

MANIPAL UNIVERSITY

MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2009

SUBJECT: PAPER I: BASIC SCIENCES AS APPLIED TO ANAESTHESIOLOGY

Wednesday, April 01, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions.

✍ Write brief answers (avoiding unnecessary padding)

✍ Use diagrams where appropriate.

1. Describe the location and physiologic effects of stimulation of β_2 -adrenergic receptors. Name two β_2 -adrenergic blocking drugs and their side effects and drug interactions with anaesthetic agents.
(7+3 = 10 marks)
2. Describe briefly the process of oxygen carriage in the blood. How does this process alter in the condition of methaemoglobinaemia?
(7+3 = 10 marks)
3. Explain the terms acidemia and acidosis. Outline how the kidneys play a role in compensating for acid–base disorders.
(2+8 = 10 marks)
4. Briefly describe the structure of the postjunctional acetylcholine receptor and the effect nondepolarizing muscle relaxant drugs have on these receptors.
(4+6 = 10 marks)
5. Classify intravenous anaesthetic agent. Compare the effect thiopentone sodium and propofol on the central nervous and cardiovascular systems.
(2+4+4 = 10 marks)
6. Compare the structure, metabolism and elimination of mivacurium and atracurium.
(2+4+4 = 10 marks)
7. Explain the terms ‘natural frequency’ and ‘dampening coefficient’. Outline the components of an intra-arterial pressure monitoring setup. What is the importance of leveling the transducer?
(2+6+2 = 10 marks)
8. Explain the application of the Bernoulli equation to the flow of gases through a Venturi tube. Give an example of the clinical application of this equation in clinical practice.
(7+3 = 10 marks)
9. Describe the local anesthetic blocks for facilitating a comfortable awake blind nasal intubation.
(10 marks)
10. Describe the dermatomes of the upper limb. Following an axillary block the median nerve is spared. Over which dermatomal areas of the arm, will the patient have sensation intact?
(6+4 = 10 marks)



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MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2009

SUBJECT: PAPER II: CLINICAL ANAESTHESIOLOGY I

Thursday April 02, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions.

✍ Write brief answers (avoiding unnecessary padding)

✍ Use diagrams where appropriate.

1. Outline the anaesthetic concerns and the anaesthetic management of a 25-year-old parturient scheduled for an emergency Caesarian section for eclampsia. She is drowsy and her blood pressure recorded is 170/110 mmHg.
(10 marks)
2. A 70-year-old lady, a known hypertensive with chronic low back ache and 3rd degree uterine prolapse, is scheduled for a vaginal hysterectomy. Describe the perioperative anaesthetic problems you anticipate in her and the precautions you would take to minimize these.
(10 marks)
3. Enumerate the drugs recommended for neonatal resuscitation along with their indications, concentrations, route of administration and dosage.
(10 marks)
4. Enumerate the complications of epidural anaesthesia. Describe the clinical presentation and management of total spinal block.
(10 marks)
5. A 45-year-old lady is scheduled for a left mastectomy. Describe how you would perform the technique of a paravertebral block in her for providing intraoperative and postoperative pain relief.
(10 marks)
6. What are the clinical advantages of laevobupivacaine and ropivacaine over bupivacaine? Mention the appropriate clinical dosages and side effects of these drugs.
(10 marks)
7. Outline the role of the WHO analgesic ladder in the management of acute postoperative pain relief.
(10 marks)
8. Discuss the preoperative evaluation and preoperative preparation of 50-year-old lady scheduled for elective lumbar discectomy with inadequately controlled hypertension (blood pressure of 176/110 mm Hg on Tab atenolol 50 mg a day).
(10 marks)
9. A 26-year-old lady diagnosed with idiopathic thrombocytopenia, on Tab prednisolone 20 mg per day; is scheduled for elective splenectomy. Outline the problems you anticipate. Describe your plan for perioperative steroid cover and the indications in her for perioperative platelet transfusion.
(4+3+3 = 10 marks)
10. A 10-year-old boy with a bilateral divergent squint is scheduled for squint correction surgery. What are the anaesthetic concerns peculiar to this surgery? Outline an anaesthetic technique which would minimize these complications.
(10 marks)



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MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2009

SUBJECT: PAPER III: CLINICAL ANAESTHESIOLOGY II

Friday, April 03, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions. Write brief answers (avoiding unnecessary padding).**

✍ **Use diagrams where appropriate.**

1. Name the drugs and their appropriate doses used for induction and reversal of anticoagulation in a patient undergoing cardiopulmonary bypass. What is rebound heparinisation and how can this effect be minimized.
(6+4 = 10 marks)
2. A 60-year-old male diagnosed to have bullae in right apical lung region is scheduled for thoroscopic lung volume reduction surgery. Outline the problems you anticipate during induction and maintenance of anaesthesia for this procedure and how you would manage them.
(10 marks)
3. Outline the problems you would anticipate during induction and maintenance of anaesthesia during the management of a 65-year-old man with infrarenal aortic aneurysm scheduled for vascular repair of the same. What precautions would you take during the period of aortic cross-clamp release?
(7+3 = 10 marks)
4. What are the anaesthetic precautions you would specifically take during the induction and maintenance of general anaesthesia of a 40-year-old male scheduled for excision of a large frontal glioma.
(10 marks)
5. What are the physiological effects which occur following the application of a tourniquet on a lower limb? What is the difference in occlusion pressures in upper and lower limbs? What are the adverse effects of tourniquet application?
(5+2+3 = 10 marks)
6. A 70-year-old male is admitted with a history of anuria and found to have bilateral renal calculi. His blood urea is 150 mg dL^{-1} and serum creatinine 4.6 mg dL^{-1} with normal serum sodium and potassium. He is scheduled for bilateral stenting of the ureters. What problems do you anticipate during the procedure and how would you plan the anaesthetic management for the same?
(10 marks)
7. Outline your preoperative assessment of a 1-day-old neonate scheduled for tracheoesophageal fistula repair. Describe in detail how you would proceed with the general anaesthetic induction of this baby and the problems you anticipate during this time.
(5+5 = 10 marks)
8. A six-month-old child is scheduled for an orchiopexy on the left side. Outline your intraoperative management with a special mention of postoperative management.
(10 marks)
9. Write a protocol for the discharge criteria following surgery under anaesthesia for adult patients following day care surgery.
(10 marks)
10. What are the clinical features of malignant hyperpyrexia syndrome? Enumerate the differential diagnosis. Describe the management of a case of suspected malignant hyperpyrexia syndrome.
(4+2+4 = 10 marks)



