# INI CET Medicine

## Sample Paper – 10

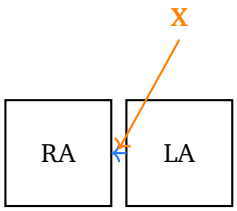
**Duration: 14 Minutes** **Maximum Marks: 15**

### Instructions

- This paper contains **15** Multiple Choice Questions (Single Best Response), modelled on the General Medicine content of **INI CET** (Institutes of National Importance Combined Entrance Test) conducted by AIIMS New Delhi.
- The **15-question** length matches the number of Medicine 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.

## Cardiology

**Q1.** The diagram shows a defect in the septum between the two atria. In an uncomplicated (uncorrected) atrial septal defect, blood shunts in the direction marked **X**. This initial shunt is from the:




(A) Right atrium to left atrium

(B) Left atrium to right atrium

(C) Aorta to pulmonary artery

(D) Right ventricle to left ventricle

**Q2.** Eisenmenger syndrome develops when a long-standing left-to-right shunt reverses to become right-to-left. The event responsible for this reversal is:

(A) A rise in pulmonary vascular resistance above systemic resistance

(B) A fall in systemic arterial pressure from blood loss

(C) Sudden closure of the ductus arteriosus at birth

(D) An acute drop in pulmonary artery pressure

**Q3.** Excluding bicuspid aortic valve, the most common congenital cardiac malformation seen at birth is:

(A) Atrial septal defect

(B) Patent ductus arteriosus

(C) Tetralogy of Fallot

(D) Ventricular septal defect

## Respiratory Medicine

**Q4.** A patient has a chronic cough productive of large volumes of purulent sputum. High-resolution CT shows dilated, thick-walled bronchi that are wider than the accompanying pulmonary artery (the signet-ring sign). The diagnosis is:

(A) Centrilobular emphysema

(B) Idiopathic pulmonary fibrosis

(C) Bronchiectasis

(D) Bronchial asthma

**Q5.** Under the Berlin definition of acute respiratory distress syndrome (ARDS), with bilateral opacities not fully explained by cardiac failure and a positive end-expiratory pressure of at least 5 cm $H_2O$, the required arterial oxygen to inspired oxygen ratio ($PaO_2/FiO_2$) is:

(A) Greater than 500 mmHg

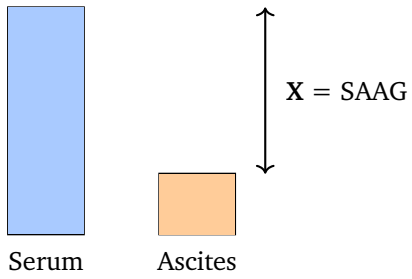
(B) Between 400 and 500 mmHg

(C) 300 mmHg or less

(D) Exactly 400 mmHg

## Gastroenterology and Hepatology

**Q6.** The diagram compares the serum albumin with the ascitic-fluid albumin. The difference marked **X** is the serum-ascites albumin gradient (SAAG). A high value (X of 1.1 g/dL or more) points to:




(A) Peritoneal carcinomatosis

(B) Tuberculous peritonitis

(C) Nephrotic syndrome

(D) Portal hypertension (e.g. cirrhosis)

**Q7.** Spontaneous bacterial peritonitis is diagnosed in a patient with cirrhotic ascites when the ascitic-fluid absolute polymorphonuclear (neutrophil) count reaches:

(A) 50 cells/$mm^3$ or more

(B) 100 cells/$mm^3$ or more

(C) 250 cells/$mm^3$ or more

(D) 1000 cells/$mm^3$ or more

## Endocrinology and Nephrology

**Q8.** The most common cause of hypercalcaemia detected in an asymptomatic ambulatory (outpatient) adult is:

(A) Primary hyperparathyroidism

(B) Underlying malignancy

(C) Vitamin D deficiency

(D) Hypothyroidism

**Q9.** The classic biochemical pattern of primary hyperparathyroidism is:

(A) High serum calcium, low serum phosphate, raised parathyroid hormone

(B) Low serum calcium, high serum phosphate, raised parathyroid hormone

(C) High serum calcium, high serum phosphate, suppressed parathyroid hormone

(D) Low serum calcium, low serum phosphate, suppressed parathyroid hormone

**Q10.** Severe hypercalcaemia characteristically shortens which interval on the electrocardiogram?

(A) PR interval

(B) QRS duration

(C) RR interval

(D) QT interval

## Neurology

**Q11.** The table contrasts upper motor neuron (UMN) and lower motor neuron (LMN) lesions. The reflex finding of a UMN lesion, marked **X**, is:

| UMN lesion | LMN lesion |
|---|---|
| Spastic (increased) tone | Flaccid (decreased) tone |
| **X** | Reflexes absent |

(A) Marked muscle wasting

(B) Prominent fasciculations

(C) Exaggerated deep tendon reflexes with an extensor plantar response

(D) Absent reflexes with flaccid tone

**Q12.** Amyotrophic lateral sclerosis, the commonest form of motor neuron disease, is characterised on examination by:

(A) Pure lower motor neuron signs with prominent sensory loss

(B) Combined upper and lower motor neuron signs with sensory sparing

(C) Isolated sensory involvement with normal power

(D) Cerebellar ataxia with preserved strength

## Infectious Diseases, Hematology and Rheumatology

**Q13.** The characteristic radiological finding in the skull of a patient with multiple myeloma is:

(A) Diffuse osteoblastic sclerotic lesions

(B) Multiple punched-out lytic lesions

(C) Ground-glass opacity of the diploe

(D) A periosteal sunburst reaction

**Q14.** A bleeding patient with advanced liver disease has a markedly prolonged prothrombin time from deficiency of multiple clotting factors. The blood component of choice to replace these factors is:

(A) Fresh frozen plasma

(B) Packed red blood cells

(C) Platelet concentrate

(D) Whole blood

**Q15.** The universal donor blood group for packed red cell transfusion in an emergency is:

(A) AB positive

(B) O negative

(C) A positive

(D) AB negative

## Detailed Solutions

**Q1.**

**Solution**

**Concept – direction of shunt in ASD:** Flow across a septal defect follows the pressure gradient.

**Step 1 – compare atrial pressures:** Left atrial pressure normally exceeds right atrial pressure.

**Step 2 – deduce the direction:** Blood therefore crosses from the **left atrium to the right atrium**, a left-to-right shunt (marked X).

**Why the other options are wrong:**

- A, right-to-left: occurs only later, after Eisenmenger reversal.
- C, aorta to pulmonary artery: describes a patent ductus arteriosus.
- D, right to left ventricle: a ventricular, not an atrial, defect.

**Final Answer:** Left atrium to right atrium $\Rightarrow$ B

**Answer: (B)** Go Back to Q1

**Q2.**

**Solution**

**Concept – Eisenmenger syndrome:** A chronic left-to-right shunt remodels the pulmonary vasculature.

**Step 1 – name the mechanism:** Sustained high pulmonary flow raises the **pulmonary vascular resistance above the systemic resistance**.

**Step 2 – result:** The gradient reverses, the shunt becomes right-to-left, and cyanosis appears.

**Why the other options are wrong:**

- B, systemic hypotension from blood loss: not the mechanism of Eisenmenger.
- C, ductal closure: a normal neonatal event, unrelated.
- D, a fall in pulmonary pressure: the opposite of what occurs.

**Final Answer:** Pulmonary resistance exceeding systemic resistance $\Rightarrow$ A

**Answer: (A)** Go Back to Q2

## Q3.

**Solution**

**Concept – frequency of congenital heart defects:** One malformation dominates at birth.

**Step 1 – name it:** The **ventricular septal defect** is the commonest congenital cardiac lesion (excluding bicuspid aortic valve).

**Step 2 – natural history:** Many small muscular defects close spontaneously in childhood.

**Why the other options are wrong:**

- A, ASD: common but less frequent than VSD.
- B, PDA: more frequent in preterm infants, not overall commonest.
- C, tetralogy of Fallot: the commonest cyanotic lesion, but far rarer than VSD.

**Final Answer:** Ventricular septal defect $\Rightarrow$ D

**Answer: (D)** Go Back to Q3

## Q4.

**Solution**

**Concept – bronchiectasis:** Permanent bronchial dilatation gives a typical picture.

**Step 1 – read the clues:** Copious purulent sputum with CT bronchi wider than the artery (signet-ring sign) defines **bronchiectasis**.

**Step 2 – pathology:** Chronic infection and inflammation destroy the elastic and muscular bronchial wall.

**Why the other options are wrong:**

- A, emphysema: air-space destruction, not dilated airways.
- B, pulmonary fibrosis: reticulation and honeycombing, not bronchial dilatation.
- D, asthma: reversible airflow limitation without fixed dilatation.

**Final Answer:** Bronchiectasis $\Rightarrow$ C

**Answer: (C)** Go Back to Q4

## Q5.

**Solution**

**Concept – Berlin criteria for ARDS:** Oxygenation defines and grades ARDS.

**Step 1 – state the cut-off:** With PEEP of at least 5 cm $H_2O$, a $PaO_2/FiO_2$ ratio of **300 mmHg or less** is required.

**Step 2 – grade severity:** Mild 200 to 300, moderate 100 to 200, severe below 100 mmHg.

**Why the other options are wrong:**

- A and B, above 400 or 400 to 500: represent normal or near-normal oxygenation.
- D, exactly 400: exceeds the ARDS threshold.

**Final Answer:** 300 mmHg or less $\Rightarrow$ C

**Answer: (C)** Go Back to Q5

## Q6.

**Solution**

**Concept – serum-ascites albumin gradient:** The SAAG separates causes of ascites.

**Step 1 – interpret a high value:** A gradient (X) of **1.1 g/dL or more** indicates **portal hypertension**.

**Step 2 – explain:** Raised sinusoidal pressure drives a low-protein transudate into the peritoneum.

**Why the other options are wrong:**

- A and B, carcinomatosis and TB peritonitis: give a low SAAG (below 1.1 g/dL).
- C, nephrotic syndrome: also low SAAG from hypoalbuminaemia.

**Final Answer:** Portal hypertension $\Rightarrow$ D

**Answer: (D)** Go Back to Q6

## Q7.

**Solution**

**Concept – diagnosing spontaneous bacterial peritonitis:** A neutrophil count confirms the infection.

**Step 1 – state the threshold:** An ascitic polymorphonuclear count of **250 cells/mm$^3$ or more** diagnoses SBP.

**Step 2 – act on it:** Empirical antibiotics (a third-generation cephalosporin) begin at once.

**Why the other options are wrong:**

- A and B, 50 or 100: below the diagnostic cut-off.
- D, 1000: far higher than required, would miss many true cases.

**Final Answer:** 250 cells/mm$^3$ or more $\Rightarrow$ C

**Answer: (C)** Go Back to Q7

## Q8.

**Solution**

**Concept – causes of hypercalcaemia:** The setting predicts the cause.

**Step 1 – pick the outpatient cause:** In an asymptomatic ambulatory adult, **primary hyperparathyroidism** is commonest, usually from a parathyroid adenoma.

**Step 2 – contrast:** Malignancy is the leading cause in hospitalised, symptomatic patients.

**Why the other options are wrong:**

- B, malignancy: commonest in inpatients, not asymptomatic outpatients.
- C, vitamin D deficiency: causes hypocalcaemia, not hypercalcaemia.
- D, hypothyroidism: not a recognised cause of hypercalcaemia.

**Final Answer:** Primary hyperparathyroidism $\Rightarrow$ A

**Answer: (A)** Go Back to Q8

## Q9.

**Solution**

**Concept – biochemistry of primary hyperparathyroidism:** Excess PTH shifts calcium and phosphate in opposite directions.

**Step 1 – state the pattern: High calcium, low phosphate and a raised PTH** is classic.

**Step 2 – mechanism:** PTH mobilises calcium from bone and increases renal phosphate excretion.

**Why the other options are wrong:**

- B, low calcium with high phosphate and high PTH: fits chronic kidney disease (secondary hyperparathyroidism).
- C, high calcium and phosphate with low PTH: suggests a non-parathyroid cause with PTH suppression.
- D, all low: does not match hyperparathyroidism.

**Final Answer:** High calcium, low phosphate, raised PTH $\Rightarrow$ A

**Answer: (A)** Go Back to Q9

## Q10.

**Solution**

**Concept – ECG in hypercalcaemia:** Calcium alters cardiac repolarisation.

**Step 1 – name the change:** Hypercalcaemia **shortens the QT interval** by speeding phase 2 of the action potential.

**Step 2 – contrast:** Hypocalcaemia does the opposite and prolongs the QT interval.

**Why the other options are wrong:**

- A, PR interval: reflects atrioventricular conduction, not calcium.
- B, QRS duration: reflects ventricular depolarisation.
- C, RR interval: reflects heart rate, not the calcium level.

**Final Answer:** QT interval $\Rightarrow$ D

**Answer: (D)** Go Back to Q10

## Q11.

**Solution**

**Concept – upper versus lower motor neuron signs:** The two lesions give opposite reflex findings.

**Step 1 – identify X:** A UMN lesion causes **exaggerated deep tendon reflexes with an extensor plantar (Babinski) response**.

**Step 2 – localise:** It also produces spastic hypertonia without early wasting.

**Why the other options are wrong:**

- A and B, wasting and fasciculations: LMN features.
- D, absent reflexes with flaccid tone: the LMN column, opposite to X.

**Final Answer:** Exaggerated reflexes with extensor plantar $\Rightarrow$ C

**Answer: (C)** Go Back to Q11

## Q12.

**Solution**

**Concept – amyotrophic lateral sclerosis:** Motor neuron disease spares the sensory system.

**Step 1 – describe the signs:** ALS shows **combined upper and lower motor neuron signs with sensory sparing**.

**Step 2 – example:** Brisk reflexes in a wasted, fasciculating limb is the classic mixed picture.

**Why the other options are wrong:**

- A, LMN signs with sensory loss: ALS spares sensation.
- C, pure sensory involvement: not a motor neuron disease.
- D, cerebellar ataxia: a different system, power is affected in ALS.

**Final Answer:** Mixed UMN and LMN signs, sensory sparing $\Rightarrow$ B

**Answer: (B)** Go Back to Q12

## Q13.

**Solution**

**Concept – bone lesions in multiple myeloma:** Plasma cells drive focal bone destruction.

**Step 1 – name the finding:** The skull shows **multiple punched-out lytic lesions** without a sclerotic rim.

**Step 2 – mechanism:** Myeloma cells activate osteoclasts and suppress osteoblasts.

**Why the other options are wrong:**

- A, osteoblastic sclerosis: typical of prostate metastases, not myeloma.
- C, ground-glass opacity: seen in fibrous dysplasia.
- D, sunburst reaction: a feature of osteosarcoma.

**Final Answer:** Multiple punched-out lytic lesions $\Rightarrow$ $\boxed{\text{B}}$

**Answer: (B)** Go Back to Q13

## Q14.

**Solution**

**Concept – blood component therapy:** Each component replaces a specific deficit.

**Step 1 – match the need:** Deficiency of multiple clotting factors in liver disease is corrected with **fresh frozen plasma**, which contains all coagulation factors.

**Step 2 – use:** It is given for a bleeding patient with a prolonged prothrombin time.

**Why the other options are wrong:**

- B, packed red cells: replace oxygen-carrying capacity, not factors.
- C, platelets: correct thrombocytopenia, not factor deficiency.
- D, whole blood: rarely used and not the targeted choice for factor replacement.

**Final Answer:** Fresh frozen plasma $\Rightarrow$ $\boxed{\text{A}}$

**Answer: (A)** Go Back to Q14

## Q15.

**Solution**

**Concept – universal donor for red cells:** Surface antigens decide compatibility.

**Step 1 – name the group: O negative** red cells lack A, B and RhD antigens, so they are the universal donor.

**Step 2 – use:** They are given in an emergency before the recipient's group is known.

**Why the other options are wrong:**

- A and D, AB positive and AB negative: AB is the universal recipient, not donor.
- C, A positive: carries A and RhD antigens and cannot be given universally.

**Final Answer:** O negative $\Rightarrow$ $\boxed{\text{B}}$

**Answer: (B)** Go Back to Q15

# Answer Key

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