

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (ANAESTHESIOLOGY) FINAL EXAMINATION – MARCH 2022

Date:- 3rd March 2022

Time:- 9.30 a.m. – 12.30 p.m.

SHORT ANSWER QUESTIONS

Candidates are required to answer **all twelve (12) questions**.

Candidates who fail to attempt any **one (01)** question will not pass the examination.

All questions carry equal marks.

Answer each question in a separate book.

PART A

1.

- 1.1. What is ultrasound? (05%)
- 1.2. Outline the physical principles of ultrasound. (40%)
- 1.3. List the common uses of ultrasound in the perioperative setting. (25%)
- 1.4. What are the advantages (20%) and limitations (10%) of ultrasound guided regional anaesthesia? (30%)

2. A 65-year-old male with recurrent transient ischaemic attacks is scheduled for a carotid endarterectomy under general anaesthesia.

- 2.1. What is the best time to perform the surgery indicating the reason? (10%)
- 2.2. Enumerate the steps that can be taken intraoperatively to ensure a good outcome. (40%)
- 2.3. What are the complications of intraoperative shunting? (20%)

His blood pressure increases to 180/110 mmHg post operatively with severe headache.

- 2.4. What are the possible reasons? (10%)
- 2.5. Outline your management. (20%)

Contd..../2-

3. A 25-year-old male is awaiting mandibular and maxillary advancement surgery due to a functional defect.
 - 3.1. Mention the specific factors you would obtain from the history regarding his airway assessment. (20%)
 - 3.2. List the options available for intubation to facilitate surgical access. (20%)
 - 3.3. What are the possible intra and post operative airway concerns and how would you overcome them? (40%)
 - 3.4. Enumerate the measures that can be used to minimize intraoperative bleeding. (20%)

4. A 4-week-old baby, 2.4kg in weight, prematurely born at 30 weeks POA is scheduled for a bilateral inguinal hernia repair.
 - 4.1. What are the anatomical and physiological considerations in relation to the respiratory system? (20%)
 - 4.2. Outline your preoperative concerns. (40%)
 - 4.3. Briefly describe how you would anaesthetize this baby. (40%)

5. A 27-year-old male patient with traumatic brain injury (TBI) is admitted to the Emergency Department (ED) following blunt trauma to the head. His GCS is 10/15 (E= 3, V=3, M=4)
 - 5.1.
 - 5.1.1 What management strategies are adopted to minimize secondary brain injury of this patient in the ED? (50%)
 - 5.1.2 What would be the specific anaesthetic concerns if urgent evacuation of an extra dural haematoma (EDH) is planned? (35%)
 - 5.2. List the indications for intracranial pressure (ICP) monitoring in patients with TBI. (15%)

6. You are requested to make a questionnaire to screen patients who are at increased risk of perioperative bleeding.

6.1. Name six (06) risk factors you would include in the questionnaire. (20%)

The questionnaire identifies a patient who is on warfarin therapy for previous venous thromboembolism (VTE) due to protein C deficiency. He is awaiting hip arthroplasty.

6.2. Briefly explain the mechanism of action of warfarin. (15%)

6.3. What is “warfarin bridging”? (10%)

6.4.

6.4.1. Outline the current guidelines on warfarin bridging. (25%)

6.4.2. How would you manage warfarin therapy in this patient perioperatively? (30%)

PART B

7. A fit 24-year-old male is booked for an open reduction and internal fixation of distal humerus. Your plan is to perform a general anaesthetic combined with a supraclavicular regional block.

7.1. State three (03) important factors you will inform the patient regarding the supraclavicular block (30%)

7.2. List five (05) factors you will advocate to minimise the risks associated with this block. (25%)

You perform the block, and the patient develops a pneumothorax intra-operatively. A chest drain is inserted while he is asleep.

7.3. How would you manage the patient post-operatively (clinically and non-clinically)? (25%)

7.4. Which shoulder muscles activity could be missed while performing supraclavicular block for shoulder surgery? (10%)

7.5. Which nerves arising from brachial plexus could be missed while performing supraclavicular block? (10%)

8. A 35-year-old previously healthy male is admitted to Emergency Department following a run over injury to the lower part of his body. GCS is 15/15, airway is patent, SpO₂ on room air is 99%. He is pale, heart rate is 140/minute, blood pressure is 70/40mmHg.

Surgical team suspects a pelvic and long bone injury.

8.1. Outline the steps in the initial haemostatic resuscitation. (50%)

8.2. What radiological investigations would you request to confirm the likely injuries? (20%)

8.3. What are the surgical and non-surgical options available for management of the pelvic fracture in this patient? (30%)

9. A 28-year-old female developed a headache following epidural labour analgesia. A post dural puncture headache (PDPH) is suspected.

9.1. Briefly explain the possible pathogenesis of PDPH. (20%)

9.2. Explain with reasons why pregnant mothers are at an additional risk of developing PDPH. (20%)

9.3. List five (05) other common causes of post-partum headache. (10%)

9.4. Enumerate the measures that can be taken to minimize PDPH. (25%)

9.5. Outline the management of PDPH. (25%)

10.A 32-year-old lady with life threatening asthma requires ICU admission.

10.1. What are the clinical features suggestive of life-threatening asthma? (30%)

10.2. Outline the clinical basis on which you decide to provide invasive ventilatory support. (30%)

10.3. How would you intubate and ventilate this patient? (40%)

Contd..../5-

11.A patient awaiting on-pump Coronary Artery Bypass Grafting (CABG) is referred to the preoperative anaesthetic clinic. Upon assessment, his EUROSCORE-II is found to be high.

11.1. What is EUROSCORE-II? (10%)

11.2. List six (06) factors that would significantly increase the EUROSCORE-II in a CABG patient. (30%)

This patient is identified as a suitable candidate for CABG in an enhanced recovery pathway.

11.3. Outline the measures that can be taken in the preoperative period to improve his outcome. (40%)

11.4. List the neurological complications of on-pump CABG. (20%)

12.

12.1. Define a clinical audit. (10%)

12.2. List the steps involved in an audit cycle. (30%)

12.3. Write four (04) differences between an audit and research. (40%)

A double blind randomized multicenter study was carried out to see the efficacy of drug A in heart failure.

The experimental group was given drug A and drug B. The control group was given only drug B.

From the experimental group, 5 of 200 had exacerbations of heart failure requiring hospitalization. From the control group 25 of the 250 had exacerbations of heart failure requiring hospitalization.

12.4. What is the Number Needed to Treat (NNT) in this interventional study and interpret the result? (20%)

POSTGRADUATE INSTITUTE OF MEDICINE
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MD (ANAESTHESIOLOGY) FINAL EXAMINATION – MARCH 2022

Date:- 4th March 2022

Time:- 9.30 a.m. – 12.30 p.m.

LONG ESSAY QUESTIONS

Answer **all three (03) questions.**

Answer **each question in a separate book.**

1. A 58-year-old male presented to the hospital with abdominal pain, nausea and vomiting for one day duration. His CT scan of the abdomen and pelvis confirmed a perforated sigmoid diverticulum. He underwent an emergency laparotomy and sigmoid colectomy for large bowel perforation. He has a background history of ischaemic heart disease.

He had an episode of haemodynamic instability during the intraoperative period. He was transferred to the ICU for post operative care and ventilatory support.

Two hours after admission to ICU his blood pressure is unstable, and he is oliguric.

1.1.

1.1.1. What are the possible causes for the haemodynamic instability in the ICU? (10%)

1.1.2. How would you assess his haemodynamic status in the ICU? (25%)

1.2. How would you optimize his haemodynamic status? (20%)

1.3. Discuss the possible haemodynamic changes that could occur with intermittent positive pressure ventilation (IPPV) in this patient. (30%)

1.4. Consultant decided to use LiDCOrapid cardiac output monitoring device for further management.
Explain the physical principle of this. (15%)

2. A 30-year-old previously healthy primipara at POA of 26 weeks is admitted with abdominal discomfort to the casualty obstetric ward. She is feeling unwell. Abdominal ultrasound reveals a large multilocular ovarian mass. You have assessed the patient on request by the obstetrician.

2.1.

2.1.1. How is the timing of surgery decided? (15%)

2.1.2. What other management decisions should be taken at this stage? (20%)

The decision is to perform an urgent laparotomy under general anaesthesia.

2.2.

2.2.1. What are the major anaesthetic concerns? (15%)

2.2.2. Discuss the specific measures that you would take to overcome the concerns. (50%)

3.

3.1. A 45-year-old male is found to have a hepatoma during a routine health assessment. He is listed for right hemi hepatectomy.

3.1.1. Draw and label the 'liver functional unit' with its blood supply. (10%)

3.1.2. What are the unique features inherent to the liver when compared to other organs? (10%)

3.1.3. Outline the perioperative anaesthetic concerns. (50%)

3.2. On 3rd post operative day, patient becomes jaundiced and hypotensive.

3.2.1. List the possible causes. (10%)

3.2.2. Outline the initial management. (20%)