

MANIPAL UNIVERSITY

MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2008

SUBJECT: PAPER I: BASIC SCIENCES AS APPLIED TO ANAESTHESIOLOGY

Tuesday, April 01, 2008

Time: 3 Hrs.

Max. Marks: 100

✍ **Be brief in your answers, padding your answers will not get you any extra credit.**

✍ **Illustrate your answer with clearly labelled diagrams where appropriate.**

1. Define jugular venous pressure. Mention its normal value. With the help of a diagram, discuss briefly the normal jugular venous pulse waveform in relation to the cardiac cycle.
(2+1+7 = 10 marks)
2. Draw the normal carbon dioxide dissociation curve. How is carbon dioxide transported from the tissues to the lungs? Discuss the importance of chloride shift in relation to carbon dioxide transport.
(4+4+2 = 10 marks)
3. Define hypokalemia. Discuss the causes, clinical features and management of hypokalemia.
(1+3+3+3 = 10 marks)
4. Define the term *critical temperature*. Enumerate the causes of hypothermia during general anaesthesia and central neuraxial blockade. Discuss thermoregulation during general anaesthesia.
(1+4+5 = 10 marks)
5. Define *loading dose* and *maintenance dose* of an intravenous drug. Compare and contrast propofol and thiopentone with relation to *elimination half-life*, *rate of clearance*, *volume of distribution* and *protein binding*.
(2+2+2+2+2 = 10 marks)
6. Discuss how lignocaine and bupivacaine differ in their toxicity. Enumerate the newer local anaesthetics and compare their toxicity with reference to bupivacaine.
(4+2+4 = 10 marks)
7. What are the principles of peripheral nerve stimulation? Enumerate the various patterns of peripheral nerve stimulation. Mention the conditions that warrant the use of peripheral nerve stimulation in clinical anaesthesia.
(3+2+5 = 10 marks)
8. Describe the working principles of a variable bypass vaporiser. Briefly outline the working principle of a Tec-6 vaporiser.
(5+5 = 10 marks)
9. Describe with the help of diagrams the formation and the branches of the cervical plexus.
(10 marks)
10. Describe the anatomy of the diaphragm. How does diaphragmatic function change under anaesthesia?
(5+5 = 10 marks)



MANIPAL UNIVERSITY**MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2008****SUBJECT: PAPER II: CLINICAL ANAESTHESIOLOGY I**

Wednesday, April 02, 2008

Time: 3 Hrs.

Max. Marks: 100

- ✍ **Be brief in your answers; padding your answers will not get you any extra credit.**
- ✍ **Illustrate your answer with clearly labelled diagrams where appropriate.**
1. Outline how you would evaluate a patient with uterine inversion scheduled for emergency surgery for correcting of the condition under general anaesthesia. What are the methods that one could adopt to help in relaxing a *uterine constriction band*?
(8+2 = 10 marks)
 2. A 22-year old primigravida at 20-weeks of gestation is scheduled for emergency laparoscopic appendicectomy. Describe your perioperative concerns and their management.
(10 marks)
 3. Describe the management of meconium aspiration in a neonate delivered by caesarean section.
(10 marks)
 4. Discuss the recommended guidelines for anticoagulation in a patient on unfractionated heparin therapy in whom you plan to perform an epidural block for elective hip surgery.
(10 marks)
 5. Enumerate the indications for interscalene approach to the brachial plexus. Describe the technique of interscalene brachial plexus block. What are the complications associated with this block and how would you diagnose and manage them?
(2+4+4 = 10 marks)
 6. Describe the effect of local anaesthetic drugs on the sodium channels. What anatomical factors related to the nerve alter the pattern of blockade of nerve fibres?
(5+5 = 10 marks)
 7. Describe how you would set up a patient controlled analgesia (PCA) pump for a 60-year old lady weighing 70 kg who has undergone a total hip replacement surgery under continuous lumbar epidural anaesthesia.
(10 marks)

8. A 50-year old man is admitted with a right inguinal hernia for elective surgery. His blood pressure is 180/120 mm Hg which he attributes to anxiety. What are the implications of accepting him for anaesthesia? How would you plan for his optimal perioperative management?
- (4+6 = 10 marks)
9. A 36-year old chronic alcoholic is admitted following a road traffic accident. He is scheduled three days later for internal fixation of the fractured femur. You find him to be irritable and non-cooperative. On physical examination, he has evidence of alcoholic liver disease. Describe how you would evaluate him further. Outline how you would stratify the risk that surgery would entail in him.
- (6+4 = 10 marks)
10. Describe the difference between a *retrobulbar block* and *peribulbar block* for ophthalmic anaesthesia. What are the advantages of a peribulbar block?
- (5+5 = 10 marks)

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MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2008

SUBJECT: PAPER III: CLINICAL ANAESTHESIOLOGY II

Thursday, April 03, 2008

Time: 3 Hrs.

Max. Marks: 100

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

1. With the help of a schematic diagram, describe the components of a cardiopulmonary bypass unit. Mention the points you would check before instituting cardiopulmonary bypass.
(7+3 = 10 marks)
2. Discuss the preoperative preparation, anaesthetic management and postoperative care of a 3-year old child posted for ligation of patent ductus arteriosus.
(3+4+3 = 10 marks)
3. What are the different techniques available for lung isolation? Briefly mention the advantages and disadvantages of each of these techniques. How do you diagnose correct placement of a double lumen tube?
(2+4+4 = 10 marks)
4. A 50-year old man diagnosed to have a posterior fossa tumour (acoustic neuroma) is posted for craniotomy and excision of tumour. His vital signs are stable. What are the different positions in which surgery can be done? Enumerate the relative advantages and disadvantages of each position. How will you diagnose and treat venous air embolism?
(2+4+4 = 10 marks)
5. A 65-year old obese lady with degenerative arthritis of both hips is posted for right total hip replacement arthroplasty using bone cement. Briefly describe the perioperative anaesthetic management including the problems that you might encounter.
(6+4 = 10 marks)
6. Compare and contrast general anaesthesia versus central neuraxial blockade for transurethral resection of prostate. What are the earliest features of the TUR syndrome? How do you manage a case of suspected TUR syndrome?
(4+2+4 = 10 marks)

7. What are the anatomical types of tracheoesophageal fistula? Mention the anticipated intraoperative problems during the conduct of anaesthesia for repair of tracheoesophageal fistula in a 1-day old neonate. Briefly mention the measures you would take to maintain intraoperative temperature homeostasis.

(2+4+4 = 10 marks)

8. A 2-year old child with obstructive hydrocephalus and increased intracranial pressure is posted for ventriculoperitoneal shunt procedure. Discuss the anaesthetic considerations and perioperative management of this child.

(4+6 = 10 marks)

9. A 35-year old man with no other medical illness is posted for interval appendicectomy. During induction of anaesthesia with thiopentone sodium, the patient complains of difficulty in breathing and the pulse became feeble. Blood pressure becomes unrecordable. What is your possible diagnosis? Discuss your management strategies for this situation.

(2+8 = 10 marks)

10. A 3-year old child with recurrent convulsions is posted for magnetic resonance imaging of the head. What are the important anaesthetic considerations and how will you manage the child during the procedure?

(3+7 = 10 marks)

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MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2008

SUBJECT: PAPER IV: REANIMATOLOGY & CRITICAL CARE MEDICINE, MANAGEMENT OF
CHRONIC PAIN STATES AND ALLIED HEALTH DISCIPLINES

Friday, April 04, 2008

Time: 3 Hrs.

Max. Marks: 100

✍ **Be brief in your answers; padding your answers will not get you any extra credit.**

✍ **Illustrate your answer with clearly labelled diagrams where appropriate.**

1. What are the main considerations in resuscitation of a victim of electrocution? How will you resuscitate a 40-year old patient who has arrested due to electrocution?
(4+6 = 10 marks)
2. Describe the measures of post-cardiac arrest cerebral resuscitation in a 30-year old victim who sustained cardiac arrest due to hypovolaemia.
(10 marks)
3. Describe the diagnosis and management of a patient with a serum sodium of 116 mmol/L.
(5+5 = 10 marks)
4. Define *massive blood transfusion*. Enumerate the complications of blood transfusion. How will you manage a case of mismatched blood transfusion?
(1+5+4 = 10 marks)
5. What are the clinical features of organophosphorus poisoning? How will you diagnose and manage a case of organophosphorus poisoning admitted in the intensive care unit?
(3+7 = 10 marks)
6. What are the indications and contraindications of noninvasive positive pressure ventilation? How do you wean a patient from noninvasive ventilation?
(3+3+4 = 10 marks)
7. Discuss the clinical features and management of trigeminal neuralgia.
(4+6 = 10 marks)
8. With the help of a labelled diagram, outline the *pain pathways*. Add a note on the *Gate control theory of pain*.
(7+3 = 10 marks)
9. How would you set up a *difficult airway cart*? Write the ASA algorithm for difficult airway management.
(4+6 = 10 marks)
10. Design a clinical trial to evaluate the efficacy of a new analgesic “newphine”.
(10 marks)

