologists use a platform called Practique. You will receive more details on how to log onto it, practice session etc.



**Proctoring** or a **proctored examination** is defined as a mechanism to ensure the authenticity of the assessment taker and prevent them from cheating as a proctor is present during the duration of the exam. A proctor is a person who is trained and qualified to undertake candidate authentication and prevent them from doing any form of cheating.

**Remote proctoring** enables candidates to complete an examination online in a remote location, while maintaining the **integrity of the assessment**. Candidates must confirm their identity and they will be monitored through video. This video is then used to flag any irregular candidate behaviour.

This avoids the need for a cohort of candidates to come together in an examination hall, as the examination can be taken at home, in the workplace etc.

Since some candidates may find the idea of being watched by a proctor off putting, the **proctor is not visible to candidates**.

### 2.4 Pass mark determination

The cut score (pass mark) for the SBA paper is determined by **Modified Angoff referencing**. A group of subject-matter experts judge how difficult each item is in an exam. This produces a defined absolute 'pass mark' standard, based on the questions. The Modified Angoff method is widely used in high-stakes exams such as MCQs.

The experts consider each item and how likely a borderline (or minimally competent) candidate is to answer each item correctly, and then allocate a probability of this borderline candidate answering correctly.

A '**borderline**' **candidate** is one who has completed the required training, has an average amount of knowledge and has done a reasonable amount of exam preparation, and who has a 50% chance of passing the exam (and 50% chance of failing).

### 3.0 FCAI Short Answer Question (SAQ) examination

The aim of the SAQ paper is to test higher level thinking and cognition including:

- Judgment and common sense
- Clarity of thought
- Safety
- Ability to prioritise and summarise
- Ability to express oneself clearly
- Capability to present an argument clearly and succinctly in writing.

#### 3.1 SAQ Structure

There are **10 short** and **structured questions** in the paper, all of which **must be answered** – failure to submit an attempt to a question will result in a fail.

Candidates have **200 minutes** to complete the examination, approximating 20 minutes per question. The paper will split into two sections (5 questions in 100 minutes).

**SAQ examinations** have long been a **contentious issue** with educationalists, the **main criticism** that such assessments **lack reliability** for a high-stakes postgraduate examination. However, the following changes we have implemented have resulted in excellent reliability.

1. The short answer questions are **highly structured**. Each of the 10 questions contains at least **3 – 6 subparts**.
2. Questions are written containing **verbs** from **Bloom's taxonomy**, to aid **higher-level cognitive testing**. For the Fellowship examination, the Bloom levels of analysis, synthesis and evaluation are particularly sought after.



Bloom's Level	Description	Verbs
<b>Knowledge</b>	Rote memorization, recognition, or recall of facts	Define, repeat, record, list, recall, name, relate, underline.
<b>Comprehension</b>	Understanding what the facts mean	Translate, restate, discuss, describe, recognise, explain, express, identify, locate, report, review, tell.
<b>Application</b>	Correct use of the facts, rules, or ideas	Interpret, apply, employ, use, demonstrate, dramatise, practice, illustrate, operate, schedule, sketch.
<b>Analysis</b>	Breaking down information into component parts	Distinguish, analyse, differentiate, appraise, calculate, experiment, test, compare, contrast, criticise, diagram, inspect, debate, question, relate, solve, examine, categorise.
<b>Synthesis</b>	Combining parts to make a new whole	Judge, appraise, evaluate, rate, compare, revise, assess, estimate
<b>Evaluation</b>	Judging the values or worth of information or ideas	Compose, plan, propose, design, formulate, arrange, assemble, collect, construct, create, set-up, organise, manage, prepare.

3. The **blueprint** for this examination contains the following number of questions from each unit of training:



National Specialist Anaesthesiology Training (SAT) Programme Curriculum Area	Minimum number of questions
<b>Core Competency Units:</b> <ul style="list-style-type: none"> <li>• Perioperative management</li> <li>• Airway management</li> <li>• General anaesthesia for ASA I and II patients for low-risk surgical procedures</li> <li>• Regional anaesthesia – neuraxial and foundation peripheral nerve blockade</li> <li>• Anaesthesia for ambulatory surgery</li> <li>• Anaesthesia for orthopaedic surgery</li> <li>• Trauma management</li> <li>• Transfer of the critically unwell patient</li> </ul>	3*
<b>Modular Units:</b> <ul style="list-style-type: none"> <li>• Anaesthesia for General, Urological and Gynaecological Surgery</li> <li>• Anaesthesia for Plastic and Reconstructive Surgery, including Burns</li> <li>• Anaesthesia Outside of the Operating Theatre including conscious sedation</li> <li>• Regional anaesthesia (ii) – Peripheral Nerve Blockade</li> <li>• Anaesthesia for Otolaryngology, Oral and Maxillofacial, Head and Neck Surgery</li> <li>• Anaesthesia for Vascular Surgery</li> <li>• Anaesthesia for Neurosurgery and Neuroradiology</li> <li>• Anaesthesia for Cardiac and Thoracic Surgery</li> </ul>	4*
<b>Specialty Modular Units:</b> <ul style="list-style-type: none"> <li>• Anaesthesia and Analgesia for Obstetric Care</li> <li>• Anaesthesia for Paediatric Surgery</li> <li>• Intensive Care Medicine</li> <li>• Pain Medicine</li> </ul>	3*
<b>Advanced Sciences</b> <ul style="list-style-type: none"> <li>• Anatomy</li> <li>• Applied clinical pharmacology</li> <li>• Applied physiology and biochemistry</li> <li>• Physics and clinical measurement</li> </ul>	*

**\*Advanced sciences** are tested within most questions. For example, an obstetric question testing knowledge on the management of post dural puncture headache could start with a question on “describe how CSF is made”.

4. **Each question** is marked out of **25**, giving a total of **250 marks** for the **entire examination paper**. Each component of one of the ten questions can have marks awarded proportionately to help guide candidates on which parts to spend more time on.

5. **Highly structured model answers** have been developed making marking easier and more acceptable to examiners.

6. A **greater integration** of the **SAT Curriculum** within the 10 questions. For example, a question assessing the management of a head injury, which resulted in an acute subdural haemorrhage presented to a district general hospital. The patient needs urgent surgery and so must be transferred to a tertiary referral centre. This question therefore can assess learning outcomes from the neurosurgery and transfer medicine units of the FCAI examination curriculum.

7. The SAQ is marked by **ten different examiners**, enhancing reliability and fairness.

### Example FCAI Short Answer Question

A 38-year-old woman with Grave's disease and a palpable goitre presents for an elective total thyroidectomy.

- a) Outline the regulation of thyroid hormone synthesis and secretion. [6 marks]
- b) Name four drugs that can be used to treat hyperthyroidism and briefly describe their mechanism of action. [8 marks]
- c) What are the main anaesthesiology priorities in assessing a patient with thyrotoxicosis who is presenting for a thyroidectomy? [6 marks]
- d) List the procedure specific complications that may present in the perioperative period in a thyroidectomy patient? [5 marks]

### 3.2 Standard setting

The **pass mark** for every question will be calculated by the **Modified Angoff method**. Therefore, this will take into account how difficult each question is. The **overall SAQ pass mark** is calculated by totalling the Angoff cut score for each question.

### 3.3 FCAI SAQ format

This examination will be **completed online** using **remote proctoring**. The paper will split into two sections (100 minutes per section and 200 minutes in total) to facilitate a short break in between).



### 3.4 What if I am slow at typing?

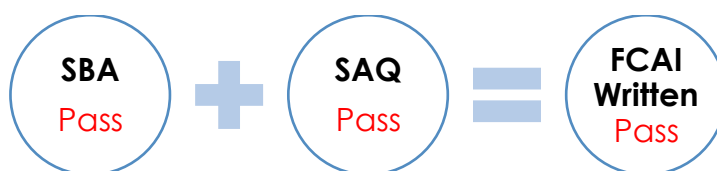
The **FCAI SAQ** examination only **requires short answers** therefore candidates should not anticipate an issue with timing. Typing will also remove the legibility issues associated with handwriting. You will not be penalised for poor spelling but should ensure that the answer you wish to put is recognisable. If you require adjustments for a computer-based exam such as additional time, you will need an educational psychologist assessment with recommendations for adjustments to support your request. This should be submitted to the College on application.

### 3.5 Outcome

Candidates will **not find** out their result on the same day following completion of the online examination. The questions need to be marked and a **rigorous quality assurance process** will take place prior to the issue of results.

You will be notified by the CAI examinations department of the issue of results date, which will be available on the CAI website → Examinations → Recent results.

Candidates **must pass** both the SBA and SAQ components **individually**. There is no compensation between these two examinations.



If you are successful, you will be eligible to apply for FCAI written components which are replacing the SOE and clinical components.

#### 4 FCAI Structured Oral Examinations (SOEs)

From November 2022, the FCAI SOE will change, with the **removal of the long clinical case**. This has been replaced with a new SOE focussing on perioperative medicine, patient optimisation and data interpretation. This new change will not in any way disadvantage candidates. The SOEs will return to be face-to-face also.

There are now three separate SOEs with a greater focus on **clinical reasoning**.

**Clinical reasoning** is usually defined in a very general sense as “The thinking and decision -making processes associated with clinical practice” or simply “diagnostic problem solving”. The College of Anaesthesiologists feel that this is a very important skill to be assessed at this level.

The new written questions will also focus on the following high-level domains.

High-Level Domain	Description
Diagnostics	<ul style="list-style-type: none"><li>• Being able to generate a diagnosis / differential diagnosis</li><li>• Ability to interpret investigation results.</li></ul>
Clinical judgment	<ul style="list-style-type: none"><li>• Ability to use higher order thinking to guide decision making and management strategies</li></ul>
Management	<ul style="list-style-type: none"><li>• Ability to generate anaesthesiology / ICU / pain management plans, which employ up-to-date EBM.</li></ul>
Medical knowledge	<ul style="list-style-type: none"><li>• Understanding of the breadth and depth of the FCAI syllabus, and the literature</li></ul>
Safety	<ul style="list-style-type: none"><li>• Can provide safe and highly effective care.</li></ul>

## 4.1 FCAI Structured Oral Examination (SOE)

### SOE 1: Perioperative medicine, optimisation, and data interpretation

This will replace the traditional long case.

Candidates will be exposed to short clinical cases exploring patient fitness for anaesthesia, perioperative medicine, patient optimisation, risk assessment and data interpretation. The effects of multisystem diseases will also be examined. Data will include common perioperative investigations such as 12-lead ECG, chest x-ray, pulmonary function tests, and cardiopulmonary exercise tests.

#### 4.11 Number of questions

There will be six short cases in SOE 1.

#### 4.12 Time

SOE 1 will last 30 minutes in total. Therefore, there will be 5 minutes devoted to each case.

#### 4.13 Examiners

Candidates will be examined by two fully trained examiners.

#### Example SOE 1 Question

**A 52-year-old woman is listed for an emergency laparotomy for a perforated caecal tumour. She has myasthenia gravis.**

1. What is myasthenia gravis?
2. What is myasthenic syndrome?
3. Can you compare and contrast the two conditions?
4. Outline what issues does myasthenia gravis pose to the anaesthesiologist?
5. How do you 'risk assess' a patient requiring an emergency laparotomy?

## 4.2 SOE 2: General Anaesthesia and Pain Medicine

This SOE will explore candidates understanding of general anaesthesia topics with a focus on the core, modular and specialty modular units of the SAT curriculum. You may also be presented with data such as regional anaesthesia ultrasound image as part of a question in this SOE.

All the questions will relate to a clinical case.

#### 4.21 Number of questions

There will be six short cases in SOE 2.

#### 4.22 Time

SOE 2 will last 30 minutes in total. Therefore, there will be 5 minutes devoted to each case.

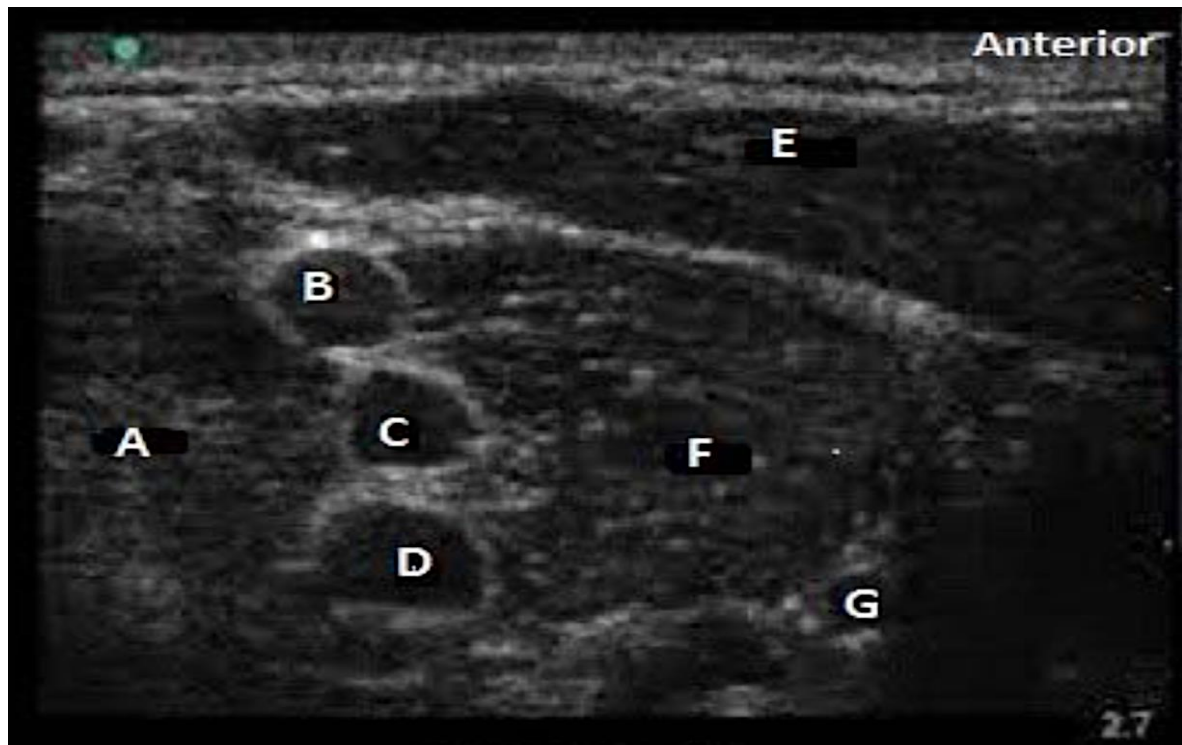
#### 4.23 Examiners

Candidates will be examined by two fully trained examiners.

#### Example SOE 2 Question

**A 72-year-old woman is listed for a total shoulder replacement. She has a long history of rheumatoid arthritis, and you have decided to perform an awake interscalene brachial plexus block for postoperative analgesia.**

1. From which nerve roots does the brachial plexus arise?
2. Describe the key complications of an interscalene nerve block which you would consent the patient for.
3. Look at the ultrasound image obtained prior to performing the nerve block.



4. Can you identify the structures labelled A – G?
5. What length of block needle should be used to perform this block?
6. What position would you put the patient in to perform the block?
7. The patient develops a Horner's syndrome following the administration of the nerve block. What are the three features you would expect to find?

### **4.3 SOE 3: Intensive Care Medicine and Advanced Sciences**

This SOE will explore candidates understanding of intensive care medicine and applied advanced sciences which underpin the practice of anaesthesiology.

All the questions will relate to a clinical case.

#### **4.21 Number of questions**

There will be six short cases in SOE 3. Two questions will focus on intensive care medicine, and there will be a question on the following applied sciences:

- Anatomy
- Clinical measurement, physics, and equipment
- Physiology and biochemistry
- Pharmacology

The CAI recognise the importance that anaesthesiologists require a sound foundation of sciences which underpin the practice of anaesthesiology. Intensive care medicine and pain medicine

#### **4.22 Time**

SOE 3 will last 30 minutes in total. Therefore, there will be 5 minutes devoted to each case.

#### **4.23 Examiners**

Candidates will be examined by two fully trained examiners.

#### **Example SOE 3 Question**

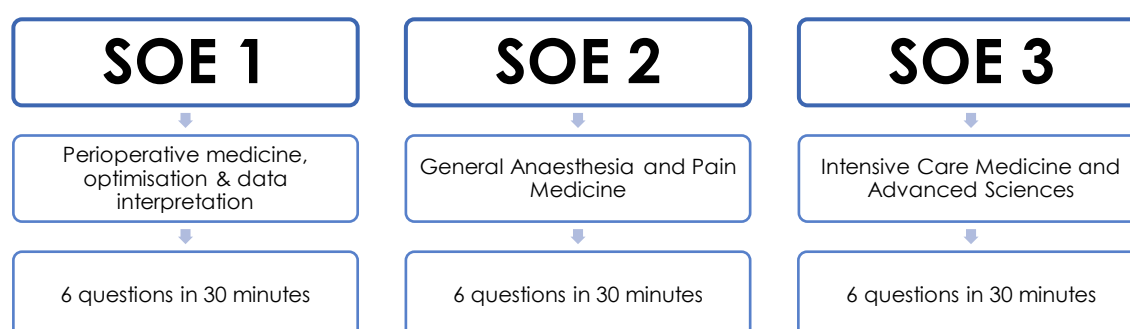
**A 56-year-old man is listed on the emergency list for a laparotomy for a small bowel obstruction. He had an orthotopic heart transplant three years ago.**

1. Can you outline the autonomic regulation of cardiac function at rest please?
2. Why might this patient have had a heart transplant?



3. Key alterations in cardiac physiology and function must be considered when planning general anaesthesia?
4. How does a denervated heart respond to DIRECT and INDIRECT SYMPATHOMIMETICS?
5. Can you outline the perioperative challenges and concerns for an anaesthesiologist when anaesthetising a patient with a heart transplant for non-cardiac surgery?

### Summary of SOE 1, 2 and 3



### 4.3 FCAI SOE Blueprint

The cases will be structured and assess the content of all units of the National Specialist Anaesthesiology Training Curriculum.

### 4.4 Marking the SOE

There are **two examiners** at each SOE table. Examiners alternate roles as **questioner** and **observer**. Both questioning and observing examiner **independently grade** each candidate (4,3,2,1) for each question during the SOE. At the end of the SOE, each examiner independently allocates an overall grade to that candidate (4,3,2,1). These overall SOE grades are then discussed between examiners and a final grade for that SOE is **agreed**.

Responses to the questions are assessed using the numerical rating scale below.

Descriptor	Grade
Excellent	4
Pass	3
Borderline	2
Outright fail	1

**The minimum grades necessary to pass the FCAI SOE are: 3, 3, 2.**

Criteria for answers provide clear guidelines on what is and is not an acceptable answer to the examiner's questions. Checklists, as employed by the CAI have been suggested as a mechanism to reduce the variability in content of questions and grading.

### **Reasons for failure**

These must be entered on the appropriate mark sheet whenever a grade **below 3** is awarded. Examples include:

- A. Inability to organize and thoughts clearly
- B. Unsound judgement in decision making / problem solving
- C. Lack of knowledge of basic science
- D. Clearly unable to recognise and interpret clinical relevance of basic science
- E. Unable to demonstrate or illicit important clinical signs
- F. Insufficient knowledge of important areas
- G. Slow to respond and insufficient grounds covered
- H. Needed frequent prompting.

### **5.0 Outcome**

Following the SOE, candidates will find out their result on the **same day** following an examiners meeting. If you are successful, you will be admitted a Fellow of the College of Anaesthesiologists of Ireland (FCAI).

### **Medal Award**

The William and Jane Brophy Medal is awarded to the candidate who achieves first place on the Final FCAI examination. Where there more than one candidate achieves the top marks the candidate with the highest combined MCQ & SAQ score achieves the medal.

### **Fellowship by Examination**

In accordance with the Standing Orders of the College of Anaesthesiologists of Ireland, a candidate who has successfully passed the Final Fellowship Examination of the College and who has complied with such provisions as determined by the Council shall be entitled to be admitted a Fellow of the College. On conferring, the Fellow shall be entitled to use the post-nominal letters FCAI.

## 6 Summary of the FCAI Examination

	SBA	SAQ	SOE
<b>Number of questions</b>	90 questions – split between two papers each containing 45 questions	10 questions (3 – 6 subparts) – split between two papers each containing 5 questions	18 (6 per SOE)
<b>Timing (minutes)</b>	180	200	90 (30 minutes per SOE)
<b>Number of marks</b>	90	250	Closed marking scheme
<b>Format</b>	Written - online	Written – online	Oral - In person

### Guidance from Examiners on how to answer written questions

We are aware that typing your answer rather than writing them may be daunting for those who type perhaps more slowly. The questions have been designed not to require extensive essay type answers.

Please take note of the following guidance:

#### A. Mark allocation of questions

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

The pass mark for each question will vary and considers the level of difficulty.

#### B. How to answer the questions

Type your answers in the space provided.

Read the question carefully, it is useful to identify key words in the question. The examiners may have underlined key words in the question.

Take note of the proportion of marks allocated to each section of a question – this indicates how much time should be spent on each section. For example, a question worth [5 marks] should be answered in approximately 3.7 minutes for the FCAI written components.

Pay attention to the **verbs** in the question e.g. name, state, explain, outline, describe, list. Decide what exactly you are being asked to do to answer this question.

Below is a **glossary** of some commonly used verbs in the FCAI SAQ papers:

**Critically evaluate:** Evaluate the evidence available to support the hypothesis

**Outline:** Provide a summary of the important points

**List:** Provide a list

**Compare and contrast:** Provide a description of similarities and differences (e.g. in table format). This type of question will likely have a table for you to complete.

**Management:** Generic term that implies overall plan. Where appropriate, may include diagnosis as well as treatment

**Discuss:** Explain the underlying key principles. Where appropriate, this may include controversies and/or pros and cons.

**Be concise** – essays are not required for each answer; use single words or short phrases in response to 'state, name or list' questions and a short paragraph (several sentences) for 'briefly describe, explain or outline' questions.

**Bullet points** are acceptable and **encouraged** as long as sufficient information is provided and that you demonstrate an understanding of the topic.

Resist the temptation to elaborate if it's not relevant to the question – in doing this, candidates often demonstrate a lack of understanding and lose marks.

When asked to list for example investigations of anaemia, look at the marks awarded. If there are [3 marks], the examiner will expect you to list three investigations.

For example:

With respect to nociceptive pathways:

**a) Name the TWO types of nerve fibres that transduce noxious stimuli in action potentials? [2 marks]**

Answer:

- A  $\delta$  fibre
- C fibre

**b) Name THREE types of stimuli that activate primary afferent neurons? [3 marks]**

Answer:

- Thermal
- Mechanical
- Chemical