

Recent poorly answered (<50%) SAQs (2010 - 2016) - not incl 2015.2 (no % passed noted).

2015.1

Question 4

Pass rate 38.3%

A 40-year-old 100 kg patient presents with septicaemia of unknown cause. After receiving two litres of 0.9% NaCl (Normal Saline) as initial resuscitation the patient has the following observations:

HR 126 bpm, BP 80/40 mmHg.

Outline your initial resuscitation goals. (30%)

Evaluate options for ongoing fluid resuscitation at this time. (70%)

Candidates were expected to include the following in their answers

- A. Mention at least three resuscitation goals
- B. Produce a reasonable discussion / evaluation regarding crystalloids versus colloids.

Question 14

Pass rate 34.7%

A 40 year old requires a laparotomy ten days after an isolated traumatic spinal cord transection at C6.

Outline the key anaesthetic issues. (50%) How would these influence your anaesthetic management? (50%)

Candidates were expected to mention

A. Key issues including unstable c spine, neurogenic shock and acute laparotomy

B. Anaesthetic management would be expected to include a sensible airway plan, managing the neurogenic shock and dealing with an unfasted, unwell patient for laparotomy

2014.2

Question 1

An 8 week old baby is scheduled for an inguinal hernia repair on your list at a local general hospital tomorrow.

a) Outline the important issues when providing anaesthesia care for this baby. (70%)

b) Justify your decision to proceed with surgery at the local general hospital. (30%)

45.8% of candidates passed this question.

Key components of an answer for this question required candidates to

Make comments about

- appropriateness of baby, its gestational age and “normality”
- whether the facility has the facilities / equipment to provide care for such an infant
- decision, based on PS 29 and the local departments adaptation of that in terms of age / size limits, staff experience and training, equipment an facilities and transfer arrangements if needed.

Question 5

a) Outline the principles of cardiopulmonary exercise testing (50%)

b) Evaluate the role of cardiopulmonary exercise testing in a patient who is scheduled for oesophagectomy (50%)

48.5% of candidates passed this question.

As a minimum answers should mention:

a. Principles

Recognise CPEX is a non-invasive method of quantitative assessment of functional capacity
Looks at incremental exercise and measures cardiopulmonary response to that.

b. Evaluate

Useful for risk assessment (which helps triaging / surgical decision making and periop care)
Useful for triage postop care facility i.e. who goes to ICU

Question 6.

You are called to see a 30 year old man with bilateral fractured femurs. He has been diagnosed with Fat Embolism Syndrome.

a. Outline the pathophysiology of Fat Embolism Syndrome?(50%)

b. Describe the principles of management of Fat Embolism Syndrome? (50%)

31.9% of candidates passed this question.

As a minimum, candidates were expected to

- Demonstrates an understanding of at least both mechanical problems e.g. effect of fat emboli – skin, lungs, etc and systemic problems e.g. coagulopathy, ARDS
- Demonstrates an understanding that need to stop the cause e.g. fix fractures
- Understands mainstay of treatment is supportive therapy

Question 7

An 80 year old man is scheduled for endovascular abdominal aortic aneurysm repair (EVAR).

- a. What are the likely risk factors for acute kidney injury in this setting? (30%)
- b. Describe and evaluate the methods available to preserve his renal function in the perioperative period. (70%)

42.2% of candidates passed this question.

As a minimum answers needed to cover

- a. Risks factors
 - o Patient: pre-existing renal / vascular disease, current use of nephrotoxic drugs
 - o Procedural: IV contrast, impairment of renal blood flow relating to the procedure
- b. Methods
 - o Pre-renal: most useful is to optimise RBF e.g. hydration and blood pressure
 - o Renal: that minimising nephrotoxic drugs, including contrast, is likely to be most useful

Question 8

A 25 year old woman who is 30 weeks pregnant has been referred to your tertiary high risk obstetric clinic.

She has complex cyanotic congenital heart disease and now functions with a Fontan circulation.

- a) How would you stratify the cardiovascular risk? (30%)
- b) What are the issues relevant to anaesthetic care that will need to be managed for this patient? (70%)

31.9% of candidates passed this question.

As a minimum in Part A candidates needed to demonstrate an understanding that patient is at increased peripartum CVS risk; and mention at least 2 of the main risk factors i.e. poor maternal functional class (NYHA Class III or IV) or cyanosis; myocardial dysfunction; L heart obstruction; prior arrhythmia or prior cardiac events

In part B relevant issues included ; some attempt to name some likely CVS complications (including death - heart failure should be mentioned); that the greatest risk was during the peripartum period: good consultation with other specialties including at least cardiology (multidisciplinary team); recognising the need for additional monitoring and observation during the antenatal period and extra resource for delivery e.g. HDU; and that the delivery should be planned with good communication to all parties.

Question 10

As the on-duty specialist anaesthetist, you are asked to see a previously well 64 year-old man in the PACU with SpO₂ of 85% two hours after laparoscopic right partial nephrectomy during which he lost 1 litre of blood.

- a) List the likely causes of the desaturation? (30%)
- b) Outline your approach to managing the patient's hypoxaemia. (70%)

43.4% of candidates passed this question.

As a minimum answers needed to

In part A : Likely cause for desaturation - needs to mention sensible reason for:

- Hypoventilation
- V/Q mismatch
- Poor peripheral perfusion

Part B : Management of hypoxia – need to mention

- Evaluation of breathing and appropriate treatment including potential for re-intubation, PEEP, drainage of pneumothorax, and Chest Xray.
- Evaluation of circulation and level of consciousness and if needed supportive treatment
- Communication with surgeon

Question 13

- a. Describe the function of a three-chamber underwater seal chest drainage system. (a diagram may be useful) (50%)
- b. Evaluate the use of this system in the management of haemopneumothorax secondary to blunt chest trauma? (50%)

9.0% of candidates passed this question.

As a minimum candidates were expected to demonstrate the three principles / function of the system [draw or explain] i.e.

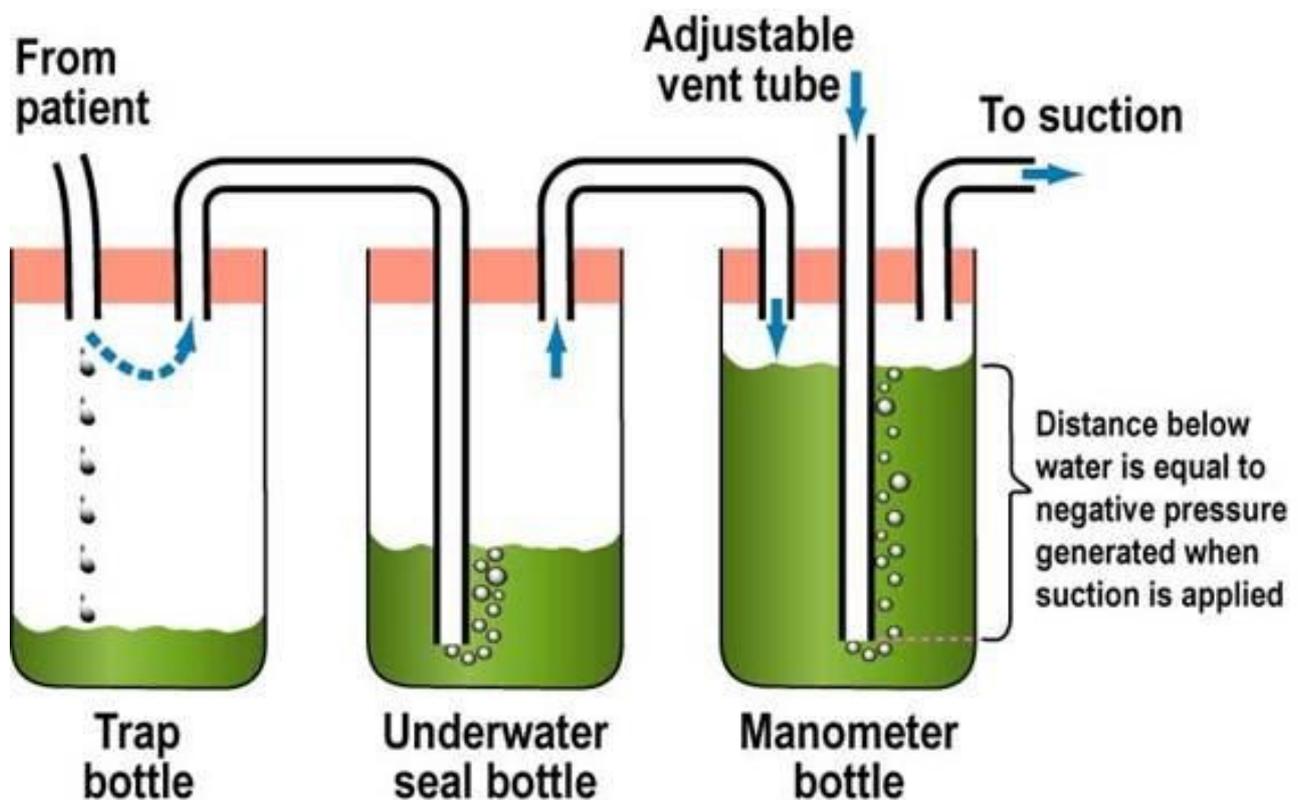
Drainage / collection

Underwater seal

Application of controlled negative pressure

A diagram such as this represents the basic amount of information to pass part a of the question.

In evaluating its use in trauma related haemopneumothorax recognition of its utility in dealing with persistent air leak and drainage of fluid and air was important as was some comment on potential problems.



2014.1

Question 1

Outline the advantages and disadvantages of using the paediatric circle system and the Jackson-Rees modification of Ayre's T-piece (Mapleson F) for anaesthesia in a 15 kg child.

23.3% of candidates passed this question.

Key components of an answer for this question required candidates to Demonstrate adequate understanding of each system.

Should mention: Resistance – valves, Dead space, Fresh gas flows

Better candidate will mention: Humidification, scavenging, weight/bulk, provide more detailed understanding / explanation and point out there is less difference between contemporary systems

Question 7

You are inserting a central venous line (CVL) as part of your anaesthetic management for a laparotomy.

Outline the perioperative measures you should consider to minimise central venous line sepsis

43.4% of candidates passed this question.

Key components of an answer for this question related to covering the following:

- mention of risks/benefits, of using a central line at all
- discussion of aseptic technique
- following agreed protocols for the insertion procedure
- complying with hand hygiene recommendations
- use of adequate skin antiseptic
- choosing the best CVC insertion site
- use of adequate port disinfection prior to use
- education of medical and nursing staff
- removal of CVC as soon as it is not needed.

Question 12

A patient is scheduled on your list for arthroscopic shoulder surgery. The surgery is to be performed in the beach chair position.

List the problems associated with this position and describe how you could minimise them.

44.3% of candidates passed this question.

Key components of an answer for this question:

- This required mention of issues related to placing the patient in the position including eye protection, head positioning to avoid traction on the nerve plexi as well as pressure care.
- It required some detail in the discussion of the risks of orthostatic hypotension and subsequent cerebral, myocardial hypoperfusion, and measures to monitor for and minimize such effects.

2013.2

Question 2

In a large clinical trial, patients were randomised into two groups to study the impact of BIS monitoring on the incidence of awareness.

The table below shows the results.

Groups	Sample size	No. of cases of awareness
BIS GUIDED	1250	2
Routine Care	1250	11

Data analysis found that the difference in the incidence of awareness had a p value of 0.022. The study reported that BIS guided anaesthesia reduced the risk of awareness by 82% (95% CI 17-98%) with an odds ratio of 0.2 and a NNT of 140.

Define the following terms and explain their meaning in relation to this study:

- P value
- Risk reduction
- Confidence interval
- Odds ratio
- Number needed to treat

26.9% of candidates passed this section.

Key components of an answer for this question related to providing a reasonable definition of each term correctly and relating it to the study data provided.

Question 3

- a. Outline the principles of stroke volume variation (SVV) measurement. (50%)
- b. Describe how SVV measurement can be used to assist haemodynamic optimisation in a patient undergoing major elective abdominal surgery. (50%)

42.9% of candidates passed this section.

Key components of an answer for this question related to:

- a. Ability to recognize that the change in SV or pulse pressure during the respiratory cycle is measured before and after a fluid challenge and its response assessed and interpret the change.
- b. Recognise the use of SVV to optimize preload and use it to assist in deciding between fluids and / or inotropes.

Better responses acknowledged some limitations, and the described goal of avoiding tissue hypoperfusion.

Question 7

Discuss the safe use of arterial tourniquets for orthopaedic procedures.

33.5% of candidates passed this question.

Key components of an answer for this question related to:

- Discussion of the size of the tourniquet and its relevance.
- Mentioning that there are some contraindications to the use of tourniquets and include AV fistulas and severe PVD in this.
- Discussion of the potential complications from tourniquet use: Systemic and localised.

Question 9

A 25-year-old boilermaker is scheduled for repair of a penetrating eye injury on the emergency list.

- a. List the determinants of intraocular pressure in general. (30%)
- b. Discuss the perioperative measures available to minimise increases in intraocular pressure in this patient. (70%)

46.2% of candidates passed this question.

Key components of an answer for this question related to:

Requiring the candidate to:

- state that IOP is a balance between production and drainage of Aqueous Humor
- Describe how this can be influenced by varying forces within and outside the globe. The perioperative measures to be discussed along the lines of pre-op, intra-op and post-operative lines but should include:
 - avoidance of Suxamethonium,
 - have appropriate goals for the anaesthetic
 - consideration of avoidance of coughing/straining and antiemetic prophylaxis.

Question 11

Evaluate the role of tramadol in acute and chronic pain management.

24.7% of candidates passed this question.

Key components of an answer for this question related to:

This should be a very straightforward question and as a result a good standard was expected it is a drug widely used in the practice of anaesthesia!

As a minimum, candidates were expected to demonstrate:

- Awareness of serotonergic and nordrenergic actions
- Awareness of renal excretion – therefore need for modification of dose
- Awareness of drugs interactions – mainly SSRI's
- Potential for reduced resp and GI side effects
- Statistically significant place in neuropathic pain

Question 12

Three days after a patient has undergone hemiarthroplasty under general anaesthesia, his relatives ask to see you because of concerns that the patient does not recognise family members. This was not present preoperatively.

- a. What features would distinguish between delirium and dysfunction in this setting? (50%)
- b. What you would advise the family to be the expected outcome? (50%)

46.7% of candidates passed this question.

Key components of an answer for this question:

The answer required candidates to differentiate between delirium [a psychosis of lack of reality boundaries to TPP] and dysfunction [including reduced memory and ability to handle intellectual challenges]. This included preoperative features that cross both groups [dementia, major surgery] and those that are different [alcohol, medications, depression].

The second part required an understanding that treatment of dysfunction is largely expectant, that the results / chance of recovery are reasonable, particularly of memory related issues, but that some risk of overall reduced function; also that recovery can take a long time. Medications are NOT indicated.

Question 14

Intensive care patients may be at risk of ventilator-associated pneumonia (VAP).

- a. Describe the likely aetiology of, and risk factors for, VAP. (50%)
- b. Outline prevention strategies that reduce the incidence of VAP. (50%)

28% of candidates passed this question.

Key components of an answer for this question are:

- a. Knowledge of what VAP is
- b. Discussion of role of aspirating colonised secretions in aetiology

- c. Mechanical ventilation/ETT is central & mention of important patient factors and ICU factors.
 - d. In prevention strategies
 - i. Importance of Avoiding /minimising intubation
 - ii. Importance of common, daily ICU practices in managing ventilated patients
 - 1. Positioning
 - 2. Medication strategies
 - 3. General ICU protocols [hand hygiene, equipment care]
-

2013.1

Question 2.

Outline the features of the anaesthetic machine that ensure safe gas delivery to the patient.

28.3% of candidates passed this section.

Key components of an answer for this question related to outlining safety features present in the

- Supply of gas to the machine and circuit
- Ensuring safe pressures delivered to the machine and in the patient circuit
- Monitoring of gas content

Question 6.

A fit 37-year-old female presents for laparoscopic appendicectomy. She reports a “severe allergic reaction” during her a laparoscopy 5 years ago. There were no tests performed and the records are not available.

- a. Outline your strategy for managing this case. (70%)
- b. List the investigations that are recommended following any suspected anaphylaxis and when they should be performed. (30%)

37.1% of candidates passed this question.

Key components of an answer for this question related to

- a. demonstration of a logical approach including
History of previous episode; allergic risk/tendency; discuss with surgeon; inform patient of

likely risks; make low risk plan for this case including drug choice's; monitoring and contingency plans if problems.

- b. serum levels of reaction / anaphylaxis markers [histamine; tryptase]; skin testing and timing of all.

Question 12

What are the hazards of the prone position for patients under general anaesthesia and how can they be minimized?

37.6% of candidates passed this question.

Key components of an answer for this question required noting the potential hazards of the prone position under the headings of CNS; PNS; pressure injuries; others – including vascular occlusion, eye injury, visceral compression, and equipment/monitoring/ intervention problems etc.

Minimization strategies to be included; pre-op assess; staff and equipment for positioning, appropriate support for head / neck as well as secure, preemptive placement of monitors and rescue device, and of course meticulous attention to padding/positioning of at risk tissues.

2012.2

Question 1

You are asked to anaesthetise an 80-year-old lady with dementia and a fractured neck of femur. She is on no other medication.

1. What are the issues in assessing pain in this patient? (50%)
2. What would you prescribe for postoperative analgesia and why? (50%)

37.6% of candidates passed this question.

Key components of a response to this question related to

1) An appreciation of the issues in assessing pain in the demented patient:

- the degree of dementia-associated intellectual impairment
- the impact of communication problems
- coincident conditions that may exacerbate mental state dysfunction: dehydration, electrolyte disturbance and anaemia
- pain assessment tools appropriate to the degree of dementia and their altered validity-the place of functional assessment
- the utility of third party reports.

2) The prescription of analgesia should take in to account

- age-related changes in pharmacokinetics and pharmacodynamics
- the possibility of ease of administration to allow for patient cooperation
- Rationale for drug choice, route of administration, side-effects profile and duration of use: NSAIDS, opioids, NMDA receptor antagonists, antineuropathic agents and the place of local anaesthetics (central neuraxial or regional blockade).

Question 4

1. What is the natural history of aortic stenosis? (30%)
2. 2. What are the key echocardiographic features in haemodynamically significant aortic stenosis? (70%)
3. 49.7% of candidates passed this question.
4. Key components of a response to this question related to:
 1.
 - a. natural history variation according to aetiology
 - b. symptom onset, timecourse and description
 - c. death rate for symptomatic vs. asymptomatic disease
 2.
 - a. qualitative findings: morphology and leaflet mobility; LV adaptation; raised LAP manifestations, poststenotic aortic root dilatation; late changes LV and RV.
 - b. quantitative findings: valve area, transvalvular gradients and assessment of diastolic dysfunction

Question 6

You are the consultant who has been tasked with introduction of the WHO SSCL (surgical safety checklist) to your hospital.

1. What are the principles behind the checklist that enhance patient safety, with reference to each component? (70%)
2. What do you expect the barriers to its effective implementation to be? (30%)

43.6% of candidates passed this question.

Key components of a response to this question related to:

1) Principles

- improved team communication and performance

- a tool to ensure teams consistently follow a system to minimize the most common and avoidable risks
- a culture that values patient safety
- adaption to local practice
- leadership

Components:

- Sign in
- time out
- sign out

2) Barriers to effective implementation may relate to

- “protocol fatigue” - repetition and inattention
- complexity and a lack of commitment to the system by all members of the team
- inability to adapt to individual or institutional preferences or practices

Question 7

In regard to total parenteral nutrition:

1. What are the indications? (30%)
2. What are the complications? (70%)

34.9% of candidates passed this question.

Key components of a response to this question related to:

1) Indications:

- treatment of malnutrition due to malabsorption from any cause
- prevent muscle wasting
- improved wound healing and clinical outcomes

2) Complications relate to:

- delivery: early and late catheter issues

- metabolic disturbances: acidemia, hypo- and hyperglycaemia, liver dysfunction, hypo- and hypervolaemia, lipaemia, immunosuppression, vitamin and trace element deficiencies.

Question 11

You have been asked to provide anaesthesia for a lower uterine segment caesarean section (LUSCS) in a woman at 38 weeks gestation. She has a pacemaker-defibrillator implanted for a known cardiomyopathy. Her current echocardiogram demonstrates an ejection fraction of 35% with mild to moderate left ventricular global hypokinesis. Clinically, the patient feels very well.

1. What additional preparations with respect to her cardiovascular system would you make to ensure the safe management of this patient during her Caesarean Section?
2. Outline the relative benefits and risks of a regional technique compared with general anaesthesia in this patient.

13.4% of candidates passed this question.

Key components of a response to this question related to:

1) Preparation:

- liaison with cardiologist, history from patient to establish aetiology, course and complications, response to therapy, function and effect of pacemaker
- examination to evaluate failure, function and utilisation of pacemaker
- investigations to establish baseline function, response to therapy and to track progress through pregnancy
- planning of haemodynamic goals for this patient: combining the impact of physiological changes of pregnancy with the pathophysiology of cardiomyopathy .

2) Risks and benefits of regional and general anaesthesia were conveniently discussed under the headings of anaesthesia goals:

- maternal haemodynamic stability and minimal negative inotropic effect
- avoidance of postoperative ventilation
- avoidance of maternal and fetal respiratory depression
- consideration of maternal wishes and preferences.

Again, it was necessary to match the competing factors of this patient with pregnancy and cardiomyopathy to the techniques.

Question 12

Describe the anatomy of the Transversus Abdominis Plane (TAP) relevant to regional analgesia. (70%) List the complications associated with TAP block. (30%)

30.2% of candidates passed this question.

Key components of a response to this question related to:

- 1) Anatomy - a sketch or diagram of the abdominal wall, relevant fascia and reference to the sites of injection to achieve blockade of dermatomal levels
- 2) Complications - Local anaesthetic toxicity, trauma to various structures including blood vessels, infection and failure of the technique.

2012.1 .

Question 15

With regard to oxygen therapy for patients in a general postoperative ward

- a. Describe the options available (30%)
- b. What are the justifications for your choice for a particular patient? (70%)

32.4% of candidates passed this question

Key components of a response to this question included:

- Options:
- variable performance/ low flow oxygen delivery devices
 - fixed performance/ high flow oxygen delivery devices

Justifications for particular patients

- Patient characteristics: preexisting conditions (cardio-respiratory disease, dementia), ventilation patterns (tidal volume, respiratory rate, respiratory pause), paediatric and neonatal populations, patient comfort or preference
- Surgery – special cases or neurosurgery, abdominal surgery and ENT
- Oxygen requirements for particular patients and settings
- humidification

2011.2

Question 1

Compare and contrast oxygen delivery by nasal prongs, simple facemask and Venturi mask.

5% of candidates passed this question

Key components of a response to this question related to:

- physics of delivery/fixed vs variable performance
- oxygen concentration delivery
- delivery mechanism
- advantages and disadvantages for each device.

This was considered an important topic for Fellowship candidates. .

Question 5

Insertion of a central venous line may result in cardiac tamponade.

- a. How would you recognise this complication? (50%)
- b. How could you minimise the risk of this complication? (50%)

46% of candidates passed this question

Key components of a response to this question included:

Recognition: - clinical features

- investigations: ECG, CXR and echocardiographic features

Minimising risk:

- technique to ensure that the catheter tip lies outside the pericardial reflection
- surveillance

Question 9

You are called to anaesthetise a 70-year-old man with a perforated bowel for laparotomy, three days after colonoscopy.

Outline the measures you will take to reduce the likelihood of this patient developing acute lung injury.

26% of candidates passed this question

Key components of a response to this question included:

- PREOPERATIVE :
- recognition of acute lung injury risk
 - plan to reduce incidence of sepsis/ aspiration

INTRAOPERATIVE

- management of haemodynamics (fluids/use of blood products/inotropes)
- ventilation strategy: mechanics, FiO₂
- place of antibiotics/ steroids

POSTOPERATIVE

- ventilation strategy
- aspiration prophylaxis

Question 10

A 70-year-old patient wearing a transdermal buprenorphine slow release patch (Norspan®) (5µg/h) presents for knee arthroscopy.

- Describe the mechanism of action and pharmacokinetic profile of this patch. (50%)
- What are the implications for perioperative pain management? (50%)

33% of candidates passed this question

Key components of a response to this question included:

- pharmacokinetics of transdermal buprenorphine in the elderly
- analgesic efficacy and/or ceiling effect
- evaluation of the place of other mu receptor agonists
- evaluation of side-effects for this patient

Question 13

A 50-year-old man presents with confusion and the following electrolyte profile:

Na⁺ 155 mmol/l

K⁺ 4 mmol/l

HCO₃⁻ 15 mmol/l

Creatinine 120 µmol/l

Hb 200 g/l

- a. What are the possible causes of this abnormality? (30%)
- b. b. How can they be distinguished?(70%)

40% of candidates passed this question

Key components of a response to this question included:

Identification of the possible aetiology:

- sodium and water imbalance from various causes (voluntary/iatrogenic/pathologic)
- central or nephrogenic diabetes insipidus

How these may be distinguished on the basis of

- history (drinking/thirst response/fluid loss/trauma/infection/intracerebral pathology pathology)
- examination (volume status, vital signs)
- investigations/imaging and monitoring
- response to ADH

Question 14

A 70-year-old man has undergone radical prostatectomy under general anaesthesia. On emergence he has crushing central chest pain, is restless, and has cold, clammy skin. His blood pressure is 90/50 mm Hg, pulse rate 110/minute and SpO₂ is 95% on oxygen via a Hudson mask.

A twelve-lead ECG shows widespread ST segment elevation across the anterior chest leads.

- a. Describe your immediate management. (50%)
- b. b. What are the treatment priorities for this patient? (50%)

39% of candidates passed this question

Key components of a response to this question included:

Management should aim to treat the cause and minimise damage.

The ECG and symptoms are diagnostic of myocardial ischaemia; consideration should also be given to other causes of hypotension.

Immediate management:

- address myocardial oxygen supply and demand (oxygen delivery, coronary vasodilators, analgesia, antiplatelet agents, management of blood pressure), haemoglobin
- confirm diagnosis: serial ECGs, serial blood tests (cardiac enzymes), CXR, echo
- monitoring, patient disposal

Treatment priorities

- immediate management as above
- invasive evaluation
- reperfusion/revascularisation strategies; anticoagulation issues in the postoperative period

Question 15

Explain your approach to thromboprophylaxis in the patient undergoing total knee replacement.

30% of candidates passed this question

This important clinical question has been asked in previous papers. Key components of a response to this question included: Consideration of

- non-pharmacological techniques
- pharmacological agents
- consideration of patient factors that may influence clinical decision- making and application of the evidence for thromboprophylaxis in this setting

2011.1

Question 2

A patient with known idiopathic pulmonary fibrosis (fibrosing alveolitis) presents for an open right hemicolectomy.

(a) What are the respiratory issues facing this patient with regard to their general anaesthetic?
(70%)

(b) Explain your intraoperative ventilation strategy. (30%)

46% of candidates passed this question

Key components of a response to this question included:

Part (a)

- o establishment of disease severity/use of oxygen
- o sequelae of the disease (pulmonary hypertension/infection)
- o effect and side-effects of treatments (steroids/azathioprine)
- o factors relating to abdominal surgery and their impact on this respiratory disease (GA and muscle relaxation/fluid shifts)

Part (b)

-impact of disease on respiratory system physiology (lung volumes/V-Q mismatch/ventilation pressures/risk of barotrauma

-postoperative implications of disease (patient disposal/respiratory failure potential/impact of analgesic regimens)

tidal volumes (target ranges) anticipated ventilatory pressures I/E ratios

use of PEEP

FiO₂ adjustment

Many candidates apportioned neither their time nor answer detail to correspond to the weighting of the marks.

Formats relating to patient/anaesthesia/surgical factors or pre/intra/postoperative factors served better candidates well.

Question 3

Explain the professional attributes of an anaesthetist in specialist practice.

26% of candidates passed this question

Module 2 was the basis of a good answer to this question.

Just listing the attributes was insufficient to satisfy a question requiring an explanation of the attributes, but formed a useful construct for the answer.

Generally, this question was very poorly answered.

Question 4

Evaluate the use of human albumin in perioperative volume replacement.

11% of candidates passed this question

Key components of a response to this question included:

- o properties of albumin and its role in volume replacement
- o advantages and disadvantages of its use
- o evidence (and its quality) for use over other solutions
- o mention of SAFE study/meta-analyses

Many candidates wrote very little in answer to this question.

Consideration of the perioperative settings where volume replacement is required formed a reasonable starting point for good answers e.g. cardiac surgery, obstetrics, burns, liver transplant, trauma, burns, sepsis.

Question 11

(a) Describe the clinical pharmacology of codeine including an outline of its therapeutic use. (70%)

(b) Describe the influence of pharmacogenetics on the variability of patient response to codeine. (30%)

49% of candidates passed this question

Key components of a response to this question included:

Part (a)

- o relative analgesic efficacy
- o typical use
- o pharmacology as a pro-drug converted by cytochromes
- o impact of renal impairment on toxicity

Part (b)

- o metabolism by CYP2D6

o polymorphism of CYP2D6 and consequences on the variability in effect of codeine in the population due to metabolism differences
o impact of CYP2D6 inhibitors

Question 13

You are involved in the planning of a new Day Surgery Unit.

(a) What systems would you put in place to reduce the likelihood of a power failure? (50%)

(b) Outline a protocol for dealing with power failures. (50%)

35% of candidates passed this question

Key components of a response to this question included:

Part (a)

o design should include multiple sources of power: mains/UPS (for essential equipment) and a separate generator

o system should include education regarding the limitations of the design (duration/reliability of supply)

Part (b)

o written protocol and education for staff regarding back-up capabilities and essential emergency contacts

o intelligence regarding internal battery supply/UPS usage and available supply

o designated lines of communication with all areas regarding the evolution/resolution of the power failure

o anaesthetic management should aim to convert to spontaneous ventilation; consider battery powered TIVA; knowledge of independent power supply/alternatives to run essential equipment

Question 14

(a) Describe the abnormality on this electrocardiogram. (30%)

(b) What are the implications of this abnormality for anaesthesia? (70%)

31% of candidates passed this question

Key components of a response to this question included:

Part (a)

o prolonged QT not accounted for by prolongation of QRS complex duration

Part (b)

- o this relatively unusual abnormality is potentially fatal and may be unmasked by anaesthesia
- o recognition of acquired causes that may occur during anaesthesia such as drugs, electrolyte abnormalities, hypothermia
- o treatment options for patients that may impact on anaesthesia
- o practical perioperative considerations, monitoring, therapeutic options for patients and patient disposal
- o anticipation of life-threatening events and their treatment

Question 15

(a) How would you identify a patient with autonomic neuropathy associated with diabetes? (50%)

(b) What are the anaesthetic implications from a cardiovascular perspective? (50%)

47% of candidates passed this question

Key components of a response to this question included:

Part (a)

- o recognition of autonomic neuropathy as a multisystem disorder
- o identification of systems and bodily responses affected by the disorder: e.g. gastrointestinal system; glucose tolerance; cardiovascular system; thermoregulatory response and sudomotor dysfunction
- o identification of patients with the disorder on the basis features of history, examination and reflex tests

Part (b)

- o cardiovascular system effects include the potential for poor underlying function, impaired reserve, impaired reflex responses to fluid shifts, exaggerated heart rate, blood pressure responses to stimuli and drugs
- o implications for anaesthesia include strategies to accommodate the cardiovascular effects of autonomic dysfunction, e.g. consideration of the possibility of unquantified or changed cardiac function, increased monitoring and appropriate patient disposal

2010.2

Question 6.

How would you critically appraise a paper published in a journal?

23.0% of candidates passed this question

The following were key components required to pass this question:

Critical appraisal is a systematic process used to identify the strengths and weaknesses of a research article in order to assess the usefulness and validity of the research findings. It includes an assessment of 'value' – as a paper may be methodologically sound but contribute little to the better understanding of a subject

Factors to include in an appraisal include a consideration of:

- The type of article (eg editorial, research paper, case report etc)
- Presentation and “readability” of the paper
- Methodology including valid hypothesis and outcome measurements, study design, ethical

approval, appropriate use of statistical methods, appropriate randomisation, blinding and other methods to reduce bias

- The importance (eg clinical relevance if the and the likelihood of the answer to change clinical practice
- The strength of the answer provided (ie the clinical as well as the statistical difference if one has been demonstrated)
- Potential conflicts of interest

Comments about how this question was answered:

This question was very badly answered with many candidates spending insufficient time on their answers. Answers were poorly organised, often with a brief list with no relevant discussion of any of the points listed.

Dogmatic statements about the value of different types of research design were often wrong, and fundamental aspects of a critical appraisal such as the relevance of the clinical question asked and the appropriateness of the methodology were often not mentioned.

Many answers could have been significantly improved if a couple of examples of anaesthetic relevance had been added to the points being made.

Question 14.

You are on the interview panel appointing new Assistants for the Anaesthetist. What are the educational requirements and the practical responsibilities expected of the applicants?

40.3% of candidates passed this question

Comments about how this question was answered:

Prerequisite educational requirements of applicant should include:

- Evidence of successful completion of an appropriate training course
 - o Content – should include
 - ☞ Basic sciences, anatomy, physiology and clinical measurement.

☞ Anaesthesia - knowledge & clinical experience in;

- ☞ Care, use and servicing of delivery systems, machines, monitoring equip, airway devices, etc

- ☞ Cleaning, sterilising and infection control.

- ☞ Operating room safety - electrical, patient, staff, etc

- ☞ Anaesthetic techniques and practice – general and regional anaesthesia, invasive techniques, fluid and drug preparation, etc

- ☞ Crisis management knowledge

☞ Management aspects – anaesthesia standards and protocols, health and safety, communication, privacy and legal responsibilities, etc

- o The course should have been of suitable duration – 3 years unless recent clinical experience as a nurse where may be shortened to 1 – 2 years.

- o The nature of the course should be a practical experience in anaesthetising locations and appropriate assessment of skills and competencies.

- ☞ Evidence of appropriate continuing education – for those other than recent graduates from a training programme e.g. ACLS, equipment updates, etc.

The practical responsibilities expected of the applicants are:

- ☞ Assisting in the safe and efficient conduct of anaesthesia

- o Immediately available throughout preparation and induction of anaesthesia as well as conclusion of anaesthesia until that level of assistance no longer required.

- o Be available at short notice during the rest of the case.

- o Be exclusively available for that case.

- ☞ Responsible for the preparation and application of anaesthetic monitoring and ancillary equipment.

- ☞ Ensuring anaesthesia equipment properly maintained and checked before use e.g. anaesthesia machine, airway equipment, pumps, infusion devices, etc.

- ☞ Cleaning, decontamination and sterilisation of equipment in compliance with best practice.

- ☞ Restocking / ordering equipment, drugs, etc

- Ensuring appropriate quality assurance measures met.
- To work within a team in an effective and professional manner.

The above minimum educational requirements for anaesthesia assistants are set out in the college document PS8. Some people knew these and others obviously didn't. There were two interpretations of the educational requirements of a "new" Assistant ((i) those about to enter training to become an assistant, or (ii) those just completed such training) and both were accepted.

Many candidates had obviously not given much thought to the skills of the "skilled assistance" they often ask for when answering viva questions.

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Question 2

- List the hazards to the patient associated with the prone position under general anaesthesia. (60%)
- How can these hazards be minimised? (40%)

22.9% of candidates passed this question

The following were key components of an answer required to pass this question:

Part A:

Neck/spinal cord injury

Arterial or venous compression

Peripheral nerve injuries

Compression of other organs and body parts –directly and indirectly (an example of the latter: abdominal compression leading to respiratory compromise)

Eye hazards (compression, corneal injury etc)

Consideration of limb placement and joint range of movement during positioning

Hazard to devices (eg airway) and monitoring difficulties

Part B:

Specific details explaining how to prevent each of the above hazards were required.

Comments about how this question was answered:

Good answers made a table or two columns allowing each of the hazards in part a) to be linked with the strategies for their minimisation in part b). This was rarely done, however, resulting in

many omissions.

Writing was often illegible and abbreviations were often unable to be interpreted

Many answers lacked sufficient detail; eg “careful positioning” does not give enough information to explain how abdominal compression can be avoided.

Important areas such as the neck, arteries and veins were often not mentioned, making it very difficult to pass the question.

Question 4

a. Describe the pathophysiological changes associated with a haemoglobin of 75 g/L. (50%)

b. Outline the patient factors that would indicate the need for a perioperative red blood cell transfusion in a patient with a haemoglobin of 75 g/L. (50%)

42.2% of candidates passed this question

The following were key components of an answer required to pass this question

The appreciation that haemoglobin is essential in carrying oxygen to the tissues and that anaemia decreases oxygen delivery to tissues

The appreciation that the anaemia, which may be chronic, may be compensated by more than haemodynamic changes.

Transfusion triggers are not definite end points but guides.

Prevention of end-organ hypoxia, symptomatic relief of symptoms, and wound healing are issues that should be outlined.

An increase in oxygen demand would decrease transfusion thresholds.

Comments about how this question was answered

This question was poorly answered considering the critical importance of the concept of oxygen delivery and its association with the oxygen carrying capacity of haemoglobin

There was a general lack of understanding of acute and chronic anaemia, and their compensatory mechanisms which extend beyond the cardiovascular system.

Listing conditions that would be indicators for transfusion did not answer the question, which asked for outlines of patient factors that would need perioperative red blood cell transfusion. Flexible transfusion triggers that took into consideration patients' pathophysiological requirements scored well, as did candidates that outlined reasons not to transfuse patients eg religious beliefs.

References to studies such as the Transfusion Requirements in Critical Care (TRICC) Trial (NEJM 1999; 340:409-417) gained some marks only if they accurately reflected the conclusions or the methodological limitations of the studies quoted.

Question 10

- a. Describe the pathophysiological effects of an inhalational injury following a house fire. (60%)
- b. What implications would this have for anaesthesia one week after the injury? (40%)

34.3% of candidates passed this question

The following were key components of an answer required to pass this question:

The first part should have covered thermal injury as well as injury due to inhalation of carbon monoxide and other toxins from the burning of plastics.

The thermal injury often causes oedema and sloughing of the mucosa.

Inhalation of toxic chemicals and carbon cause a pneumonitis and V/Q mismatching as well as provoking an inflammatory cascade. These mediators may cause local pulmonary and systemic effects. Carbon monoxide and cyanide poisoning should be covered.

The second part of the question involved a discussion of the airway management. Most patients are still ventilated by either their tracheal tube or via tracheostomy. Securing the airway during transfer to the operating theatre and intraoperatively is critical.

These patients often are at risk of barotrauma and therefore require ventilatory strategies to produce low plateau pressures to avoid barotrauma (allowing permissive hypercapnia).

They are at risk of ventilator-induced pneumonia and higher risk of infection.

The management of intraoperative fluids is very difficult, especially if there are major blood losses from large debridements. Strict monitoring of fluid balance is important intraoperatively as excessive fluid administration can worsen the lung injury.

Comments about how this question was answered

Many candidates appear not to have considered this clinical scenario before. Some answers were very brief, especially for part A which was worth 60% of the marks.

Many answers mentioned only thermal injury and carbon monoxide toxicity effects with no mention of the chemical pneumonitis or inflammatory cascade in the first part.

The second part in many answers often mentioned many aspects of general burns care and failed to focus on management of inhalational injury.

Several candidates felt that the patient may not be intubated at this stage. Though this may be likely in very minor inhalational injuries, it is more likely that ventilation in ICU is continuing after 1 week. Therefore, the issue is often ensuring the airway is secured during the transfer and operation. The suggestion that a laryngeal mask may be used to avoid provoking lower respiratory tract reflexes was not acceptable in the context of this question.