INI CET Anaesthesiology

Sample Paper – 6

Duration: 14 Minutes **Maximum Marks: 15**

Instructions

- This paper contains **15** Multiple Choice Questions (Single Best Response), modelled on the Anaesthesiology content of **INI CET** (Institutes of National Importance Combined Entrance Test) conducted by AIIMS New Delhi.
- The **15-question** length matches the number of Anaesthesiology items you actually meet in the real 200-question paper.
- Each correct answer carries **+1 mark**. There is **negative marking of one-third (0.33) mark** for every incorrect answer; unattempted questions carry no penalty.
- Every question has **exactly one best answer**. Choose the single most appropriate option.
- Attempt this practice paper in one timed sitting of about **14 minutes**, the pace the real computer-based test demands.

Preoperative Assessment and Airway

Q1. In a patient with a predicted difficult airway, the Bullard laryngoscope and modern video laryngoscopes improve the chance of successful intubation mainly because they:

(A) Provide an indirect view around the tongue to the glottis without needing to align the oral, pharyngeal and laryngeal axes

(B) Require a much deeper plane of anaesthesia than direct laryngoscopy

(C) Can only be used for awake nasal intubation

(D) Remove the need for any preoxygenation before induction

Q2. An adult presents for an emergency appendicectomy having eaten a full

meal one hour before the acute pain began. During induction of anaesthesia, the principal danger arising from this full stomach is:

(A) Delayed onset of neuromuscular blockade

(B) Excessively rapid metabolism of the induction agent

(C) Regurgitation and pulmonary aspiration of gastric contents

(D) Hypothermia from the cold gastric contents

Q3. A well-controlled type 2 diabetic patient is listed for morning surgery. The recommended perioperative approach is to:

(A) Give the usual full morning dose of long-acting insulin with a large breakfast

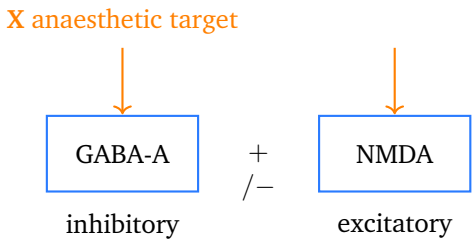
(B) Schedule the patient first on the list, omit or reduce the morning oral hypoglycaemic or short-acting insulin, and monitor blood glucose regularly

(C) Continue metformin on the operative morning and skip all glucose checks

(D) Withhold every fluid and drug for 24 hours before surgery

General Anaesthesia and Pharmacology

Q4. Most general anaesthetics produce unconsciousness by acting on ligand-gated ion channels, as shown in the schematic below. The two receptor systems most consistently implicated are:



(A) Enhancement of inhibitory GABA-A receptors and inhibition of excitatory NMDA receptors

(B) Blockade of nicotinic receptors and activation of NMDA receptors

(C) Activation of beta-adrenergic and muscarinic receptors

(D) Inhibition of GABA-A receptors and enhancement of NMDA receptors

Q5. The intensity and duration of a non-depolarising neuromuscular block is potentiated (the block is prolonged) by:

(A) Alkalosis and hyperthermia

(B) Hypothermia, respiratory acidosis and aminoglycoside antibiotics

(C) A raised serum calcium concentration alone

(D) Administration of an anticholinesterase reversal agent

Q6. Halothane is now rarely used as a volatile agent because, in addition to sensitising the myocardium to catecholamines, repeated exposure can rarely provoke a severe immune-mediated:

(A) Malignant hyperthermia confined to children

(B) Renal tubular necrosis caused by fluoride

(C) Irreversible pulmonary fibrosis

(D) Fulminant hepatic necrosis (halothane hepatitis)

Regional and Local Anaesthesia

Q7. A spinal block that ascends to the upper thoracic dermatomes (a high spinal) characteristically produces:

(A) Hypertension and tachycardia from a sympathetic surge

(B) An isolated motor block with no cardiovascular change

(C) Bronchospasm and a rising blood pressure

(D) Hypotension and bradycardia from an extensive sympathetic and cardiac-accelerator block

Q8. The femoral ‘3-in-1’ block, performed by a single femoral injection with distal pressure to encourage proximal spread to the femoral, lateral femoral cutaneous and obturator nerves, is used mainly for:

(A) Shoulder and upper-arm surgery

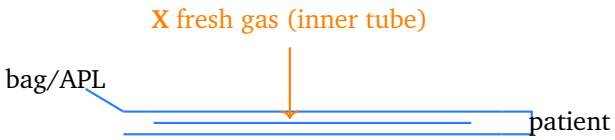
(B) Anterior thigh and knee surgery, and analgesia for a fractured femoral shaft

(C) Hand and wrist surgery

(D) Anterior chest-wall analgesia

Monitoring, Fluids and Equipment

Q9. The Bain circuit shown below is a coaxial Mapleson D system in which fresh gas flows through the inner tube (marked **X**). To avoid rebreathing during spontaneous ventilation it requires a fresh gas flow of about:



(A) About 0.5 times the patient's minute volume

(B) Equal to a single tidal volume only

(C) About 1.5 to 2 times the patient's minute volume

(D) No fresh gas flow at all

Q10. During a prolonged operation the most effective way to prevent perioperative hypothermia, while monitoring core temperature, is:

(A) Active forced-air warming blankets together with warmed intravenous fluids

(B) Lowering the theatre temperature so the surgery is completed faster

(C) Removing all drapes to inspect the skin at intervals

(D) Relying on the patient's shivering to generate heat

Q11. During a massive transfusion the citrate anticoagulant carried in stored blood binds ionised calcium. This can lead to:

(A) Hyperkalaemia with hypertension

(B) Metabolic alkalosis with hypercalcaemia

(C) An isolated fever with no metabolic change

(D) Hypocalcaemia, which may impair myocardial function and clotting

Complications and Critical Incidents

Q12. An intubated patient suddenly develops wheeze, a rising peak airway pressure and a slurred, up-sloping capnograph, indicating intraoperative bronchospasm. The appropriate first-line management is to:

(A) Deepen anaesthesia and give an inhaled beta-2 agonist (salbutamol) with 100% oxygen

(B) Immediately extubate the patient

(C) Give a large intravenous bolus of potassium chloride

(D) Reduce the inspired oxygen concentration to 21%

Q13. Total spinal anaesthesia, caused by excessive cephalad spread of local anaesthetic to the cervical cord and brainstem, characteristically causes:

(A) Isolated leg weakness with normal breathing

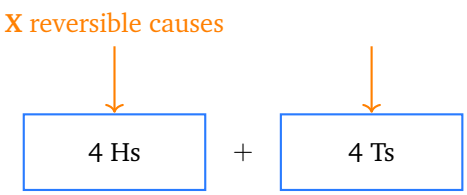
(B) Apnoea, profound hypotension, bradycardia and loss of consciousness needing airway and cardiovascular support

(C) Hypertension with agitation

(D) Only a slow rise in body temperature

Critical Care, Resuscitation and Pain

Q14. During cardiac arrest the reversible causes are recalled as the 4 Hs and 4 Ts, summarised below. Which option correctly lists the **4 Hs**?



(A) Hypertension, Hyperthermia, Hunger, Hypervolaemia

(B) Headache, Hypertension, Hypoglycaemia, Hypercarbia

(C) Hypoxia, Hypovolaemia, Hypo/hyperkalaemia (and other metabolic causes), Hypothermia

(D) Hypertension, Hyperkalaemia, Hyperthermia, Hypercalcaemia

Q15. Neuropathic pain, arising from nerve injury or dysfunction, responds poorly to conventional opioids. The recommended first-line agents are:

(A) Paracetamol and ibuprofen used alone

(B) Strong opioids given in escalating doses

(C) Gabapentinoids (gabapentin, pregabalin) and tricyclic antidepressants such as amitriptyline

(D) Inhaled bronchodilators

Detailed Solutions

Q1.

Solution

Concept – the Bullard and video laryngoscope in the difficult airway: These devices give an indirect optical view of the larynx.

Step 1 – the mechanism: The Bullard laryngoscope and video laryngoscopes carry a camera or fibreoptic bundle to the tip, so the operator sees **around the tongue to the glottis** on a screen or eyepiece.

Step 2 – why this helps a difficult airway: They do **not require alignment of the oral, pharyngeal and laryngeal axes**, so intubation succeeds even when the neck cannot be extended or the view at direct laryngoscopy is poor.

Why the other options are wrong:

- B, deeper anaesthesia: they do not demand a deeper plane than direct laryngoscopy.
- C, awake nasal only: they are used for oral and nasal, awake and asleep intubation.
- D, no preoxygenation: preoxygenation is still essential before any induction.

Final Answer: An indirect view around the tongue without axis alignment $\Rightarrow$ A

Answer: (A) Go Back to Q1

Q2.

Solution

Concept – the full stomach in emergency anaesthesia: An unfasted patient loses the airway reflexes that normally guard against aspiration.

Step 1 – identify the hazard: When consciousness and protective reflexes are lost at induction, gastric contents can **passively regurgitate or be actively vomited** and enter the lungs.

Step 2 – the consequence: Pulmonary aspiration of acidic gastric contents causes chemical pneumonitis (Mendelson's syndrome), which is why a rapid sequence induction with cricoid pressure is used.

Why the other options are wrong:

- A, delayed blockade: neuromuscular onset is not altered by a full stomach.
- B, rapid metabolism: gastric contents do not speed drug metabolism.

- D, hypothermia: gastric contents are at body temperature and do not cool the patient.

Final Answer: Regurgitation and pulmonary aspiration ⇒ C

Answer: (C) Go Back to Q2

Q3.

Solution

Concept – perioperative management of the diabetic patient: The aim is to avoid both hypoglycaemia during starvation and marked hyperglycaemia.

Step 1 – the safe plan: Place the patient **first on the list** to shorten fasting, **omit or reduce** the morning oral hypoglycaemic or short-acting insulin, and **check blood glucose regularly** through the perioperative period.

Step 2 – the reasoning: A fasting patient given a full glucose-lowering dose risks hypoglycaemia, so doses are adjusted and glucose is tracked, with a variable-rate insulin infusion if control is poor or surgery is major.

Why the other options are wrong:

- A, full insulin plus breakfast: a large meal breaks the fast and full insulin during starvation is dangerous.
- C, continue metformin, no checks: metformin is usually withheld and glucose must be monitored.
- D, withhold everything for 24 hours: prolonged starvation without monitoring risks hypoglycaemia and dehydration.

Final Answer: First on the list, reduced hypoglycaemics, regular glucose checks ⇒ B

Answer: (B) Go Back to Q3

Q4.

Solution

Concept – the receptor targets of general anaesthesia: General anaesthetics tip the balance of the central nervous system towards inhibition.

Step 1 – name the two systems: Most agents **enhance inhibitory GABA-A receptor** chloride currents and **inhibit excitatory NMDA (glutamate) receptors**.

Step 2 – link agents to targets: Propofol, volatile agents and barbiturates act

mainly at GABA-A, while ketamine and nitrous oxide act largely by NMDA blockade; the net effect is loss of consciousness.

Why the other options are wrong:

- B, nicotinic block with NMDA activation: activating NMDA would excite, not anaesthetise.
- C, beta-adrenergic and muscarinic activation: these are autonomic, not the primary anaesthetic targets.
- D, GABA-A inhibition with NMDA enhancement: this is the reverse of the true effect and would cause excitation.

Final Answer: Enhance GABA-A and inhibit NMDA $\Rightarrow$ A

Answer: (A) Go Back to Q4

Q5.

Solution

Concept – factors that potentiate a non-depolarising block: Several physiological and drug factors prolong neuromuscular blockade.

Step 1 – list the potentiating factors: **Hypothermia**, **respiratory (and metabolic) acidosis** and **aminoglycoside antibiotics** all deepen and prolong a non-depolarising block.

Step 2 – the mechanisms: Cold slows metabolism and clearance, acidosis and low ionised calcium reduce acetylcholine release, and aminoglycosides interfere with presynaptic calcium-dependent transmitter release.

Why the other options are wrong:

- A, alkalosis and hyperthermia: tend to lighten, not potentiate, the block.
- C, raised calcium alone: increased calcium enhances transmitter release and antagonises the block.
- D, anticholinesterase: reversal agents (neostigmine) terminate the block rather than prolong it.

Final Answer: Hypothermia, acidosis and aminoglycosides $\Rightarrow$ B

Answer: (B) Go Back to Q5

Q6.

Solution

Concept – halothane hepatotoxicity: Halothane has largely been abandoned because of a rare severe liver injury.

Step 1 – name the reaction: Repeated exposure can trigger **fulminant hepatic necrosis**, the immune-mediated **halothane hepatitis**, with a high mortality.

Step 2 – the mechanism: Oxidative metabolism produces trifluoroacetyl-protein adducts that act as neo-antigens, provoking an antibody-mediated hepatocellular injury, more likely after repeat exposures in adults.

Why the other options are wrong:

- A, malignant hyperthermia in children only: malignant hyperthermia is a separate genetic disorder, not confined to children.
- B, fluoride nephrotoxicity: that is associated with methoxyflurane, not halothane.
- C, pulmonary fibrosis: is not a recognised effect of halothane.

Final Answer: Fulminant hepatic necrosis (halothane hepatitis) $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q6

Q7.

Solution

Concept – the physiology of a high spinal block: Local anaesthetic in the cerebrospinal fluid blocks sympathetic as well as sensory and motor fibres.

Step 1 – the cardiovascular effect: A block reaching the upper thoracic dermatomes produces an extensive **sympathetic block**, causing vasodilatation and **hypotension**.

Step 2 – the heart rate effect: When the block ascends above T1-T4 it also blocks the **cardiac accelerator fibres**, so unopposed vagal tone causes **bradycardia**.

Why the other options are wrong:

- A, hypertension and tachycardia: sympathetic block lowers, not raises, pressure and rate.
- B, isolated motor block: the sympathetic system is inevitably involved.
- C, bronchospasm and rising pressure: not features of a high spinal.

Final Answer: Hypotension and bradycardia from sympathetic block $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q7

Q8.

Solution

Concept – the femoral '3-in-1' block: A single femoral injection is used to reach three nerves of the lumbar plexus.

Step 1 – the targets and technique: Injecting around the femoral nerve with distal pressure encourages proximal spread to the **femoral, lateral femoral cutaneous and obturator nerves**.

Step 2 – the clinical use: It gives anaesthesia and analgesia for **anterior thigh and knee surgery**, and useful pain relief for a **fractured femoral shaft**.

Why the other options are wrong:

- A, shoulder surgery: is covered by an interscalene brachial plexus block.
- C, hand surgery: needs a brachial plexus (for example axillary) block.
- D, chest-wall analgesia: uses paravertebral or intercostal techniques.

Final Answer: Anterior thigh and knee surgery, and femoral fracture analgesia $\Rightarrow$ B

Answer: (B) Go Back to Q8

Q9.

Solution

Concept – the Bain (Mapleson D) circuit: The Bain system is a coaxial breathing circuit delivering fresh gas through an inner tube.

Step 1 – the rebreathing problem: In a Mapleson D system used for **spontaneous** ventilation, rebreathing is prevented only by a high fresh gas flow that flushes expired gas out of the tubing.

Step 2 – the flow requirement: This flow is about **1.5 to 2 times the patient's minute volume**. (During controlled ventilation the Bain is efficient and needs a lower flow, roughly 70 mL/kg/min.)

Why the other options are wrong:

- A, 0.5 times minute volume: far too low, causing rebreathing and hypercarbia.
- B, one tidal volume: does not describe a continuous flow requirement.

- D, no fresh gas: guarantees rebreathing without a carbon dioxide absorber.

Final Answer: 1.5 to 2 times the minute volume ⇒ C

Answer: (C) Go Back to Q9

Q10.

Solution

Concept – prevention of perioperative hypothermia: Anaesthesia impairs thermoregulation, so heat must be actively conserved and added.

Step 1 – the most effective measure: Forced-air warming blankets combined with **warmed intravenous fluids** are the mainstay of active warming and are the most effective single approach.

Step 2 – monitor and support: Core temperature is monitored (for example nasopharyngeal or oesophageal), the theatre is kept warm and fluids and irrigation are warmed, aiming to keep the patient above 36 degrees Celsius.

Why the other options are wrong:

- B, cooling the theatre: worsens heat loss.
- C, removing drapes: exposes skin and increases radiant and convective loss.
- D, relying on shivering: shivering is blunted under anaesthesia and sharply raises oxygen demand.

Final Answer: Forced-air warming with warmed fluids ⇒ A

Answer: (A) Go Back to Q10

Q11.

Solution

Concept – the citrate load of a massive transfusion: Stored blood is anticoagulated with citrate, which chelates calcium.

Step 1 – the metabolic effect: When transfused rapidly, the **citrate binds ionised calcium**, producing **hypocalcaemia**.

Step 2 – the consequences: Low ionised calcium can **impair myocardial contractility** and **worsen coagulation**, so calcium is monitored and replaced during massive transfusion, along with watching for hyperkalaemia and hypothermia.

Why the other options are wrong:

- A, hyperkalaemia with hypertension: potassium can rise, but hypertension is not the citrate effect.
- B, alkalosis with hypercalcaemia: citrate lowers calcium; the picture is the opposite.
- C, isolated fever: a febrile reaction is separate from the citrate-calcium effect.

Final Answer: Hypocalcaemia impairing the heart and clotting ⇒ D

Answer: (D) Go Back to Q11

Q12.

Solution

Concept – intraoperative bronchospasm: Bronchospasm raises airway resistance and impairs ventilation under anaesthesia.

Step 1 – confirm and treat: Wheeze, a rising peak pressure and an up-sloping capnograph point to bronchospasm; the first steps are to give **100% oxygen, deepen anaesthesia** and administer an **inhaled beta-2 agonist (salbutamol)**.

Step 2 – escalate if needed: If it persists, add intravenous or nebulised bronchodilators, consider adrenaline for severe cases, and exclude mechanical causes such as a kinked or misplaced tube.

Why the other options are wrong:

- B, immediate extubation: removes the airway and does not treat the spasm.
- C, potassium bolus: is dangerous and unrelated to bronchospasm.
- D, dropping oxygen to 21%: worsens hypoxaemia during an emergency.

Final Answer: Deepen anaesthesia, salbutamol and 100% oxygen ⇒ A

Answer: (A) Go Back to Q12

Q13.

Solution

Concept – total spinal anaesthesia: This is the extreme of excessive cephalad spread of intrathecal local anaesthetic.

Step 1 – recognise the picture: Spread to the cervical cord and brainstem causes **apnoea** (phrenic and intercostal paralysis), **profound hypotension and bradycardia** (complete sympathetic block) and **loss of consciousness**.

Step 2 – the management: Treatment is supportive and immediate: secure the

airway and ventilate with oxygen, give intravenous fluids, vasopressors and atropine, and support the circulation until the block recedes.

Why the other options are wrong:

- A, isolated leg weakness: understates a life-threatening high block.
- C, hypertension with agitation: the opposite of the cardiovascular collapse seen.
- D, slow temperature rise: is not a feature of total spinal.

Final Answer: Apnoea, cardiovascular collapse and unconsciousness $\Rightarrow$ B

Answer: (B) Go Back to Q13

Q14.

Solution

Concept – the reversible causes of cardiac arrest: The 4 Hs and 4 Ts prompt a search for treatable causes during resuscitation.

Step 1 – list the 4 Hs: Hypoxia, **Hypovolaemia**, **Hypo/hyperkalaemia and other metabolic disturbances**, and **Hypothermia**.

Step 2 – recall the 4 Ts: Thrombosis (coronary or pulmonary), Tension pneumothorax, Tamponade (cardiac) and Toxins; each is actively sought and corrected during cardiopulmonary resuscitation.

Why the other options are wrong:

- A, hypertension, hyperthermia, hunger, hypervolaemia: are not the recognised 4 Hs.
- B, headache, hypertension, hypoglycaemia, hypercarbia: mixes in causes that are not part of the list.
- D, hypertension, hyperkalaemia, hyperthermia, hypercalcaemia: only partly overlaps and omits hypoxia and hypovolaemia.

Final Answer: Hypoxia, Hypovolaemia, metabolic (K^+), Hypothermia $\Rightarrow$ C

Answer: (C) Go Back to Q14

Q15.

Solution

Concept – the treatment of neuropathic pain: Neuropathic pain arises from nerve injury and behaves differently from nociceptive pain.

Step 1 – name the first-line agents: Gabapentinoids (gabapentin and pregabalin) and **tricyclic antidepressants such as amitriptyline** are first-line.

Step 2 – the mechanisms: Gabapentinoids bind the alpha-2-delta subunit of voltage-gated calcium channels to reduce excitatory transmitter release, while tricyclics enhance descending inhibition through noradrenaline and serotonin reuptake blockade; opioids are relatively ineffective.

Why the other options are wrong:

- A, paracetamol and ibuprofen: work mainly on nociceptive, not neuropathic, pain.
- B, escalating strong opioids: neuropathic pain is comparatively opioid-resistant.
- D, inhaled bronchodilators: have no role in pain management.

Final Answer: Gabapentinoids and tricyclics (amitriptyline) $\Rightarrow$ C

Answer: (C) Go Back to Q15

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	A	2	C	3	B	4	A	5	B
6	D	7	D	8	B	9	C	10	A
11	D	12	A	13	B	14	C	15	C