

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**MD (ANAESTHESIOLOGY) FINAL EXAMINATION – AUGUST 2017**

**Date :-** 17<sup>th</sup> August 2017

**Time :-** 1.00 p.m. – 4.00 p.m.

**LONG ESSAY QUESTIONS**

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

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

1. A 32-year-old, P<sub>2</sub>C<sub>1</sub> mother (P1 – caesarean section) at the 36<sup>th</sup> week of gestation, has been admitted to the casualty obstetric unit with dribbling for 6 hours. She has had high fever, body aches and pains 2 days before admission and is now found to be afebrile.

1.1. What features would confirm the diagnosis of dengue fever in this patient? (10%)

Dengue fever is diagnosed subsequently.

1.2. How would you recognize the onset of plasma leakage? (15%)

1.3. What physiological changes of pregnancy may make the identification of fluid leakage difficult? Explain. (25%)

1.4. Six hours following admission her heart rate is 120/minute, blood pressure 90/70 mmHg and there is no urine output for the last 2 hours. Describe your immediate management. (25%)

1.5. Her condition improves the following day but the CTG indicates foetal tachycardia. The obstetrician suggests a category II caesarean section.

What are your concerns at this stage? (10%)

Outline your management? (15%)

Contd...../2-

2. You are asked to assess a 70-year-old male in the casualty ward, awaiting emergency laparotomy for suspected intestinal perforation.
  - 2.1. How would you grade the severity of his illness at the bed side? (10%)
  - 2.2. State giving reasons the investigations you would request to manage this patient. (25%)
  - 2.3. Describe the perioperative care that you would provide to improve the outcome of this patient. (45%)
  - 2.4. Briefly describe one (01) of the regional techniques you may use to provide post-operative pain relief. (20%)
  
3. There is a significant incidence of pulmonary complications following general anaesthesia for major surgery.
  - 3.1. List the post-operative pulmonary complications. (10%)
  - 3.2. Describe the intra and post-operative pathophysiological changes that may lead to these complications. (30%)
  - 3.3. Enumerate the non-modifiable and modifiable risk factors for the above complications. (30%)
  - 3.4. Briefly describe how you would prevent or minimize the incidence. (30%)
  
4.
  - 4.1. Describe the blood supply to the spinal cord. (20%)
  - 4.2. During aortic aneurysm surgery
    - 4.2.1. What factors would contribute to spinal cord injury? (30%)
    - 4.2.2. Outline the measures that are used to prevent spinal cord injury. (30%)
    - 4.2.3. How would you monitor spinal cord function perioperatively? (20%)

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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 part in a separate book marked A and B.

PART A

1. A 65-year-old male, with sepsis is being ventilated in the ICU. Endotracheal tube was changed on day four because of a leak in the cuff. It required three attempts and patient developed hypotension and desaturation after changing the tube.
  - 1.1. What factors make endotracheal intubation difficult in an ICU patient? (50%)
  - 1.2. How do you minimize the complications related to intubation in the ICU? (50%)
2.
  - 2.1. List the exclusion criteria for solid organ donation in a brain stem dead patient. (30%)
  - 2.2. What are the pathophysiological changes that occur in a patient following brain stem death? (30%)
  - 2.3. Outline the management of a potential heart-beating organ donor following brain stem testing. (40%)

Contd...../2-

3. A 38-year-old lady is to undergo Functional Endoscopic Sinus Surgery (FESS) under general anaesthesia due to chronic sinusitis.
  - 3.1. What measures can be taken to improve the surgical field during FESS? (50%)
  - 3.2. Mention the options available to maintain the airway during this procedure, giving their advantages and disadvantages. (30%)
  - 3.3. How do you ensure a smooth emergence from anaesthesia in this patient? (20%)
  
4. One day old, term neonate has arrived at the intensive care unit following diagnosis of diaphragmatic hernia. He is already intubated and ventilated.
  - 4.1. How would you stabilize this neonate? (40%)
  - 4.2. Outline with reasons, the principles of preoperative management before corrective surgery. (60%)
  
5. A 17-year-old previously healthy boy was admitted to A&E with a history of head injury following an assault. On examination, he had a dilated pupil on the left side with a GCS of 7/15 (E=2, V=2, M=3). CT scan revealed an acute subdural haematoma with a midline shift. He needs transfer to a neurosurgical unit.
  - 5.1. How do you ensure safe transfer of this patient? (40%)
  - 5.2. Indicate how cervical spine injury is excluded in this patient? (30%)
  - 5.3. Outline the measures taken to minimize spinal cord injury during intubation. (30%)
  
6.
  - 6.1. List the most important properties of an inhaled anaesthetic agent for use in rapid inhalational induction of anaesthesia. (30%)
  - 6.2. What factors may SLOW the speed of sevoflurane inhalation induction in an adult patient? (45%)
  - 6.3. What are the mechanisms of potential toxic haematological and neurological effects of nitrous oxide? (25%)

PART B

- 7.
- 7.1. Outline the hepatic physiological changes of pregnancy. (25%)
  - 7.2. What are the three (03) main hepatic disorders which are specific to pregnancy? (15%)
  - 7.3. How do you differentiate the three (03) disorders mentioned in 7.2 from each other? (60%)
- 8.
- 8.1. Outline the pathophysiology of burn shock. (30%)
  - 8.2. What factors would determine the choice and volume of intravenous fluids given to a patient following a major burn? (40%)
  - 8.3. How do you ensure the adequacy of fluid resuscitation following a calculated fluid regimen? (30%)
9. A 60-year-old lady, who is a Type II diabetic for 10 years, is awaiting a major abdominal surgery.
- 9.1. What signs and symptoms would indicate autonomic neuropathy in her? (30%)
  - 9.2. Enumerate the available tests with expected values to confirm the diagnosis of autonomic neuropathy. (30%)
  - 9.3. Outline the peri-operative considerations in relation to the autonomic neuropathy. (40%)
10. A 60-year-old gentleman is awaiting an elective non-cardiac surgery. He gives a history of an acute coronary event and percutaneous coronary intervention (PCI) in the past.
- 10.1. List the types of coronary stents and briefly explain their differences. (25%)
  - 10.2. What are the perioperative risks associated with coronary stents? (20%)
  - 10.3. What specific information is required to evaluate the above risks? (40%)
  - 10.4. How long should you defer elective surgery following PCI? (15%)

11. A 28-year-old primi mother with a POA of 32 weeks is diagnosed to have pulmonary hypertension. She requires a general anaesthetic for elective caesarean section.
- 11.1. What is pulmonary hypertension and how do you grade its severity? (15%)
  - 11.2. What special precautions would you take during the anaesthetic procedure? (50%)
  - 11.3. What are the causes for a pulmonary hypertensive crisis in the post-operative period? (10%)  
How is it managed? (25%)
- 12.
- 12.1. What is meant by the power of a statistical test? (10%)
  - 12.2. How can this power be increased? (20%)
  - 12.3. In clinical research, what is a
    - 12.3.1. Cohort study? (15%)
    - 12.3.2. Case control study? (15%)
  - 12.4. On what basis, would you decide to choose a
    - 12.4.1. Cohort study design? (20%)
    - 12.4.2. Case control study design? (20%)