

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (ANAESTHESIOLOGY) FINAL EXAMINATION
MARCH 2014

Date : 14th March 2014

Time : 1.00 p.m. – 4.00 p.m.

LONG ESSAY QUESTIONS

Answer any **three** questions.

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

1. A 40 year old female with myasthenia gravis is scheduled for a mastectomy.
 - 1.1. What are the important considerations in the preoperative assessment of this patient ? (40%)
 - 1.2. How do you prepare and optimize this patient prior to surgery ? (20%)
 - 1.3. Briefly describe your conduct of anaesthesia. (40%)

2. A 65 year old male diagnosed with carcinoma of the sigmoid colon is scheduled for a hemicolectomy. He has had a myocardial infarction ten weeks ago.
 - 2.1. What are the factors which affect the balance between myocardial oxygen delivery and demand in the perioperative period in this patient ? (20%)
 - 2.2. How do you assess and optimize him with regard to his cardiac condition prior to surgery ? (40%)
 - 2.3. Describe your anaesthetic management of this patient after optimization. (40%)

3. A 24 year old male has sustained multiple injuries including trauma to the chest in a road traffic accident. He is restless, pulse 130 beats/minute BP 60/50 mmHg, SpO₂ 86% on air.
- 3.1. Explain the reasons for the low SpO₂. (15%)
- 3.2. When would you consider tracheal intubation of this patient ? (15%)
- 3.3. List the possible causes for the hypotension ? (10%)
- 3.4. What is damage control resuscitation ? outline how you would achieve damage control resuscitation in this patient ? (30%)
- 3.5. This patient is brought to the ICU for ventilation following damage control resuscitation. Outline the management of this patient in the next 24 hours. (30%)
4. A chronic alcoholic patient with deranged liver functions is scheduled for an appendicectomy following acute appendicitis.
- 4.1. What possible alterations could be there in his systemic functions ? Explain the pathophysiology of these changes. (50%)
- 4.2. How would you risk stratify this patient as regards to his liver functions ? (15%)
- 4.3. What special precautions should be taken intra-operatively to improve the outcome of this patient ? (35%)

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MARCH 2014

Date : 17th March 2014

Time : 1.00 p.m. – 4.00 p.m.

SHORT ANSWER QUESTIONS

Candidates are required to answer all twelve questions.

Candidates who fail to attempt anyone question will not pass the examination.

All questions carry equal marks.

Answer each part in a separate book marked A and B.

PART A

1.
 - 1.1. What are the potential benefits of an enhanced recovery programme (fast-track) for a patient undergoing major abdominal surgery ? (25%)
 - 1.2. List the pre-operative, (25%) intraoperative (25%) and postoperative goals (25%) that aim to achieve 'fast track' status.

2. A 35 year old man is in the ICU on the ventilator for 48 hours with severe traumatic brain injury. On neurological examination his GCS is 3/15, he has size 6 non reacting pupils and no spontaneous breathing.
 - 2.1. what are the preconditions to check brain stem death on him ? (15%)
 - 2.2. What tests would you do to confirm brain stem death ? (35%)
 - 2.3. Outline the principles of management of a brain death certified patient awaiting organ relief. (50%)

3.
 - 3.,1. List electrophysiological mechanisms leading to cardiac arrhythmias in patients undergoing anaesthesia or in Intensive Care. (10%)
 - 3.2. What pathophysiological conditions predispose to cardiac arrhythmias ? (40%)
 - 3.3. When should arrhythmias be treated and what methods are available ? (10%)
 - 3.4. List the Vaughan williams classification of anti-arrhythmic drugs, including mechanism of action, and at least one example from each class. (40%)

4.
 - 4.1. Outline the initial assessment of a patient admitted to the Emergency Department with a traumatic brain-injury ? (40%)
 - 4.2. What are the indications for CT scanning in this patient ? (10%)
 - 4.3. What are your management goals in preventing secondary brain damage ? (50%)

5.
 - 5.1. List the physiological effects of normal or excess cortisol that are of relevance to anaesthesia. (40%)
 - 5.2. What are the causes of adrenocortical insufficiency ? (30%)
 - 5.3. How may acute corticosteroid insufficiency be diagnosed clinically and biochemically ? (30%)

6. A 29 year old ASA1 patient is undergoing laser Surgery for removal of a vocal cord nodule.
 - 6.1. What are the risks associated with laser surgery ? (40%)
 - 6.2. outline the safety precautions necessary when anaesthetizing this patient. (60%)

PART B

7. A 40 year old patient diagnosed to have adenocarcinoma of the right lung is to undergo right thoracotomy and bilobectomy.
- 7.1. What are the predictors of high risk for lung resection under one lung anaesthesia ? (40%)
- 7.2. Outline the ventilation-perfusion relationship in an anaesthetised patient in the lateral decubitus position with
- 7.2.1. positive pressure ventilation to both lungs (closed chest)
- 7.2.2. positive pressure ventilation to one lung (open chest) (60%)
8. A 32 year old healthy mother has delivered her fourth child. She was found to have excessive vaginal bleeding.
- 8.1. What are the cardiovascular changes in pregnancy ? (25%)
- 8.2. How do these changes interfere with the assessment of blood loss in this patient ? (25%)
- 8.3. Outline the problems you could encounter if this patient needs a general anaesthetic for surgical intervention to control bleeding. (50%)
9. A 5 week old infant presented to the surgical casualty with projectile vomiting. He is diagnosed as having pyloric stenosis. You have been asked to assess the child before pyloromyotomy.
- 9.1. Outline the problems you would anticipate in this child. (40%)
- 9.2. List the safe levels for laboratory data that you would consider before anaesthetizing this child. (10%)
- 9.3. How would you induce anaesthesia and secure the airway ? (20%)
- 9.4. Outline the post operative management of this child. (30%)

- 10.
- 10.1. Describe the innervation of the larynx. (50%)
 - 10.2. How do you perform nerve blocks for an awake intubation ? (50%)
11. A 60 year old patient in ICU having been ventilated for pneumonia is now breathing spontaneously via a tracheostomy. He suddenly desaturates. The tracheostomy tube has been in situ for ten days.
- 11.1. What would be your immediate management ? (40%)
 - 11.2. What will you do if the tracheostomy tube is not patent ? (60%)
- 12.
- 12.1. Define relative humidity. (10%)
 - 12.2. Why is maintenance of humidity important in anaesthesia and intensive care ? (40%)
 - 12.3. Briefly describe the following giving advantages and disadvantages.
 - 12.3.1 Water bath humidifier with Heated Wire. (25%)
 - 12.3.2. Gas driven nebulizer. (25%)