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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – JANUARY 2025
PAPER I
(REGULAR)

Tuesday, January 14, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions.**

✍ **Answer to the point. Unnecessary padding of answers will be counterproductive**

✍ **Draw diagrams wherever necessary**

1. Describe the physical principles of intra-arterial blood pressure measurement.
(10 marks)
2. Write and illustrate the blood supply of the brain. What is cerebral perfusion pressure (CPP)?
What factors can affect the CPP?
(3+2+5 = 10 marks)
3. Discuss the ventilation and perfusion in a normal lung with the help of a labeled diagram.
What are the factors affecting ventilation perfusion ratio?
(5+5 = 10 marks)
4. Diagrammatically depict the relationship between the phases of cardiac cycle, aortic pressure and blood flow in the right and left coronary arteries giving a brief explanation for the differences.
(10 marks)
5. Calculate the total body water in 70kg adult male. How is this body water distributed between extracellular and intracellular compartments? What are the primary methods of regulation of body water.
(2+2+6 = 10 marks)
6. What is total intravenous anaesthesia? What mathematical models are commonly used with target-controlled infusion (TCI)? Describe best indication for the use of TCI.
(2+6+2 = 10 marks)
7. Describe the anatomy of paravertebral space and explain the technique of paravertebral block.
(10 marks)
8. Describe the anatomy of tracheobronchial tree with bronchopulmonary segments with a well labeled diagram. Add a note on its anesthetic implications.
(5+5 = 10 marks)
9. Classify opioids according to their action on opioid receptors. Compare and contrast fentanyl and buprenorphine.
(3+7 = 10 marks)
10. Discuss low flow anaesthesia with functional analysis of circle system. Add a note on advantages and disadvantages.
(10 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION
MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – JANUARY 2025
PAPER II
(REGULAR)

Wednesday, January 15, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions.**

✍ **Answer to the point. Unnecessary padding of answers will be counterproductive**

✍ **Draw diagrams wherever necessary.**

1. Describe the anaesthetic management of a patient with severe mitral stenosis for elective caesarean section for cephalopelvic disproportion.
(10 marks)
2. Discuss briefly the anaesthetic management of a bleeding parturient.
(10 marks)
3. What are the factors governing transfer of drugs across the placenta. Add a note on respiratory gas exchange across placenta.
(10 marks)
4. How do you diagnose and manage post-dural puncture headache?
(10 marks)
5. Describe how you would set up and manage 'patient-controlled analgesia' for a patient who has undergone gastrectomy.
(10 marks)
6. Compare and contrast bupivacaine and 2-chloroprocaine.
(10 marks)
7. Write briefly on abdominal fascial plane blocks for provision of postoperative analgesia after abdominal surgery.
(10 marks)
8. Discuss the evaluation, preoperative preparation and anaesthetic management for laser assisted laryngeal papilloma excision. Outline the precautions to prevent fire and explosions in the operation theatre while using laser.
(10 marks)
9. Enumerate the anatomical and physiological differences between a healthy young adult and a geriatric patient (e.g., 90 years old).
(10 marks)
10. Discuss the anesthetic management of a 50-year-old lady scheduled for rotator cuff repair of right shoulder with uncontrolled hypertension (BP 170/110mm Hg) currently on T Ramipril 5mg and T Atenolol 50mg. Add a note on the management of intraoperative hypertensive crisis.
(7+3 = 10 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION
MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – JANUARY 2025
PAPER III
(REGULAR)

Thursday, January 16, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions.**

✍ **Answer to the point. Unnecessary padding of answers will be counterproductive**

✍ **Draw diagrams wherever necessary.**

1. Describe the risk stratification in a case of coronary artery disease. Explain in detail the anaesthetic considerations in a case of recent myocardial infarction for laparotomy for intestinal obstruction.
(5+5 = 10 marks)
2. Name the drugs and their appropriate doses used for induction and reversal of anticoagulation in a patient undergoing cardiopulmonary bypass. What is rebound heparinization and how can the effect be minimized?
(6+4 = 10 marks)
3. Discuss the anaesthetic management of a case of bronchiectasis for right upper lobectomy.
(10 marks)
4. List the monitors available for detection of venous air embolism in decreasing order of sensitivity. Discuss the causes of delayed awakening following craniotomy.
(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 pressure in upper and lower limbs. What are the adverse effects of tourniquet application?
(5+2+3 = 10 marks)
6. Discuss in detail the anaesthetic considerations in a case of post renal transplant recipient for non-renal surgery.
(10 marks)
7. Describe the anaesthetic management of a case of preterm neonate posted for Congenital diaphragmatic hernia repair.
(10 marks)
8. Discuss the anaesthetic management of a 1-month-old infant with pyloric stenosis for pyloromyotomy.
(10 marks)
9. Discuss in detail the ERAS protocol for Whipple's pancreaticoduodenectomy.
(10 marks)
10. Enumerate the anaesthetic challenges in non-operating room anaesthesia (NORA).
(10 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION
MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – JANUARY 2025
PAPER IV
(REGULAR)

Friday, January 17, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions.

✍ Answer to the point. Unnecessary padding of answers will be counterproductive

✍ Draw diagrams wherever necessary

1. Discuss the latest American Heart Association guidelines for the management of cardiac arrest and write briefly about the ROSC algorithm.
(6+4 = 10 marks)
2. Outline the criteria for establishing a diagnosis of brain death.
(10 marks)
3. Outline the management of acute traumatic brain injury for decompressive craniectomy.
(10 marks)
4. Enumerate in detail the blood conservation strategies.
(10 marks)
5. Mention the various methods of weaning from ventilator. Write the management strategies for difficult weaning.
(3+7 = 10 marks)
6. Define the term sepsis and septic shock. Describe the one-hour sepsis bundle in detail.
(2+8 = 10 marks)
7. Write in detail about the gate control theory of pain and non-pharmacological methods of pain management.
(10 marks)
8. Outline the WHO ladder for the management of cancer pain. Describe in detail the role of Morphine in the management of cancer pain
(7+3 = 10 marks)
9. Assessment and management of burns contracture neck for contracture release.
(10 marks)
10. Define mean, median, mode and standard deviation with examples. Outline the difference between parametric and non-parametric tests.
(8+2 = 10 marks)

