

MANIPAL ACADEMY OF HIGHER EDUCATION
MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – MAY 2026

PAPER I

Monday, May 18, 2026

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. Describe with diagram the left ventricular pressure-volume loop in a healthy heart. How does the pressure volume loop change in a) Aortic stenosis b) Mitral regurgitation?
(5+5=10 marks)
2. Describe the anatomy of celiac plexus. What are the different approaches used, complications of celiac plexus block? Describe one approach in detail.
(3+2+5=10 marks)
3. Enumerate the functions of liver. Discuss the liver function tests and their clinical significance to an anaesthesiologist.
(5+5=10 marks)
4. Classify breathing systems. Describe Mapelson F in detail.
(5 +5=10 marks)
5. What are the clinical and ECG changes seen in hyponatremia? Describe the management of acute hyponatremia.
(5+5=10 marks)
6. What are the factors that determine the uptake of inhalational anaesthetic agents? Compare and contrast sevoflurane and Desflurane with respect to partition coefficient, MAC values and offset of anaesthetic activity.
(4+2+2+2=10 marks)
7. Describe the nerve supply to the larynx with diagram. Enumerate the nerve blocks that can be given to facilitate Awake Fiberoptic intubation. Describe anyone in detail.
(5+2+3=10 marks)
8. Define the terms closing volume, closing capacity and Functional residual capacity. Enumerate the methods used to measure FRC and briefly describe any one of them.
(3+2+5=10 marks)
9. Define loading dose, context -sensitive half time, clearance, volume of distribution for intravenous anaesthetic agents. Discuss the similarities and differences between Propofol and Etomidate with respect to distribution half-life, elimination half-life, clearance, volume of distribution and protein binding.
(3+7=10 marks)
10. Define and discuss the clinical applications of Hegan- Poiseuille's law and Bernoulli's principle.
(5+5=10 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
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PAPER II

Tuesday, May 19, 2026

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. Describe the physiological changes in pregnancy. Discuss the anaesthetic management of a case of placenta previa for Caesarean section.
(5+5=10 marks)
2. Describe in detail the algorithm for neonatal resuscitation.
(10 marks)
3. Enumerate the various approaches for blocking the sciatic nerve in detail.
(10 marks)
4. With a neat labelled diagram, explain the anatomy of epidural space. Discuss the various adjuvants used in neuraxial anaesthesia.
(10 marks)
5. Classify local anaesthetic agents. Describe the pharmacokinetics and pharmacodynamics of local anaesthetics. Write in brief about the LAST.
(3+4+3=10 marks)
6. Describe in detail about the assessment of pain in children. Write briefly about the non-pharmacological method of pain management in children.
(6+4=10 marks)
7. Enumerate the tests for autonomic neuropathy. Discuss the anaesthetic considerations in a case of diabetic ketoacidosis for emergency surgery.
(6+4=10 marks)
8. Describe in detail the anaesthetic management of a 78 year old male for hip arthroplasty for fracture neck of femur.
(10 marks)
9. Discuss the anaesthetic considerations in pheochromocytoma for adrenalectomy.
(10 marks)
10. Explain the oculocardiac reflex in detail. Enumerate the anaesthetic considerations in ocular procedures.
(5+5=10 marks)



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PAPER III

Wednesday, May 20, 2026

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. Describe the anaesthetic management of a preterm neonate with necrotizing enterocolitis posted for an exploratory laparotomy.
(10 marks)
2. Describe the intracranial pressure volume relationship and discuss methods of reducing the raised intracranial pressure in a neurosurgical patient.
(3+7=10 marks)
3. Discuss anaesthetic management of a 35-year-old female patient with chronic severe mitral regurgitation undergoing mitral valve replacement.
(10 marks)
4. What are the indications for one lung ventilation (OLV)? Discuss the methods of lung separation and ventilatory management during OLV.
(3+7=10 marks)
5. Discuss the anaesthetic concerns in a 15-year-old female posted for correction of idiopathic thoracic kyphoscoliosis.
(10 marks)
6. Compare and contrast general anesthesia versus neuraxial blockade for transurethral resection of prostate (TURP). What are the earliest features of TURP syndrome? How do you manage a case of suspected TURP Syndrome?
(4+6=10 marks)
7. Anesthetic implications in a morbidly obese patient scheduled for gastric banding.
(10 marks)
8. Anesthetic management of a 3-year-old child with recurrent lower respiratory tract infections scheduled for transcatheter PDA closure.
(10 marks)
9. A 70-year-old with a previous history of massive inferior wall myocardial infarction 2 months ago is now on demand pacemaker. Describe the anesthetic management of this patient scheduled for a laparoscopic bilateral inguinal hernia repair.
(10 marks)
10. What are the stages of chronic kidney disease (CKD)? Discuss the anesthetic plan for a CKD patient undergoing a renal transplant surgery.
(10 marks)



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PAPER IV

Thursday, May 21, 2026

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. How does the cardiopulmonary resuscitation protocol differ in the following situations?
a) pregnancy b) neonate c) drowning d) electrocution

(10 marks)
2. Explain the term CRPS. What are the types of CRPS? Describe the methods of treatment of CRPS in left upper limb in a 20-year-old patient.

(2+2+6=10 marks)
3. Discuss in detail etiology, pathophysiology, diagnosis and treatment of post traumatic fat embolism syndrome.

(10 marks)
4. What is TEG? Draw a labeled diagram to show the normal tracing. What are its implications?

(2+2+6=10 marks)
5. Discuss the role of evidence-based medicine in anaesthetic practice. Give a few examples.

(10 marks)
6. Write briefly on newer modes of ventilation. Discuss each of these ventilatory modalities with reference to an established case of ARDS.

(4+6=10 marks)
7. Define and classify shock. Describe the recent guidelines for the management of septic shock.

(4+6=10 marks)
8. What is the WHO step ladder pattern for pain relief in advanced cancer? Discuss the pain management options in a patient with intractable pain due to carcinoma of the head of pancreas.

(4+6=10 marks)
9. Enumerate the changes in AHA 2020 guidelines on resuscitation (BLS & ACLS) for the management of cardiac arrest in an adult.

(10 marks)
10. What are the predictors of difficult mask ventilation? Describe the American Society of Anesthesiologists (ASA) practice guidelines for management of unanticipated difficult airway in a stepwise manner.

(4+6=10 marks)

