

MANIPAL ACADEMY OF HIGHER EDUCATION  
MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2022

PAPER I

Friday, April 01, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions.

✍ Draw Diagrams where appropriate.

✍ Essay Questions:

1A. Draw a neatly labeled diagram to show the distribution of ventilation and perfusion in a normal lung.

1B. Enumerate the various factors affecting ventilation and perfusion of the lung.

1C. Describe in brief the carbondioxide transport in blood.

(15 marks)

2A. Define mean arterial pressure.

2B. Outline the mechanisms that control blood pressure.

2C. Describe the principle behind invasive arterial blood pressure measurement.

(15 marks)

3. Write short notes on:

3A. Regulation of cerebral blood flow

3B. What are the signs and symptoms of hyponatremia and how will you manage?

3C. Compare and contrast Rocuronium and vecuronium

3D. Explain in brief concentration effect and second gas effect

3E. Enumerate the various bedside airway assessment tests

3F. Classify maplesons breathing circuits

3G. Define volume of distribution. What is its clinical significance? Give one example.

3H. Describe in brief the anatomy of intercostal nerve

3I. How does placental exchange of drugs take place and what are the effects of inhalational agents in uteroplacental circulation

3J. Enumerate with diagrams the types of vocal cord palsies

(7 marks × 10 = 70 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2022**  
**PAPER II**

Saturday, April 02, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ Answer ALL the questions.
- ✍ Answer to the point as padding of answers will not fetch extra marks.
- ✍ Illustrate your answer with diagrams where appropriate.

✍ **Long Essays:**

1. A 65-year old woman, a known diabetic on insulin for the past 15 years, presents with gangrene of the right foot. On examination, she is dehydrated with a heart rate of 110 beats/min and blood pressure of 100/80 mmHg. Her haemoglobin is 9.0 g/dL, serum sodium is 125 mEq/L, serum potassium is 5.5 mEq/L, random blood sugar is 350 mg/dL and urine is positive for ketones. Discuss your plan for perioperative management of this patient scheduled for amputation of the foot.

(15 marks)

2. A 2-year old boy was brought to the emergency room in respiratory distress following history of fever for one week. On examination, the heart rate is 120 beats/minute and respiratory rate is 20 per minute. Discuss the anaesthetic management of this child diagnosed to have a retropharyngeal abscess and posted for emergency drainage of the abscess.

(15 marks)

3. **Write briefly on:**

- 3A. HELLP syndrome
- 3B. Rapid sequence spinal anaesthesia
- 3C. Use of inhalational anaesthetic for labour analgesia
- 3D. Equipment required for neonatal resuscitation
- 3E. Intravenous regional anaesthesia
- 3F. Systemic local anaesthetic toxicity
- 3G. Armitage formula for caudal anaesthesia in children
- 3H. Transcutaneous electrical nerve stimulation
- 3I. Postoperative complications following thyroid surgery
- 3J. Compensatory mechanisms in severe anaemia

(7 marks × 10 = 70 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2022**  
**PAPER III**

Monday, April 04, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions.**

✍ **Essay Questions:**

1. A 45 year old patient with chronic kidney disease is being posted for exploratory laparotomy for obstructed hernia. Explain the preoperative preparation and management of the patient. Enumerate the various renal replacement therapies.

(15 marks)

2. Discuss the pre-anaesthetic evaluation and preparation of a patient with left lower lobe bronchiectasis scheduled for left lower lobectomy. Explain how you will manage this case. What are the strategies to prevent hypoxia during one lung ventilation?

(15 marks)

3. **Write short notes on:**

- 3A. Explain the preoperative preparation and optimization of a one day old neonate posted for tracheo-esophageal fistula repair.
- 3B. Discuss the systemic effects of tourniquet inflation and deflation.
- 3C. Explain the anaesthetic management of a patient with head injury and pneumocephalus posted for internal fixation of fracture femur.
- 3D. Name your choice of method for sterilizing the following equipments. Laryngeal mask airway, face mask, fiberoptic bronchoscope, laryngoscope, manual resuscitator, breathing circuit.
- 3E. A 2year old boy is scheduled for video assisted repair of empyema of the left lung. What are the anaesthetic considerations?
- 3F. Technique of Off-Pump coronary artery bypass surgery.
- 3G. Anaesthetic management of a 10year child with retropharyngeal abscess posted for surgical drainage.
- 3H. A 50year old male patient is being posted for emergency exploratory laparotomy in few hours. On examination his blood pressure was 210/120mm of mercury. What are the treatment options available for optimization of blood pressure?
- 3I. Explain the methods adopted in clinical practice for the cerebral protection.
- 3J. How will you manage a 25 year old ASA 1 patient posted for breast lump excision as day case procedure?

(7 marks × 10 = 70 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (ANAESTHESIOLOGY) DEGREE EXAMINATION – APRIL 2022**

**PAPER IV**

Tuesday, April 05, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Illustrate your answer with diagrams where appropriate**

✍ **Answer to the point as padding of answers will not fetch extra marks**

✍ **Long Essay:**

1. Discuss the term 'Complex Regional Pain Syndrome (CRPS)' under the following headings:

1A. Types

1B. Revised diagnostic criteria for CRPS

1C. Diagnostic test

1D. Options for pain relief

(15 marks)

2. How will you set up a difficult airway cart? Write the ASA algorithm for Difficult Airway management.

(15 marks)

3. **Write short notes on:**

3A. High fidelity Simulation in anaesthesia training

3B. Noninvasive Positive Pressure Ventilation

3C. Criteria for diagnosis of brain death

3D. Barbiturate poisoning

3E. Merits and demerits of single centre versus multicenter clinical trials

3F. Flail chest

3G. Vasopressin in the treatment of shock

3H. High frequency oscillation

3I. Pulseless ventricular tachycardia

3J. Compare and contrast volume control mode with pressure control mode of ventilation

(7 marks × 10 = 70 marks)

