INI CET Medicine

Sample Paper – 2

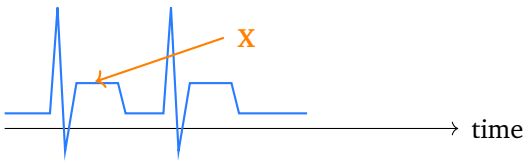
Duration: 14 Minutes **Maximum Marks: 15**

Instructions

- This paper contains **15** Multiple Choice Questions (Single Best Response), modelled on the Medicine (General/Internal 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, applying clinical reasoning across cardiology, respiratory, gastroenterology, endocrinology, neurology and haematology.
- Attempt this practice paper in one timed sitting of about **14 minutes**, the pace the real computer-based test demands.

Cardiology

Q1. The rhythm strip below is from the leads facing an acute transmural (ST-elevation) myocardial infarction. The deflection marked **X**, whose presence defines a STEMI, is:



(A) Horizontal ST-segment depression

(B) ST-segment elevation

(C) Isolated T-wave inversion

(D) Prolonged PR interval

Q2. Which serum biomarker is the most sensitive and specific for confirming an acute myocardial infarction?

(A) Cardiac troponin I or T

(B) Total creatine kinase

(C) Lactate dehydrogenase (LDH)

(D) Aspartate aminotransferase (AST)

Q3. A 55-year-old man presents 90 minutes after the onset of a STEMI to a hospital with an available catheterisation laboratory. The preferred reperfusion strategy is:

(A) Primary percutaneous coronary intervention (PCI)

(B) Intravenous streptokinase thrombolysis

(C) Oral beta-blocker alone

(D) Elective coronary bypass surgery next week

Respiratory Medicine

Q4. In a patient with an acute exacerbation of bronchial asthma, which single clinical finding best indicates a life-threatening attack?

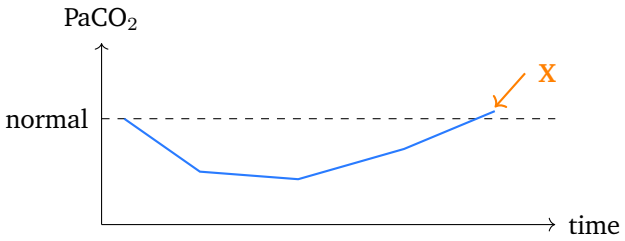
(A) Loud wheeze audible throughout the chest

(B) Respiratory rate of 22 per minute

(C) Silent chest with feeble respiratory effort

(D) Ability to complete full sentences

Q5. The arterial blood gas trend below is from a patient in acute severe asthma. The $PaCO_2$ was initially low from hyperventilation and has now risen back to the "normal" range (marked **X**) while the patient remains severely breathless. This signals:



(A) A mild attack that is resolving

(B) Metabolic alkalosis

(C) An adequate response to bronchodilators

(D) Impending respiratory failure from exhaustion

Gastroenterology and Hepatology

Q6. A jaundiced patient is HBsAg positive, IgM anti-HBc positive and HBeAg positive. This serological profile indicates:

(A) An inactive chronic carrier state

(B) Acute hepatitis B with high infectivity

(C) Resolved past infection with immunity

(D) Vaccine-induced immunity only

Q7. The current mainstay of treatment for chronic hepatitis C infection is:

(A) Long-term interferon monotherapy

(B) Lamivudine

(C) Direct-acting antiviral agents (e.g. sofosbuvir-based regimens)

(D) Ribavirin used alone

Endocrinology and Nephrology

Q8. In primary hypothyroidism, the characteristic pattern of thyroid function tests is:

(A) Low TSH with low free T4

(B) Low TSH with high free T4

(C) High TSH with low free T4

(D) High TSH with high free T4

Q9. Which of the following is the most common cause of hyperthyroidism (thyrotoxicosis)?

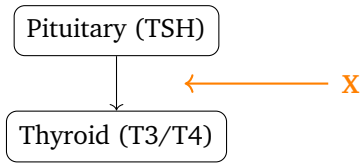
(A) Toxic solitary adenoma

(B) Subacute (de Quervain) thyroiditis

(C) Excess dietary iodine

(D) Graves' disease

Q10. In the hypothalamic-pituitary-thyroid axis shown, the hormone marked **X**, released by the anterior pituitary to stimulate the thyroid gland, is:



(A) Thyrotropin-releasing hormone (TRH)

(B) Thyroid-stimulating hormone (TSH)

(C) Triiodothyronine (T3)

(D) Calcitonin

Neurology

Q11. A child has brief episodes of blank staring with sudden loss of awareness, no aura and no post-ictal confusion, and the EEG shows generalised 3-Hz spike-and-wave discharges. The seizure type is:

(A) Absence (petit mal) seizure

(B) Focal seizure with impaired awareness

(C) Generalised tonic-clonic seizure

(D) Myoclonic seizure

Q12. The recommended first-line drug for terminating an episode of status epilepticus is:

(A) Intravenous phenytoin

(B) Intravenous valproate

(C) Oral phenobarbitone

(D) Intravenous lorazepam (a benzodiazepine)

Infectious Diseases, Hematology and Rheumatology

Q13. A complete blood count shows a mean corpuscular volume (MCV) of 68 fL with a low mean corpuscular haemoglobin (MCH). This anaemia is best classified as:

(A) Macrocytic anaemia

(B) Normocytic normochromic anaemia

(C) Microcytic hypochromic anaemia

(D) Macrocytic anaemia with hypersegmented neutrophils

Q14. In iron deficiency anaemia, the characteristic pattern of iron studies is:

(A) High serum ferritin with low total iron-binding capacity (TIBC)

(B) Low serum ferritin with high total iron-binding capacity (TIBC)

(C) High serum iron with low TIBC

(D) Normal ferritin with normal TIBC

Q15. A macrocytic anaemia with hypersegmented neutrophils on the smear and a low serum vitamin B12 level is most likely due to:

(A) Vitamin B12 (or folate) deficiency

(B) Iron deficiency

(C) Beta-thalassaemia trait

(D) Anaemia of chronic disease

Detailed Solutions

Q1.

Solution

Concept – ECG in acute STEMI: The ST segment reflects the injured, transmurally ischaemic myocardium.

Step 1 – read the strip: The marked deflection X sits above the baseline immediately after the QRS complex.

Step 2 – name it: This upward displacement of the ST segment is **ST-segment elevation**, the defining feature of a STEMI in leads facing the infarct.

Why the other options are wrong:

- A, ST depression: seen in subendocardial ischaemia or NSTEMI, not transmural STEMI.
- C, T-wave inversion: a later or non-specific finding, not the defining STEMI change.
- D, prolonged PR: indicates first-degree AV block, unrelated to the ST segment.

Final Answer: ST-segment elevation $\Rightarrow$ B

Answer: (B) Go Back to Q1

Q2.

Solution

Concept – cardiac biomarkers: Different enzymes and proteins leak from dying myocardium.

Step 1 – name the best marker: Cardiac troponin I or T is the most sensitive and specific marker of myocardial injury.

Step 2 – kinetics: It rises within 3 to 6 hours, peaks at about 24 hours and stays elevated for up to 1 to 2 weeks.

Why the other options are wrong:

- B, total CK: less specific; skeletal muscle also releases it.
- C, LDH: non-specific and now obsolete for this use.
- D, AST: raised in liver and muscle disease too, so poorly specific.

Final Answer: Cardiac troponin I or T $\Rightarrow$ A

Answer: (A) Go Back to Q2

Q3.

Solution

Concept – reperfusion in STEMI: Restoring coronary flow quickly limits infarct size.

Step 1 – choose the strategy: When a catheterisation laboratory is available and the patient presents early, **primary PCI** is the preferred reperfusion method.

Step 2 – rationale: Primary PCI achieves higher rates of vessel patency and lower rates of reinfarction and bleeding than thrombolysis.

Why the other options are wrong:

- B, streptokinase: used only when timely PCI is not available.
- C, beta-blocker alone: an adjunct, not a reperfusion therapy.
- D, elective bypass next week: far too slow; the myocardium must be reperfused now.

Final Answer: Primary PCI $\Rightarrow$ A

Answer: (A) Go Back to Q3

Q4.

Solution

Concept – assessing acute asthma severity: Signs shift as airflow obstruction worsens.

Step 1 – spot the danger sign: A **silent chest with feeble respiratory effort** means airflow is too low to generate a wheeze, a life-threatening feature.

Step 2 – act: This warrants urgent oxygen, nebulised bronchodilators, systemic steroids and consideration of intensive care.

Why the other options are wrong:

- A, loud wheeze: implies air is still moving, so it is less ominous than a silent chest.
- B, respiratory rate 22: only mildly raised.
- D, completing sentences: a reassuring sign of a milder attack.

Final Answer: Silent chest with feeble effort $\Rightarrow$ C

Answer: (C) Go Back to Q4

Q5.

Solution

Concept – ABG in acute severe asthma: Early attacks cause hyperventilation, so $PaCO_2$ falls.

Step 1 – interpret the trend: The X on the graph shows $PaCO_2$ rising from a low value back into the normal range while the patient is still severely breathless.

Step 2 – meaning: A "normalising" or rising $PaCO_2$ here signals tiring respiratory muscles and **impending respiratory failure**, not recovery.

Why the other options are wrong:

- A and C, resolving or good response: contradicted by ongoing severe breathlessness.
- B, metabolic alkalosis: the change is respiratory, from CO_2 retention, not metabolic.

Final Answer: Impending respiratory failure $\Rightarrow$ D

Answer: (D) Go Back to Q5

Q6.

Solution

Concept – hepatitis B serology: Each marker times and grades the infection.

Step 1 – read the panel: HBsAg positive shows current infection; **IgM anti-HBc** positive shows it is recent (acute); HBeAg positive shows active viral replication.

Step 2 – conclusion: Together these indicate **acute hepatitis B with high infectivity**.

Why the other options are wrong:

- A, inactive carrier: would show IgG (not IgM) anti-HBc and usually HBeAg negative.
- C, resolved infection: would be HBsAg negative with anti-HBs positive.
- D, vaccine immunity: would show only anti-HBs positive, all other markers negative.

Final Answer: Acute hepatitis B, high infectivity $\Rightarrow$ B

Answer: (B) Go Back to Q6

Q7.

Solution

Concept – treating chronic hepatitis C: Therapy has shifted to oral antivirals.

Step 1 – name the mainstay: Direct-acting antiviral agents (such as sofosbuvir-based regimens) are the current standard of care.

Step 2 – outcome: They achieve a sustained virological response (cure) in over 95% of patients in a short oral course.

Why the other options are wrong:

- A, interferon monotherapy: outdated, poorly tolerated and less effective.
- B, lamivudine: used for hepatitis B, not C.
- D, ribavirin alone: inadequate as monotherapy; only an occasional adjunct.

Final Answer: Direct-acting antivirals $\Rightarrow$ C

Answer: (C) Go Back to Q7

Q8.

Solution

Concept – thyroid function tests in hypothyroidism: Feedback from the pituitary sets the TSH level.

Step 1 – reason the pattern: In primary hypothyroidism the thyroid fails, so free T4 is low; the pituitary responds by raising TSH.

Step 2 – conclusion: The pattern is **high TSH with low free T4**.

Why the other options are wrong:

- A, low TSH and low T4: suggests secondary (pituitary) hypothyroidism.
- B, low TSH and high T4: the pattern of hyperthyroidism.
- D, high TSH and high T4: seen in rare TSH-secreting tumours or resistance, not typical hypothyroidism.

Final Answer: High TSH with low free T4 $\Rightarrow$ C

Answer: (C) Go Back to Q8

Q9.

Solution

Concept – causes of thyrotoxicosis: One autoimmune disorder dominates.

Step 1 – name the commonest: Graves' disease is the most common cause of hyperthyroidism.

Step 2 – mechanism: Thyroid-stimulating immunoglobulins act on the TSH receptor to drive hormone output; it often adds eye signs and diffuse goitre.

Why the other options are wrong:

- A, toxic adenoma: causes thyrotoxicosis but is less common.
- B, subacute thyroiditis: gives transient, usually self-limited thyrotoxicosis.
- C, iodine excess: an occasional trigger, not the leading cause.

Final Answer: Graves' disease $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q9

Q10.

Solution

Concept – pituitary-thyroid signalling: The pituitary drives the thyroid through one hormone.

Step 1 – identify X: The arrow X from the pituitary to the thyroid is **thyroid-stimulating hormone (TSH)**.

Step 2 – action: TSH binds thyroid TSH receptors to stimulate synthesis and release of T3 and T4.

Why the other options are wrong:

- A, TRH: released by the hypothalamus, one step above the pituitary.
- C, T3: a thyroid product, not the pituitary signal.
- D, calcitonin: from thyroid C cells for calcium control, unrelated to this axis.

Final Answer: Thyroid-stimulating hormone (TSH) $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q10

Q11.

Solution

Concept – classifying seizures: Clinical features plus EEG name the type.

Step 1 – match the picture: Brief blank staring, no aura, no post-ictal confusion and 3-Hz spike-and-wave EEG define an **absence (petit mal) seizure**.

Step 2 – context: It is a generalised seizure of childhood, often provoked by hyperventilation.

Why the other options are wrong:

- B, focal with impaired awareness: shows an aura and post-ictal confusion.
- C, tonic-clonic: has stiffening, jerking and a prolonged post-ictal phase.
- D, myoclonic: brief shock-like jerks, not staring spells.

Final Answer: Absence (petit mal) seizure $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q11

Q12.

Solution

Concept – status epilepticus: Prolonged seizure activity is a neurological emergency.

Step 1 – name first-line therapy: Intravenous lorazepam, a benzodiazepine, is the recommended first-line drug to terminate status epilepticus.

Step 2 – next step: If seizures persist, a longer-acting agent (phenytoin, valproate or levetiracetam) is loaded.

Why the other options are wrong:

- A and B, phenytoin and valproate: used as the second-line loading agents, not first.
- C, oral phenobarbitone: too slow and not for acute control.

Final Answer: Intravenous lorazepam $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q12

Q13.

Solution

Concept – classifying anaemia by MCV: Cell size sorts anaemia into three groups.

Step 1 – apply the cut-offs: An MCV of 68 fL (below 80) with low MCH is a **microcytic hypochromic** anaemia.

Step 2 – common cause: Iron deficiency is the classic cause of this pattern.

Why the other options are wrong:

- A and D, macrocytic: need an MCV above 100 fL.
- B, normocytic normochromic: has an MCV in the normal 80 to 100 fL range.

Final Answer: Microcytic hypochromic anaemia $\Rightarrow$ C

Answer: (C) Go Back to Q13

Q14.

Solution

Concept – iron studies: Stores and transport capacity move in opposite directions.

Step 1 – reason the pattern: In iron deficiency, stores fall so **ferritin is low**, and the body raises transferrin, so **TIBC is high**.

Step 2 – add-on: Serum iron and transferrin saturation are also low.

Why the other options are wrong:

- A, high ferritin and low TIBC: the picture of anaemia of chronic disease.
- C, high iron and low TIBC: suggests iron overload, not deficiency.
- D, normal ferritin and TIBC: inconsistent with true iron deficiency.

Final Answer: Low ferritin with high TIBC $\Rightarrow$ B

Answer: (B) Go Back to Q14

Q15.

Solution

Concept – macrocytic (megaloblastic) anaemia: Impaired DNA synthesis enlarges red cells.

Step 1 – match the clues: Macrocytosis, hypersegmented neutrophils and a low serum B12 point to **vitamin B12 (or folate) deficiency**.

Step 2 – mechanism: B12 and folate are needed for DNA synthesis; their lack gives megaloblastic maturation.

Why the other options are wrong:

- B, iron deficiency: gives microcytic, not macrocytic, cells.
- C, thalassaemia trait: microcytic with a normal or high red-cell count.
- D, anaemia of chronic disease: usually normocytic or mildly microcytic.

Final Answer: Vitamin B12 (or folate) deficiency $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q15

Answer Key

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