

Reg. No.

MANIPAL ACADEMY OF HIGHER EDUCATION
MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – NOVEMBER 2025

PAPER I

Monday, November 10, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

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

✍ **Draw diagrams wherever necessary**

1. Explain oxygen cascade, oxygen transport, oxygen hemoglobin dissociation curve (ODC) and factors causing shift of ODC.
(3+3+4 =10 marks)
2. Explain cardiac cycle and pressure-volume loop of left ventricle with neat, labelled diagrams. Describe the pressure-volume loops in mitral stenosis and aortic regurgitation.
(4+2+2+2 =10 marks)
3. Describe cerebral circulation with a schematic diagram. Explain cerebral autoregulation, enumerate four conditions where autoregulation is impaired.
(3+3+4 =10 marks)
4. Describe the physiologic role of renin-angiotensin-aldosterone axis in the maintenance of internal homeostasis. Explain the relevance of this axis in anaesthesia.
(7+3 =10 marks)
5. How are non-depolarizing muscle relaxants classified? Write a short note on pharmacodynamics of Cisatracurium.
(5+5=10 marks)
6. What are the properties of an ideal intravenous anaesthetic agent? Define loading dose and context sensitive half time. Enumerate the differences between Propofol and Etomidate.
(3+2+5 =10 marks)
7. Gas laws and their application in anaesthesia.
(10 marks)
8. Safety features of modern anaesthesia workstation.
(10 marks)
9. With the help of a neat, labelled diagram. Describe the anatomy of larynx. Write in brief about the various nerve palsies.
(6+4 =10 marks)
10. Anatomy of brachial plexus. Describe in detail about the interscalene brachial plexus block.
(6+4 =10 marks)



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PAPER II

Tuesday, November 11, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

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

✍ Draw diagrams wherever necessary.

1. A 31-year-old primigravida with history of Pre-eclampsia on treatment with methyldopa and labetalol due to uncontrolled blood pressure threw a seizure in the labour ward. The obstetrician gives a loading dose of magnesium sulphate and shifts the patient to operation theatre for an emergency caesarean section. Describe the anaesthetic management for this patient.
(10 marks)
2. A 28-year-old primigravida comes to PAC for counselling regarding labour epidural analgesia. Discuss how would you counsel the patient. Describe the procedure of securing labour epidural catheter and add a note on its complications.
(3+5+2 =10 marks)
3. Describe the neonatal resuscitation algorithm.
(10 marks)
4. Describe the various options of providing post operative pain relief in a patient undergoing Right thoracotomy.
(10 marks)
5. Describe the various adjuvants that can be used in spinal anaesthesia.
(10 marks)
6. Compare Ropivacaine with Levobupivacaine and Bupivacaine.
(10 marks)
7. Describe axillary approach of brachial plexus block. What are the toxic effects of bupivacaine? How would you manage a case of bupivacaine toxicity?
(5+5 =10 marks)
8. Outline the physiological effects of insulin. What are the common causes and symptoms of perioperative hypoglycemia?
(10 marks)
9. A 65-year-old male with Ludwig's angina is posted for emergency incision and drainage. Discuss the anaesthetic management.
(10 marks)
10. A 45-year-old with thermal burns 40% area is posted for Tangential excision. Describe the anaesthetic management.
(10 marks)



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PAPER III

Wednesday, November 12, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ **Answer ALL the questions.**
✍ **Answer to the point. Unnecessary padding of answers will be counterproductive.**
✍ **Draw diagrams wherever necessary.**
1. Discuss a) preoperative assessment and b) preparation of a patient with carcinoma lung for right lower lobectomy. (10 marks)
 2. Discuss the causes and management of hypoxia during one lung ventilation. (10 marks)
 3. Discuss the a) assessment and b) management of low cardiac output after coronary artery bypass surgery. (10 marks)
 4. Discuss (a) preoperative evaluation and (b) anaesthetic considerations for a patient scheduled for clipping of intracranial aneurysm. (10 marks)
 5. Enumerate the methods for perioperative control of intracranial hypertension. Write a note on the role of jugular bulb oximetry in neuroanaesthesia. (10 marks)
 6. Discuss briefly anaesthetic management of a one-month-old premature neonate for inguinal herniotomy. (10 marks)
 7. Write briefly on (a) blood conservation during scoliosis surgery (b) Postoperative visual loss following surgery in prone position. (7+3 = 10 marks)
 8. A 25-year-old patient undergoing lump breast excision under general anaesthesia using a supraglottic airway develops severe hypotension after intravenous administration of antibiotics. Discuss your management. (10 marks)
 9. A 65-year-old obese 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. (10 marks)
 10. Discuss anaesthetic management of a 2-year-old child for magnetic resonance imaging of the hip. (10 marks)



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PAPER IV

Thursday, November 13, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ **Answer ALL the questions.**
- ✍ **Answer to the point. Unnecessary padding of answers will be counterproductive.**
- ✍ **Draw diagrams wherever necessary.**
1. What is electrical cardioversion? How is it different from defibrillation? Enumerate its uses. How do you give anesthesia for elective cardioversion in a patient with unstable tachycardia?
 2. Discuss briefly the preoperative and anaesthetic management of a patient with pacemaker in-situ posted for noncardiac surgery. Add a note on the classification of pacemakers.
 3. Outline the initial assessment and management of a victim of polytrauma.
 4. Discuss the principles of anaesthetic management of a patient presenting with head injuries for craniotomy.
 5. A 65-year-old man has been admitted with septic shock consequent to pyelonephritis. Describe the principles of management of this patient.
 6. Write brief notes on a) Sodium-Glucose cotransporter 2 (SGLT-2) inhibitors and anaesthesia
b) Direct-acting oral anticoagulants and regional anaesthesia.
 7. Outline a plan for total parenteral nutrition for a 40-year-old male weighing 65kg suffering from severe acute pancreatitis requiring ventilatory care in intensive care unit
 8. What are the causes for phantom limb pain? How would you prevent and manage phantom limb pain in a 50-year-old patient after below knee amputation?
 9. A 6-year-old child with temporomandibular joint ankylosis posted for surgery with <1 cm mouth opening. How will you secure the airway in the given patient?
 10. Design a study to compare the use of a drug A and drug B for obtunding responses to laryngoscopy and endotracheal intubation in adult patients.

(10 marks × 10 = 100 marks)

