Reg. No.										

MANIPAL UNIVERSITY

PG DIPLOMA IN ANAESTHESIOLOGY (DA) EXAMINATION – APRIL 2013

SUBJECT: PAPER I: BASIC SCIENCES AS APPLIED TO ANAESTHESIOLOGY: ANATOMY, PHYSIOLOGY, PHARMACOLOGY AND BIOCHEMISTRY, ETHICS, QUALITY ASSURANCE, MEDICOLEGAL ASPECTS

Tuesday, April 02, 2013

Time: 14:00 – 17:00 Hrs. Max. Marks: 100

- **Be brief in your answers; padding your answers will not get you any extra credit.**
- **Illustrate your answer with clearly labeled diagrams where appropriate.**

1. Describe the forces regulating the movement of fluids across the capillary wall in the systemic and pulmonary circulations. Discuss the pathophysiology of pulmonary oedema.

(5+5 = 10 marks)

2. Describe briefly the process of oxygen transport in the blood.

(10 marks)

3. Explain the terms acidaemia and acidosis. Explain the role of the kidneys in maintaining fluid, electrolyte and acid-base balance.

(2+8 = 10 marks)

4. Compare and contrast thiopentone sodium with propofol with respect to:

4A. Physical and chemical properties

4B. Volume of distribution

4C. Metabolism

4D. Distribution half-life

4E. Elimination half-life

(2+2+2+2+2 = 10 marks)

5. Describe the current applications of transmucosal drug delivery in anesthetic practice.

(10 marks)

6. Describe the various phases of a normal capnographic trace. Draw the capnogram in the following clinical situations:

6A. Bronchospasm

6B. Esophageal intubation

6C. Venous air embolism

6D. Inadequate cardiac compression during cardiopulmonary resuscitation.

(2+2+2+2+2 = 10 marks)

7. What are the precautions to be undertaken to minimize the hazards of airway fire while using laser? How do you manage the situation of an accidental fire of the airway in the operation theatre?

(6+4 = 10 marks)

8. Describe the anatomy of epidural space. Discuss the techniques used to identify the epidural space.

(4+6 = 10 marks)

9. With the help of a diagram, describe the innervation of foot. Describe the technique of ankle block.

(3+7 = 10 marks)

10. With the help of a labelled diagram, describe the formation of the brachial plexus. Enumerate the nerves arising from the brachial plexus.

(6+4 = 10 marks)

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PG DIPLOMA IN ANAESTHESIOLOGY (DA) EXAMINATION – APRIL 2013

SUBJECT: PAPER II: PRINCIPLES AND TECHNIQUES OF ANAESTHESIA INCLUDING REGIONAL ANAESTHESIA

Wednesday, April 03, 2013

Time: 14:00 – 17:00 Hrs. Max. Marks: 100

- **Be brief in your answers; padding your answers will not get you any extra credit.**
- **Illustrate your answer with clearly labeled diagrams where appropriate.**

1. Discuss the factors affecting myocardial oxygen supply-demand balance. Discuss the strategies for myocardial protection during cardiopulmonary bypass.

(4+6 = 10 marks)

2. Describe giving details the three major components of preoperative respiratory evaluation for a 160-cm tall male patient scheduled for left sided pneumonectomy. Add a brief note on your technique for isolating the left lung.

(7+3 = 10 marks)

3. Enumerate the common sources of critical venous air embolism. List the monitors available for detecting venous air embolism in decreasing order of sensitivity. Outline the management of an acute air embolic event.

(2+3+5 = 10 marks)

4. Discuss the anaesthetic implications and management of a 24-year old lady with preeclampsia for emergency Caesarean delivery.

(6+4 = 10 marks)

5. Discuss the anaesthetic concerns, preoperative assessment and optimisation of a 2-year old child scheduled to undergo laparotomy for intestinal obstruction. Outline your plan for anaesthetic management.

(6+4 = 10 marks)

6. A 25 year old man with a LeFort III fracture with no evidence of basilar skull fracture is scheduled for fracture reduction. Write a note on LeFort classification of maxillofacial fractures. Discuss the perioperative management plan for this patient.

(3+7 = 10 marks)

7. Describe the preoperative optimisation and intraoperative management of a patient with end-stage renal disease scheduled for renal transplantation from a live-related donor.

(3+7 = 10 marks)

8. Discuss the fluid, airway and pain management plan for a 20-year old lady weighing 55 kg with one week old 40% thermal burns of the chest and upper limbs scheduled for tangential excision of the same.

(4+3+3 = 10 marks)

9. Define the following terms: *difficult airway, difficult mask ventilation, difficult laryngoscopy* and *difficult intubation*. Describe the special techniques available for tracheal intubation in a patient with suspected cervical spine injury.

(4+6 = 10 marks)

10. A 2-year old boy weighing 15 kg is scheduled for magnetic resonance imaging (MRI) of the brain for evaluation of seizure disorder. Discuss the anaesthetic management plan for this patient with special emphasis on the safety considerations, monitoring issues and equipment compatibility within the MRI suite.

(4+2+2+2 = 10 marks)

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PG DIPLOMA IN ANAESTHESIOLOGY (DA) EXAMINATION – APRIL 2013

SUBJECT: PAPER III: ANAESTHESIA IN RELATION TO ASSOCIATED SYSTEMIC DISEASES, INTENSIVE CARE MEDICINE, PAIN MEDICINE

Thursday, April 04, 2013

Time: 14:00 – 17:00 Hrs. Max. Marks: 100

- **Be brief in your answers; padding your answers will not get you any extra credit.**
- **Illustrate your answer with clearly labeled diagrams where appropriate.**

1. Describe the working principle of a defibrillator. Enumerate the current American Heart Association guidelines on the use of an automated external defibrillator in children.

(4+6 = 10 marks)

2. A 60-year old male presents to the emergency room with history of frequent blackouts since the morning. He has a heart rate of 45 beats per minute and a blood pressure of 70/40 mmHg. Present your plan for periprocedure management of this patient scheduled for permanent pacemaker implantation.

(10 marks)

3. A 45-year old man met with a road traffic accident and sustained multiple rib fractures. Describe the difference between flail chest and stove-in chest. Describe the management of this patient with rib fractures.

(4+6 = 10 marks)

4. Describe the compensatory mechanisms in anemia. What are the conditions that may decrease the tolerance for anemia and influence the threshold for red blood cell transfusion?

(6+4 = 10 marks)

5. Describe the management of a patient presenting with severe life-threatening asthma. What are the indications for noninvasive positive pressure ventilation and endotracheal intubation with mechanical ventilation in these patients?

(6+4 = 10 marks)

6. Based on the mechanism of action, classify the currently used vasopressors. Outline the mechanism of action and clinical use of

6A. Fenoldopam

6B. Vasopressin.

(4+3+3 = 10 marks)

7. Define preemptive analgesia. With the help of a labeled diagram, outline the pain pathways.

(4+6 = 10 marks)

8. Describe your plan for postoperative pain relief in an 18-month old child scheduled for bilateral posteromedial soft tissue release for club foot.

(10 marks)

9. Outline a plan for assessment of a patient presenting to you for relief of chronic persistent pain.

(10 marks)

10. What is *phantom limb pain*? Discuss the available modalities for management of *phantom limb pain*.

(2+8 = 10 marks)