

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (ANAESTHESIOLOGY) FINAL EXAMINATION – AUGUST 2023

Date:- 10th August 2023

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. Draw and label the circle breathing system. (20%)

1.2. List the advantages and disadvantages of using the circle breathing system. (30%)

1.3. What features in the circle system facilitates low flow anaesthesia? (15%)

1.4. Explain how you would use the circle system to provide low flow anaesthesia. (15%)

1.5. Enumerate the safety requirements for low flow anaesthesia. (20%)

2. A 75-year-old man is scheduled for endovascular aneurysm repair (EVAR) of a 7cm diameter infra renal abdominal aortic aneurysm. He has osteoarthritis of both knees. The surgical team has referred him for preoperative assessment two weeks prior to surgery.

2.1. Enumerate how you would assess his specific pre operative problems. (40%)

2.2. State how you would optimize him. (20%)

2.3. List your intra operative concerns. (40%)

Contd.../2-

3. A 70-year-old male patient is awaiting wide local excision of a recurrent lesion in the buccal mucosa, cervical block dissection and flap repair. He has had radiotherapy 2 years ago.

He was a heavy smoker and consumed alcohol for 20 years and stopped 3 months ago.

3.1. Outline how you would assess and optimize this patient prior to surgery. (40%)

3.2. Briefly explain the intraoperative anaesthetic concerns. (60%)

4. A one-day-old neonate, breathing spontaneously with a SpO₂ of 95% on room air was transferred to the surgical intensive care unit for correction of trachea-oesophageal fistula.

4.1. Outline the preoperative assessment of this neonate. (20%)

4.2. Briefly describe the preoperative preparation for the surgery. (30%)

4.3. What are the intraoperative concerns? (50%)

5.

5.1. List five (05) surgical indications (10%) and five (05) contraindications for awake craniotomy. (10%)

5.2. Enumerate the different stages of awake craniotomy. (15%)

5.3. Briefly describe the anaesthetic techniques suitable for awake craniotomy. (50%)

5.4. List three (03) common complications which may occur during surgery. (15%)

6. A 78-year-old woman with rheumatoid arthritis is scheduled for a shoulder replacement.

6.1. What are the main anaesthetic concerns of rheumatoid arthritis? (40%)

6.2. Outline the options for airway management in this patient with advantages and disadvantages of each. (40%)

6.3. State the options for pain management in this patient. (20%)

PART B

- 7.
- 7.1. Draw a labeled diagram to show the anatomical relations of the right subclavian vein. (20%)
 - 7.2. List four (04) advantages and four (04) disadvantages of subclavian vein cannulation. (20%)
 - 7.3. What are the advantages of cannulating the right subclavian vein over the left subclavian vein? (10%)
 - 7.4. Describe how you would perform an infraclavicular subclavian vein cannulation using ultrasound technique. (50%)
8. You are called to the Accident & Emergency Department to assess a 25-year-old healthy man who got drowned while trying to rescue a man trapped on a house roof which was under floods.
- 8.1. What is drowning? (10%)
 - 8.2. Enumerate five (05) important factors which would predict his outcome. (20%)
- On arrival at the Accident & Emergency Department his heart rate was 70 beats/minute, blood pressure 99/60 mmHg and GCS was 7/15.
- 8.3. What is your immediate management? (35%)
 - 8.4. What is your management for the next 24 hours? (35%)
9. A 55-year-old previously healthy patient was referred to the pain clinic with persistent pain in his amputated limb.
He has had an emergency below knee amputation four weeks ago.
- 9.1. What clinical features would help to diagnose phantom limb pain (PLP)? (20%)
 - 9.2. Outline the postulated pathophysiology of PLP. (25%)
 - 9.3. Enumerate four (04) other likely causes for his pain. (10 %)
 - 9.4. Briefly describe how you would manage this patient. (45%)

10.A 20-year-old previously healthy, primigravida presents at 37 weeks of gestation with headache, blurred vision and epigastric pain. She is drowsy, afebrile, pale, icteric and has bilateral ankle oedema. Her blood pressure is 140/90 mmHg.

The following are her blood results:

Parameter	Patient Value	Normal Adult Range
Hb	8 g/dL	11.8-14.8
Platelet count	52 x 10 ⁹ /L	140 – 400
International Normalised Ratio (INR)	1.8	0.9 – 1.3
Activated Partial Thromboplastin Time (APTT)	55 seconds	25 – 38
Lactate dehydrogenase	654 U/L	110 – 250
Fibrinogen	1.0 g/L	1.5 – 4.0
Total bilirubin	51 µmol/L	< 20
Urea	30 mmol/L	3 – 8
Creatinine	298 µmol/L	70 – 120
Potassium	5.1 mmol/L	3.5– 5.5

10.1. List four (04) likely differential diagnoses for this clinical presentation. (20%)

10.2. Outline the initial management. (35%)

Multi-disciplinary team decided to deliver the baby by a category 2 caesarean section.

10.3. What are your specific perioperative anaesthetic challenges and how would you overcome them? (45%)

Contd.../5-

11. A 25-year-old, 70 Kg, ASA 1 man was admitted to the Emergency Treatment Unit with a crush injury to his left lower extremity 1 hour ago. His blood pressure was 90/60 mmHg, heart rate 130 beats/minute, and SpO₂ 96% on air. No other injuries were noted.

His urine was dark in colour with a urine output of less than 25 ml/hour over the next 2 hours. A diagnosis of crush related acute kidney injury (AKI) was made. He was transferred to ICU for further management.

- 11.1. List four (04) factors that contribute to the development of AKI in this patient. (20%)
- 11.2. What is the major laboratory abnormality in the
 - 11.2.1. urine analysis
 - 11.2.2. blood investigations
 that would support the diagnosis? (10%)
- 11.3. Enumerate five (05) complications this patient can develop. (25%)
- 11.4. Outline the specific management strategies with reasoning for this patient in the first 48 hours. (45%)

12. You are allocated to provide anaesthetic cover to the cardiac catheterization lab.

A 45-year-old man is admitted with a STEMI for primary angioplasty. He is found to have a tight lesion in the left anterior descending artery. He shows features of acute deterioration during the procedure.

- 12.1. What are the features of acute deterioration? (25%)

The patient suffers an on-table cardiac arrest during the procedure.

- 12.2. Outline the important differences in your immediate management from the standard advanced life support (ALS) algorithm. (25%)

The patient is resuscitated in 5 minutes, but cardiologists find a ruptured coronary artery with bleeding which lead to the cardiac arrest. The patient is rushed to the cardiac theatre for emergency coronary artery bypass graft (CABG) surgery on cardiopulmonary bypass.

- 12.3. What are the challenges you will have in the anaesthetic management of this patient? (50%)