

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (ANAESTHESIOLOGY) FINAL EXAMINATION
FEBRUARY/MARCH 2020

Date :- 27th February 2020

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. Briefly describe the applied anatomy of the anterior neck which is important when performing surgical airway. (40%)

1.2. How do you identify the cricothyroid membrane? (20%)

1.3. Following general anaesthesia for an emergency surgery, you fail to intubate after repeated attempts. You declare that you “can’t intubate and can’t oxygenate” (CICO).

How do you perform scalpel cricothyroidotomy? (40%)

2. A 55-year-old patient with a carcinoma of the base of the tongue is scheduled for hemiglossectomy and free flap reconstruction.

2.1. What is the difference between free flap and graft? (10%)

2.2. List the specific preoperative concerns in this patient. (30%)

2.3. What measures would you take to minimize bleeding during surgery? (30%)

2.4. How do you prevent flap failure? (30%)

3. A 55-year-old male is undergoing a percutaneous nephrolithotomy (PCNL) under general anaesthesia in the prone position. He is on losartan 50mg bd and bisoprolol 2.5 mg bd for hypertension. His blood pressure suddenly drops to 70/45 mmHg during surgery.

- 3.1. What are the likely causes? (20%)
- 3.2. Outline the physiological basis for the sudden hypotension. (35%)
- 3.3. Briefly describe your management. (45%)

4. A 35-year-old patient is admitted for excision of parasagittal meningioma.

- 4.1. List the specific preoperative concerns in this patient. (35%)
- 4.2. What measures should be taken to minimize rise of ICP during anaesthesia? (35%)

Following surgery, the patient was extubated and sent to ICU.

- 4.3. Write your post-operative management plan. (30%)
5. A term neonate develops respiratory distress following a caesarean delivery. The preductal oxygen saturation was 80%. A diagnosis of congenital diaphragmatic hernia is made.
- 5.1. List the steps of post-delivery resuscitation of this neonate. (30%)
 - 5.2. What are the important aspects of pre surgery PICU care? (30%)
 - 5.3. List the CDH EURO consortium parameters to be met prior to surgical correction. (10%)
 - 5.4. Outline the intraoperative management of this neonate. (30%)

6. You are called to the surgical casualty unit to assess a 70-year-old patient admitted with a leaking abdominal aortic aneurysm with a view for open aneurysm repair. He is known to have a 7cm infra renal abdominal aortic aneurysm and has defaulted admission for elective surgery.

- 6.1. Briefly describe the pre-operative assessment and optimization of this patient. (40%)
- 6.2. Outline your intraoperative management for the aneurysm repair. (40%)
- 6.3. List the possible post-operative complications this patient could develop. (20%)

Contd...../3-

PART B

7.
 - 7.1. List the components of an intra-arterial blood pressure monitoring system. (10%)
 - 7.2. What is meant by resonance? (15%)
Explain its significance in this system. (15%)
 - 7.3. What are the recommended features that will help to minimize the resonance in the above system? (20%)
 - 7.4. Outline the clinical information obtained from an arterial pressure waveform. (40%)
8.
 - 8.1. What is the daily calorie requirement of a healthy man? (05%)
State the percentage of different sources of energy that is recommended. (15%)
 - 8.2. What is refeeding syndrome? (10%)
Briefly describe the pathophysiology of refeeding syndrome. (15%)
 - 8.3. What are the risk factors for refeeding syndrome? (30%)
What is the most common vitamin deficiency? (05%)
 - 8.4. How will you manage patients at risk of refeeding syndrome? (20%)
9. A 35-year-old male with myasthenia gravis is scheduled for video assisted thoracoscopic surgery (VATS) for a thymectomy.
 - 9.1. What is your specific preoperative assessment and optimization for myasthenia gravis? (50%)
 - 9.2. Outline the important steps in the intraoperative management of this patient with regard to
 - 9.2.1. myasthenia gravis (30%)
 - 9.2.2. VATS (20%)

Contd...../4-

10.A 27-year-old primi para, at 34 weeks of POA is admitted with headache and blurring of vision. On examination she is conscious, rational, blood pressure 180/120 mmHg and has a proteinuria of 4+. Her blood pressure had been normal until this admission.

10.1. Why is it important to control her high blood pressure? (20%)

10.2. Outline how you would control the hypertension. (30%)

10.3. Outline the other significant steps in the management of this lady. (30%)

Following stabilization she is scheduled for a category 2 caesarean section.

10.4. Enumerate the specific problems you would encounter in this patient which may affect the available anaesthetic techniques. (20%)

11.

11.1. Briefly describe the pathophysiology of autonomic hyperreflexia. (20%)

11.2. Outline the other pathophysiological changes associated with chronic spinal cord injury. (40%)

A 55-year-old male with a chronic spinal injury at T6 level for 15 years duration is scheduled for major elective abdominal surgery.

11.3. State the specific precautions you would take in relation to the chronic spinal injury at

11.3.1. induction (15%)

11.3.2. maintenance (15%)

11.3.3. extubation during general anaesthesia (10%)

Contd...../5

12. A 26-year-old male with a BMI of 35kg/m^2 is admitted with an accidental fall over a pile of timber. He complains of severe abdominal pain.

He is conscious and rational. Pulse rate 100/minute, blood pressure 100/50 mmHg with normal heart sounds. SpO_2 on air is 95%.

Abdominal examination shows abrasions and contusions.

He is admitted to the intensive care unit for observation.

12.1. What are the possible injuries? (20%)

12.2. Name the radiological investigations you would order giving reasons. (20%)

While in ICU his pulse rate becomes 140/minute and blood pressure 90/60 mmHg. A bleeding liver segment is detected during radiology.

12.3. List the options available for management of the liver injury. (10%)

12.4. What important strategies would you adopt in the management of this patient? (50%)

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Date :- 28th February 2020

Time:- 9.30 a.m. – 12.30 p.m.

LONG ESSAY QUESTIONS

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

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

1. A 45-year-old lady with a BMI of 60 kg/m² is scheduled for a laparoscopic bariatric surgical procedure.
 - 1.1. Name the different types of bariatric surgical procedures. (05%)
 - 1.2. What are the indications and benefits of bariatric surgery? (15%)
 - 1.3. Outline the important aspects in the preoperative assessment and preparation of this patient. (25%)
 - 1.4. Briefly describe the specific intraoperative challenges indicating the measures that could be taken to minimize or overcome them. (40%)
 - 1.5. What are the main considerations in the postoperative care of this patient? (15%)

2. A 32-year-old primipara had an epidural catheter inserted in early first stage of labour. Thirty minutes after siting the epidural catheter, her pain score improved from 90 to 50 on the 100 mm visual analogue scale. Two hours later, she was in severe pain and the on-call anaesthetist was called in.
 - 2.1. Describe the neural pathways associated with pain in labour. (30%)
 - 2.2. Outline the possible risk factors for the development of breakthrough pain in this parturient. (20%)
 - 2.3. What measures could have been taken to prevent it? (20%)
 - 2.4. If you were the on-call anaesthetist, how would you manage her at the time of severe pain? (30%)

Contd..../2-

3. A 45-year-old 70kg farmer was admitted with a 4 day history of fever, arthralgia, severe myalgia and reduced urine output. On admission to the ward he was icteric, dyspnoeic, heart rate was 110/minute, and blood pressure was 85/70 mmHg. His oxygen saturation was 86% on room air. A provisional diagnosis of leptospirosis was made. He was started on 10 L/minute oxygen and transferred to the ICU. His arterial blood gas analysis revealed severe hypoxaemia and metabolic acidosis.

He required i.v. noradrenaline 0.5µg/kg/minute after fluid resuscitation to maintain MAP more than 65 mmHg. He was intubated and immediately after intubation there was bleeding through the endotracheal tube.

- 3.1. How would you confirm the diagnosis of leptospirosis? (10%)
- 3.2. What is your ventilatory strategy for this patient? (15%)
- 3.3. What are the other important aspects in the management of this patient? (45%)

He was initiated on Continuous Veno Venous Haemofiltration (CVVH) via a femoral vascular catheter due to oliguria and rising creatinine level. His haematocrit is 30%.

No anticoagulation was used due to low platelet count. The filter clotted twice within 6 hours into initiating CVVH.

- 3.4. Enumerate the factors that would have contributed to clotting of the filter. (10%)
 - 3.5. State the measures you would take to maintain filter life and increase the efficiency of therapy. (20%)
4. Transplant teams are considering a multi-organ procurement in a 24-year-old male who was pronounced brain dead.
 - 4.1. Explain the physiological basis of apnoea test. (20%)
 - 4.2. Describe the intraoperative management of this donor for optimal multi-organ procurement. (60%)
 - 4.3. Highlight the changes required in above management for the procurement of (20%)
 - 4.3.1. Heart
 - 4.3.2. Liver