Examiners' Report
Master of Medicine (Anaesthesiology) Part B SAQ Examination
- 23 & 24 September 2025

General Comments

This report summarises the areas examined in the 2025 Master of Medicine (Anaesthesiology) [MMed(Anaes)] Part B Short Answer Question (SAQ) Examination conducted on 23 & 24 September 2025. The report is designed to aid residents and faculty in preparing for future examinations.

Candidates should note that all aspects of the syllabus are examinable. The examination syllabus is available from the Division of Graduate Medical Studies (DGMS) website. Candidates are advised to use the document to guide them and cover the breadth of the syllabus to maximise their chance of success at the examination.

The 16 SAQ are divided into Paper One and Two, each 8 questions to be completed over 2 hours, held on 2 different days.

Candidates should note that the weightage of all the questions is equal, and all the questions need to be answered. Some questions have multiple parts with allocated percentages (%). The percentages serve to guide the candidates with time allocation and may not reflect the exact mark allocation. Candidates are advised to plan and manage their time accordingly.

Candidates are reminded to read the questions carefully. The SAQ examination is designed to examine the candidates' ability to apply their knowledge in specific clinical situations. If a specific clinical situation with history or physical findings is provided, the candidates are expected to tailor their answers to that situation. Generic answers that are not specific to the clinical scenario tend to be awarded lower marks leading to poor performance overall.

Candidates should also note that unless it would assist them answering the questions, there is no need to waste time restating the question in their answers, as it would not yield them any additional credit.

Marking and Passing Criteria

All the SAQs are reviewed and criteria for passing each question are determined by the examination committee prior to the examinations. The answer for each question is marked by 2 examiners.

Score	**Interpretation of Score**
8	An excellent performance with both examiners
7	A performance significantly better than a pass
6	A definite pass
5	A reasonable performance but not up to a pass
4	A poor performance but not an absolute failure
3	An absolute failure which cannot be compensated

Note that a score of 6 is a pass, while a score of 5 is considered a "borderline fail".

The sum of the scores for all 16 questions is added for each candidate. The candidate passes the examination if the total score is greater than or equal to 90. This score is an approximative equivalent to having a clear pass in 10 out of the 16 questions and a borderline performance in the remaining 6 questions.

Results for the 2025 September MMed (Anaes) Part B SAQ Examination:

Total number of candidates who registered: 38
Number of candidates who withdrew or were absent: 0
Number of candidates who completed the examination: 38
Number of candidates who passed the examination: 20 (53%)

Paper One, Question One:

A 61-year-old man with type 2 diabetes mellitus and atrial fibrillation on aspirin, presents with sudden right hemiplegia and expressive aphasia from a left middle cerebral artery (MCA) occlusion. He receives thrombolysis and requires emergency endovascular thrombectomy (EVT). His vital signs are heart rate 115 bpm, blood pressure 178/86 mmHg, respiratory rate 15 breaths/min, and SpO_2 94% on room air.

A: Discuss the considerations that would influence your choice of anaesthesia for this procedure. (50%)

B: Outline your intra-procedural anaesthesia goals and strategies to provide safe anaesthesia for this patient. (50%)

Pass Rate: 63%

Most candidates answer this question adequately; failures usually stem from incomplete content or incorrect concepts.

For Part A, the expected discussion on the choice between general anaesthesia (GA) and monitored anaesthesia care (MAC) should involve patient factors, procedural demands (need for immobility, complexity/duration), logistics, local practice, and current evidence available.

For Part B, the expected intra-procedural priorities expected are rapid reperfusion, maintaining cerebral perfusion, and fast emergence for neurological assessment, and the anaesthetic strategies to achieve these goals.

Paper One, Question Two:

A 32-year-old man is brought to the emergency department following a motor vehicular accident. He has multiple bilateral rib fractures with associated hemopneumothorax requiring insertion of large bore chest tubes bilaterally. Subsequent abdominal imaging reveals injuries to the liver and spleen with intra-abdominal bleeding. The trauma surgeon wants to perform an emergency laparotomy.

A: Outline the pathogenesis of trauma-induced coagulopathy. (35%)

B: What are the components and objectives of damage control resuscitation? (20%)

C: Outline your key considerations when providing anaesthesia support for this surgery. (45%)

Pass Rate: 84%

The question is generally done well. Most candidates understand the management of trauma induced coagulopathy. A few candidates give scanty answer for the pathogenesis which pulled down their performance for this question. Part B and C which focused on resuscitation and anaesthetic management is generally well done.

Paper One, Question Three:

A 74-year-old man with a 15-year history of Parkinson's disease is scheduled for urgent surgical repair of a fractured neck of femur. He is on oral levodopa–carbidopa, pramipexole, and amantadine. He has mild cognitive impairment at baseline and lives independently. Some of the points that candidates should aim to cover in their answers include:

A: Explain your anaesthetic concerns. (60%)

B: Outline the perioperative interventions you would use to minimise the risk of postoperative cognitive impairment in this patient. (40%)

Pass Rate: 58%

Candidates generally did well; weaker answers did not place sufficient emphasis on the anaesthetic concerns associated with Parkinson's disease and its physiological and pharmacological implications. Some of the key concerns to cover includes the need to continue with dopaminergic therapy, potential antidopaminergic drugs, potential issues such as autonomic dysfunction, aspiration and respiratory risks, and difficult airway which impacts on the decision on the type of anaesthesia and subsequent management. Interventions to minimise risks of postoperative cognitive impairment is commonly discussed in multiple platforms and candidates demonstrate fairly knowledge and so details will be further elaborated here.

Paper One, Question Four:

A 70-year-old man presents with 5-day history of abdominal pain, nausea and vomiting. Subsequent investigations confirm the presence of a perforated viscus requiring an emergency laparotomy. He has medical history of hypertension, hyperlipidaemia, diabetes mellitus and ischemic heart disease with coronary stents placed 3 years ago. On examination, he is alert with cool peripheries. His heart rate is 110 bpm and blood pressure is 90/55 mmHg.

A: What are the key benefits and limitations of using intra-arterial blood pressure monitoring for this surgery? (30%)

B: List the likely causes of the hypotension. (30%)

C: Outline your preoperative management. (40%)

Pass Rate: 47%

Overall performance was fair.

For Part A, most candidates noted the value of beat-to-beat monitoring and arterial blood sampling, and Part B was generally well answered with correct main causes. Gaps included limited discussion of the superior accuracy of an intra-arterial line, its use in assessing fluid responsiveness/cardiac output, and key limitations (arterial pressure does not indicate organ perfusion). Many missed anaemia/bleeding and electrolyte/metabolic causes of hypovolaemia.

In Part C, sepsis recognition and Surviving Sepsis guidance were inconsistently applied, with omissions such as waveform-based fluid assessment, early source control, HD transfer/invasive lines, transfusion, and glycaemic control. Some candidates failed to read Part C properly and drifted into intra- and postoperative management, wasting time that could have improved their answers.

Paper One, Question Five:

A 21-year-old man, with no medical illness, undergoes wisdom teeth excision under general anaesthesia with endotracheal intubation and positive pressure ventilation. The FiO_2 used is 30% and his end-tidal CO_2 reading is 37mmHg.

Explain the physiological basis for:

A: The difference between the partial pressure of CO_2 in his alveoli and arterial blood. (20%)

B: The difference between the partial pressure of O_2 in his alveoli and arterial blood. (30%)

C: The difference in the magnitude of the A-a gradient for both PO_2 and PCO_2 when he is awake compared with when he is under general anaesthesia. (50%)

Pass Rate: 3%

This question was answered very poorly.

Many candidates misapplied physiology to a healthy young patient, wrongly blaming diffusion limitation or reduced hypoxic pulmonary vasoconstriction, and showed weak understanding of shunt vs dead space and how they relate to the A–a gradient. Misconceptions included overemphasising diffusion gradients (alveolar gas equation) and claiming anatomical dead space lowers alveolar PCO_2.

Key points expected for this question:
A: the alveolar–arterial CO_2 gap is mainly from alveolar dead space, so end-tidal/alveolar CO_2 underestimates arterial CO_2.
B: the A–a O_2 gradient is due to shunt and V/Q mismatch and increases with higher FiO_2.
C: under GA with positive pressure ventilation, V/Q mismatch and atelectasis increase both gradients.

Paper One, Question Six:

A 50-year-old man with Ankylosing Spondylitis is scheduled for an elective right total hip replacement surgery. He is keen for spinal anaesthesia.

A: Outline the advantages and disadvantages of spinal anaesthesia compared to general anaesthesia for this patient. (60%)

B: Outline the factors influencing the spread and block characteristics of spinal anaesthesia. (40%)

Pass Rate: 68%

This question was done fairly well. Candidates who did not perform well generally failed to answer all parts of the question (either Part A or Part B) adequately. Candidates are reminded to use the percentage weightage to allocate their time when answering the question. While the advantages of spinal anaesthesia were generally well covered, some candidates omitted, or did not adequately address, the disadvantages of spinal anaesthesia or Part B, resulting in poorer scores.

Some candidates wasted time writing about the advantages and disadvantages of general anaesthesia (GA) in this situation, even though the question specifically asked about regional anaesthesia (RA) only. Candidates are reminded to read the question carefully and include only relevant points.

Paper One, Question Seven:

A 50-year-old man undergoes elective Coronary Artery Bypass Grafting surgery for triple vessel disease. A propofol infusion is started to maintain anaesthesia when the patient goes on cardiopulmonary bypass. Thirty minutes later, the Bi-Spectral Index value is noted to be 85.

A: Define intraoperative awareness. (20%)

B: Briefly describe how you will assess and manage this situation intra and post-operatively. (80%)

Pass Rate: 55%

This is not an uncommon question in the Anaesthesiology examination, and candidates are expected to do well on this topic. Generally, the intraoperative management of the situation was well described in most answers. Reasons for poorer scores included failure to provide a clear definition of awareness (including explicit and implicit awareness) and inadequate coverage of postoperative management, such as briefly describing how to assess the patient (e.g., using the Brice questionnaire) and how to differentiate memories of operating theatre events from those related to an ICU stay.

Paper One, Question Eight:

A 65-year-old woman (weight 42 kg, BMI 18 kg/m^2) sustains multiple rib fractures on the right chest from a fall. She is referred for a thoracic paravertebral block for pain control. During the injection of ropivacaine, she suddenly becomes confused and incoherent.

A: List the general risk factors for local anaesthetic systemic toxicity (LAST) when performing a regional block, and outline preventive measures to minimize its occurrence. (50%)

B: The patient develops generalized seizures. Describe how you would manage this patient. (50%)

Pass Rate: 29%

Overall poor performance was largely due to Part A. Many candidates confused risk factors with risk-reduction strategies and errors, citing examples such as avoiding regional anaesthesia (RA), ensuring proper indications, fatigue/after-hours work (despite the case being elective), incorrect weight measurement, and using ideal body weight (IBW) instead of actual body weight for dose calculations.

Part B was generally well answered, with most candidates covering the three key elements: seizure management, resuscitation, and specific treatment for local anaesthetic toxicity.

Candidates should answer as appropriately trained clinicians. However, many responses were written from a third-person perspective (e.g., “supervision by an expert,” “escalate to a senior anaesthetist,” “inexperienced operator,” “poor technique/anatomy knowledge/ultrasound use”) and focused excessively on administrative follow-up (e.g., incident reporting, root cause analysis and audits, referral to acute pain services, morbidity and mortality discussions, and documentation) rather than clinical management.

Paper Two, Question One:

A 28-year-old primigravida in labour requests for epidural analgesia. During the procedure, an inadvertent dural puncture with the epidural needle occurs.

A: Describe how pregnancy and labour might increase the risks of dural puncture during placement of the epidural catheter. (25%)

A catheter is inserted through the Tuohy needle into the intrathecal space instead to provide labour analgesia.

B: Outline the advantages and disadvantages of placing an intrathecal catheter following accidental dural puncture. (35%)

C: Besides settling her labour analgesia, what other issues would you manage for the patient in the labour ward till her delivery? (40%)

Pass Rate: 58%

This is one of the most commonly discussed complications associated with labour epidurals. Candidates are expected to have a good understanding of why this complication appears more common in this population, as well as the pros and cons of commonly used management strategies. Generally, candidates did well in Parts A and B, as expected.

Candidates are expected to mention various aspects of managing the patient aside from pain management, including communication, documentation, measures to prevent adverse effects of an intrathecal catheter (e.g., excessive neuraxial blockade, infection, and wrong-route administration), and measures to minimise PDPH. Some candidates misinterpreted Part C and provided answers that were not relevant, resulting in poorer scores.

Paper Two, Question Two:

A 70-year-old man had a brainstem stroke 2 years ago and is on long-term home ventilation via a tracheostomy when he sleeps. He requires emergency surgery for an obstructed right inguinal hernia under general anaesthesia. Your second-year resident starts this case and ten minutes following induction of anaesthesia and initiation of positive pressure ventilation, the “low exhaled tidal volume” alarm on the ventilator sounds. He calls for your help.

A: Describe your step-by-step management, giving reasons for your actions. (50%)

He requires postoperative ventilatory support in the intensive care unit (ICU). A transport ventilator is used for the transfer from OT to the ICU.

B: Outline the key features you would want in an ideal transport ventilator. (50%)

Pass Rate: 68%

The question was generally well done, especially Part A. While most candidates adopted a systematic approach to troubleshooting low exhaled tidal volumes, many did not sufficiently explain the rationale behind individual steps. A structured patient-to-machine assessment, coupled with clear justification for actions, was consistently associated with higher scores.

In contrast, Part B on ideal transport ventilator characteristics was poorly answered by many candidates. Responses frequently lacked detail or omitted essential features, suggesting some unfamiliarity and a need for candidates to develop a more comprehensive understanding of ventilator capabilities and safety features.

Paper Two, Question Three:

An 8-year-old boy, weighing 25 kg, presents for emergent fixation of a supracondylar fracture of the right humerus with the possibility of vascular compromise. He has medical history of Duchenne’s muscular dystrophy (DMD) diagnosed 3 years ago and has not had any cardiac or respiratory complications. He takes prednisolone daily and is able to walk without assistance. His last meal was 4 hours ago.

Outline your perioperative anaesthetic management.

Pass Rate: 39%

The performance for this question was fair, considering that a similar topic was discussed at the recent preparation course prior to this examination. In addition to assessing and managing the physical and pharmacological implications of Duchenne muscular dystrophy (DMD) preoperatively, intraoperatively, and postoperatively, answers should include considerations related to urgent surgery with risks of vascular compromise.

Candidates who did poorly generally did not cover sufficient points relevant to the question. Weaker candidates seemed unaware of the risks and nature of complications associated with the use of succinylcholine and volatile agents in patients with DMD, and did not recognise that these drugs should not be used routinely in these patients. Candidates who provided specific management strategies, rather than general statements applicable to all patients under general anaesthesia (e.g., “close monitoring for respiratory complications”), were awarded higher scores.

Candidates are also reminded that if the examiner cannot interpret or understand a word due to misspellings or abbreviations known only to the candidate, no marks will be awarded.

Paper Two, Question Four:

An 80-year-old man with sigmoid colon cancer is scheduled for an elective laparoscopic anterior resection surgery. He has medical history of heart failure with preserved ejection fraction (HFpEF) associated with poor functional capacity (NYHA class III) and elevated NT-proBNP levels. His regular medications are empagliflozin 10mg OM and spironolactone 50mg OM.

A: Explain the pathophysiology in HFpEF and its relevance to anaesthesia management. (40%).

B: Outline your perioperative management to minimise potential cardiovascular complications in this patient. (60%)

Pass Rate: 45%

All candidates who failed this question either gave an incorrect explanation, an incomplete explanation, or no explanation at all of the pathophysiology of heart failure with preserved ejection fraction (HFpEF) and its relevance to anaesthesia.

Weaker candidates were unable to provide management strategies specific to HFpEF and instead outlined generic approaches, rather than measures aimed at minimising cardiovascular complications in this patient with underlying sigmoid colon cancer presenting for elective laparoscopic anterior resection.

Paper Two, Question Five:

A 40-year-old man with history of alcoholism and chronic tramadol use is admitted for acute on chronic pancreatitis complicated by acute kidney injury (eGFR of 30mls/min). He is currently on total parenteral nutrition (TPN) and has poorly controlled severe diffuse abdominal pain.

A: Outline your considerations for his analgesic plan. (20%)

B: Describe how you would, using the biomedical-psychological-social model, manage his abdominal pain. (80%)

Pass Rate: 61%

Most candidates were able to identify the essential considerations for analgesia in this scenario, and those who passed generally outlined a basic but appropriate pain management plan. Stronger answers incorporated suitable opioid choices within a multimodal framework, addressed visceral pain with appropriate adjunctive neuropathic agents, and demonstrated awareness of relevant psychosocial factors in managing a high-risk patient.

In contrast, scripts that did not pass commonly lacked accuracy and detail in the biomedical aspects of management. These answers tended to focus on assessment rather than management, or to repeat information already stated in the question, such as ordering tests despite the presence of known acute kidney injury. There was also inadequate emphasis on pain education, treatment of the underlying cause, and the need for follow-up, including the eventual down-titration of analgesia.

Paper Two, Question Six:

A 28-year-old man is admitted following an out of hospital cardiac arrest. Subsequent investigations reveal the cause as a ruptured posterior fossa arteriovenous malformation causing intracerebral bleeding and cerebellar tonsillar herniation. Clinical examination in the intensive care unit reveals absence of brainstem reflexes.

A: Explain the pre-conditions that need to be fulfilled before certifying death by neurologic criteria. (50%)

B: List the indications for performing supplementary tests for brain death certification and the approved tests in Singapore. (25%)

C: List the key differences between the HOTA and MTERA legislations for organ donation. (25%)

Pass Rate: 24%

Performance on this question was unexpectedly poor, given the importance of this issue in the ICU. Expected prerequisites include evidence of irreversible structural brain injury, exclusion of reversible causes of neurological depression, and confirmation of intact neuromuscular function. The indications for, and types of, supplementary tests used in brain death certification, as well as the key differences between the HOTA and MTERA legislation for organ donation, are readily available from multiple sources. Candidates are advised to familiarise themselves with this information before the examination.

Paper Two, Question Seven:

A 56-year-old man with liver cirrhosis secondary to alcoholism and hepatitis C presents with massive haematemesis and requires emergency gastroscopy and haemostasis in the operating theatre. Upon arrival, you observe that he is drowsy but arousable with heart rate 112 bpm, blood pressure 95/55 mmHg and SpO_2 89% on 6 L/min O_2 via a face mask.

Discuss the likely causes and underlying pathophysiologic mechanisms for the observed SpO_2 reading.

Pass Rate: 61%

Most candidates performed reasonably well on this question.

Those who did poorly often did not explain how the underlying liver pathology, aspiration, and/or equipment problems could contribute to the observed SpO_2 reading. The most common omission was a discussion of how the pathology and complications of liver cirrhosis led to the observed SpO_2, which suggests a possible knowledge gap among candidates.

Paper Two, Question Eight:

A 60-year-old woman with end stage renal failure (ESRF) and chronic obstructive pulmonary disease (COPD) undergoes an elective left brachial arterio-venous fistula (AVF) surgery under a left brachial plexus block done via the supraclavicular approach. Thirty minutes into the surgery, she complains of increasing breathlessness. Her vital signs are respiratory rate 25 breaths/min, heart rate 80 bpm, blood pressure 130/80 mmHg and SpO_2 99% on 2L/min O_2 via nasal prongs. She has not received any sedation.

A: List the most likely causes for her breathlessness. (30%)

B: Describe your assessment and management. (70%)

Pass Rate: 82%

Most candidates performed on this question reasonably well, though weaker answers lacked sufficient points and failed to describe how to assess and manage key complications such as pneumothorax, phrenic nerve palsy, pulmonary oedema, acute coronary events, and COPD exacerbations. Those who approached the scenario by considering likely diagnoses and recognising relevant clinical signs generally did better than those who relied solely on an ABCDE structure.

Stronger answers also demonstrated appropriate follow-through beyond the initial assessment, including ongoing management considerations, and showed familiarity with the use of POCUS to support history and examination findings. A common weakness was the failure to involve the surgeon when appropriate. Better candidates recognised the seriousness of the scenario without prematurely declaring a crisis, reflecting a more thoughtful and clinically reasoned approach.

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