

CUET 2026 May 20 Shift-1 (GAT)

Question Paper (Memory-Based) With Solutions PDF

Conducted by National Testing Agency (NTA)



General Instructions

- (i) The examination will be conducted in Computer-Based Test (CBT) mode.
- (ii) Each question carries +5 marks for correct answer and -1 mark for wrong answer.
- (iii) The total number of questions are 50.
- (iv) Duration of the exam is 1 hour (60 minutes).

1. A train 180 m long crosses a platform 320 m long in 25 seconds. The speed of the train is:

- (a) 60 km/h
- (b) 72 km/h
- (c) 80 km/h
- (d) 90 km/h

Correct Answer: (b) 72 km/h

Solution:

Step 1: Understanding the Concept:

When a train passes an object with a significant length of its own (such as a platform, bridge, or tunnel), the total distance covered by the train to completely clear that object is equal to the sum of the train's own length and the object's length. Since the measurements are given in meters and seconds, the initial speed will be calculated in meters per second (m/s), which then needs to be converted into kilometers per hour (km/h).

Step 2: Key Formula or Approach:

1. Total Distance = Length of Train + Length of Platform
2. Speed (in m/s) = $\frac{\text{Total Distance}}{\text{Time Taken}}$

3. To convert speed from m/s to km/h, multiply the value by $\frac{18}{5}$.

Step 3: Detailed Explanation:

From the given question: Length of the train = 180 m Length of the platform = 320 m Time taken = 25 seconds

First, calculate the total distance traveled by the train:

$$\text{Total Distance} = 180 + 320 = 500 \text{ meters}$$

Next, calculate the speed of the train in meters per second (m/s):

$$\text{Speed} = \frac{500 \text{ m}}{25 \text{ s}} = 20 \text{ m/s}$$

Now, convert the speed into kilometers per hour (km/h) by multiplying with the standard factor $\frac{18}{5}$:

$$\text{Speed} = 20 \times \frac{18}{5} \text{ km/h}$$

$$\text{Speed} = 4 \times 18 = 72 \text{ km/h}$$

Step 4: Final Answer:

The speed of the train is 72 km/h.

Quick Tip: To easily handle speed conversions under exam conditions, remember the standard 5-to-18 ratio table:

$$5 \text{ m/s} = 18 \text{ km/h}$$

$$10 \text{ m/s} = 36 \text{ km/h}$$

$$15 \text{ m/s} = 54 \text{ km/h}$$

$$20 \text{ m/s} = 72 \text{ km/h}$$

Recognizing these common pairs saves precious calculation time!

2. If the ratio of boys to girls in a class is 7 : 5 and the total number of students is 48, then the

number of girls is:

- (a) 18
- (b) 20
- (c) 22
- (d) 24

Correct Answer: (b) 20

Solution:

Step 1: Understanding the Concept:

A ratio provides a comparative distribution between parts of a whole group. To determine the absolute quantity of a specific category, we divide the total collective size by the sum of all ratio parts to find the size of a single relative unit, and then scale it up by the required category's ratio share.

Step 2: Key Formula or Approach:

Let the number of boys be $7x$ and the number of girls be $5x$.

$$\text{Total Students} = \text{Boys} + \text{Girls}$$

$$\text{Number of Girls} = \left(\frac{\text{Ratio Share of Girls}}{\text{Total Sum of Ratios}} \right) \times \text{Total Students}$$

Step 3: Detailed Explanation:

Given parameters from the text: Ratio of boys to girls = $7 : 5$ Total number of students = 48

Calculate the sum of the ratio parts:

$$\text{Total parts} = 7 + 5 = 12 \text{ parts}$$

This means the 48 students are divided into 12 equal structural units (x):

$$12x = 48 \implies x = \frac{48}{12} = 4$$

Now, multiply the value of one unit by the ratio share corresponding to girls (which is 5 parts):

$$\text{Number of girls} = 5 \times 4 = 20$$

Step 4: Final Answer:

The total number of girls in the class is 20.

Quick Tip: Since the number of girls must correspond to 5 relative parts, the correct option must be a whole multiple of 5! Looking at the choices: 18, 20, 22, and 24, only **20** can be cleanly divided by 5. You can confidently select option (b) in a matter of seconds.

3. Choose the correct missing number: 3, 8, 15, 24, 35, ?

- (a) 42
- (b) 46
- (c) 48
- (d) 50

Correct Answer: (c) 48

Solution:

Step 1: Understanding the Concept:

Number series puzzles require evaluating the progression behavior between consecutive numbers to discover a consistent mathematical pattern. This series can be decoded either by examining the expanding differences between adjacent terms or by mapping them to algebraic forms of perfect square integers.

Step 2: Key Formula or Approach:

Method 1 (Differences): Track the difference sequence $\text{Term}_{n+1} - \text{Term}_n$ to see if they follow an arithmetic layout. **Method 2 (Square Pattern):** Test if the terms align with the mathematical expression: $\text{Term}_n = n^2 - 1$.

Step 3: Detailed Explanation:

Let's analyze the arithmetic difference between each consecutive term: $8 - 3 = +5$ $15 - 8 = +7$
 $24 - 15 = +9$ $35 - 24 = +11$

Notice that the differences are increasing consecutive odd numbers (5, 7, 9, 11). Following this exact mathematical behavior, the next difference added to the series must be the next odd number, which is +13.

$$\text{Missing Number} = 35 + 13 = 48$$

Let's double check using the perfect square method (Square - 1): $2^2 - 1 = 4 - 1 = 3$ $3^2 - 1 = 9 - 1 = 8$ $4^2 - 1 = 16 - 1 = 15$ $5^2 - 1 = 25 - 1 = 24$ $6^2 - 1 = 36 - 1 = 35$ $7^2 - 1 = 49 - 1 = 48$
Both methods verify the exact same output.

Step 4: Final Answer:

The correct missing number is 48.

Quick Tip: Whenever the elements of a number sequence sit exactly one unit away from standard perfect squares (4, 9, 16, 25, 36), remember the **Square $\pm$ Constant** rule. Here, every single entry is exactly one less than a square ($n^2 - 1$). The next square is 49, so your answer is $49 - 1 = 48$!

4. A shopkeeper gives 10% discount on an article marked at Rs.2500 and still gains 8%. The cost price of the article is:

- (a) Rs.2000
- (b) Rs.2050
- (c) Rs.2083.33
- (d) Rs.2100

Correct Answer: (c) Rs.2083.33

Solution:**Step 1: Understanding the Concept:**

In commercial mathematics, profit or loss is always calculated on the Cost Price (CP), while a discount is always applied to the Marked Price (MP). The final price at which the article is sold after subtracting the discount is the Selling Price (SP). By establishing a direct

mathematical relationship between the marked price, discount percentage, profit percentage, and cost price, we can bypass multi-step calculations and find the unknown value efficiently.

Step 2: Key Formula or Approach:

There is a direct and highly reliable ratio formula linking Cost Price (CP) and Marked Price (MP) when both the discount percentage ($D\%$) and profit percentage ($P\%$) are known:

$$\frac{CP}{MP} = \frac{100 - D\%}{100 + P\%}$$

Step 3: Detailed Explanation:

Given parameters from the problem: Marked Price (MP) = Rs.2500 Discount percentage ($D\%$) = 10% Profit percentage ($P\%$) = 8%

Substitute these known values directly into the ratio formula:

$$\frac{CP}{2500} = \frac{100 - 10}{100 + 8}$$

$$\frac{CP}{2500} = \frac{90}{108}$$

Simplify the fraction $\frac{90}{108}$ by dividing both the numerator and the denominator by their greatest common divisor, 18:

$$\frac{CP}{2500} = \frac{5}{6}$$

Now, isolate and solve for CP by cross-multiplying:

$$CP = \frac{5}{6} \times 2500$$

$$CP = \frac{12500}{6}$$

$$CP \approx 2083.333...$$

Rounding to two decimal places gives a cost price of Rs.2083.33.

Step 4: Final Answer:

The cost price of the article is Rs.2083.33.

Quick Tip: To save valuable time during exams, skip computing the selling price entirely! Just use the direct ratio trick: $\frac{CP}{MP} = \frac{100-D}{100}$. Here, $\frac{CP}{2500} = \frac{90}{100} = \frac{9}{10}$. Calculating $\frac{9}{10}$ of 2500 gets you to the answer 2083.33 in a single quick step!

5. If $\sqrt{x+9} = 5$, then the value of x is:

- (a) 14
- (b) 15
- (c) 16
- (d) 25

Correct Answer: (c) 16

Solution:

Step 1: Understanding the Concept:

This question presents a basic radical (square root) equation. To solve an algebraic equation where the variable is locked inside a principal square root, the primary objective is to eliminate the radical sign. This is achieved by applying the exact inverse operation of a square root, which is squaring both sides of the equation.

Step 2: Key Formula or Approach:

The squaring property of equality states that if two expressions are equal ($a = b$), then their squares are also equal ($a^2 = b^2$). For any valid radical expression, squaring removes the root:

$$\left(\sqrt{f(x)}\right)^2 = f(x)$$

Step 3: Detailed Explanation:

Let's look at the given equation:

$$\sqrt{x+9} = 5$$

Apply the squaring property to both sides of the equation to clear the radical:

$$\left(\sqrt{x+9}\right)^2 = (5)^2$$

$$x + 9 = 25$$

Now, isolate the variable x by performing subtraction (subtracting 9 from both sides):

$$x = 25 - 9$$

$$x = 16$$

We can easily verify our result by substituting $x = 16$ back into the original expression:

$$\text{LHS} = \sqrt{16 + 9} = \sqrt{25} = 5 = \text{RHS}$$

Since both sides match perfectly, the value is verified.

Step 4: Final Answer:

The value of x is 16.

Quick Tip: For simple algebraic equations, you can use the substitution method to test options directly!

Try option (a): $\sqrt{14 + 9} = \sqrt{23} \neq 5$ Try option (c): $\sqrt{16 + 9} = \sqrt{25} = 5$. Since 16 is the only number that produces a perfect square of 25 under the root, it must be the correct answer!

6. Find the odd one out:

- (a) Triangle
- (b) Square
- (c) Circle
- (d) Cube

Correct Answer: (d) Cube

Solution:

Step 1: Understanding the Concept:

"Odd one out" classification questions require identifying a underlying geometric property shared by three of the given choices, while the remaining choice lacks that property. In spatial geometry, shapes are fundamentally classified according to their dimensions: 2-Dimensional

(2D / plane figures having only length and breadth) or 3-Dimensional (3D / solid figures having length, breadth, and height/volume).

Step 2: Key Formula or Approach:

Categorize the elements based on their spatial dimension layout:

Geometric Properties = {2-Dimensional (Plane) vs. 3-Dimensional (Solid)}

Step 3: Detailed Explanation:

Let's analyze the properties of each option individually: Triangle: A 2-dimensional flat polygon bounded by 3 straight line segments. It lies entirely within a single flat plane. Square: A 2-dimensional flat quadrilateral with 4 equal sides and four 90° corners. It is a flat plane figure. Circle: A 2-dimensional closed round curve where all points on the boundary are equidistant from a fixed center. It is a plane figure. Cube (Correct): A 3-dimensional solid object bounded by six square faces. It occupies volumetric space and has three distinct dimensions: length, breadth, and height.

Since a Triangle, a Square, and a Circle are all flat 2D plane figures, whereas a Cube is a solid 3D figure, the Cube is the clear odd one out.

Step 4: Final Answer:

The odd one out is Cube.

Quick Tip: Think about drawing vs. holding! You can easily draw a flat **Triangle, Square, or Circle** flat on a single sheet of paper (2D). However, a **Cube** is a solid object—like a playing dice or a cardboard box—that takes up physical room and can be held in your hand (3D). Therefore, Cube belongs to a different dimensional category!

7. A person walks 12 km towards North, then turns right and walks 5 km. He again turns right and walks 12 km. How far is he from the starting point?

(a) 5 km

- (b) 7 km
- (c) 12 km
- (d) 17 km

Correct Answer: (a) 5 km

Solution:

Step 1: Understanding the Concept:

Direction sense problems track positional displacement using a standard two-dimensional map coordinates layout where North is oriented upwards, South is downwards, East is to the right, and West is to the left. By mapping the sequential movements step-by-step, we can trace a closed geometric shape to evaluate the final shortest straight-line distance separating the person's final coordinate from the initial starting origin.

Step 2: Key Formula or Approach:

Moving North is an upward displacement. Making a right turn while facing North points the person Eastward. Making a subsequent right turn while facing East points the person Southward.

Step 3: Detailed Explanation:

Let's track the journey step-by-step starting from an initial origin point, let's call it A : 1. First Segment: The person walks 12 km North from point A to arrive at point B . 2. Second Segment: At point B , turning right sets the heading East. Walking 5 km brings the person to point C . 3. Third Segment: At point C , a second right turn sets the heading South. Walking 12 km downwards brings the person to a final stopping location, point D .

Let's evaluate the final geometric figure created by points $A \rightarrow B \rightarrow C \rightarrow D$: The vertical path segments AB (12 km North) and CD (12 km South) are perfectly equal in magnitude but exact opposites in direction. This symmetrical path setup creates a perfect geometric rectangle ($ABCD$).

In a rectangle, opposite sides are always equal. Since side $BC = 5$ km, its parallel opposite side representing the straight-line displacement from the start (AD) must also be exactly 5 km.

Step 4: Final Answer:

He is 5 km far from the starting point.

Quick Tip: Whenever you see a directional sequence that goes North → Right (East) → Right (South) where the first and third legs are exactly equal in length, the movements cancel each other out completely along the vertical axis. The net distance from start is simply equal to the middle horizontal step value—which is 5 km!

8. The average of 8 numbers is 24. If two numbers 18 and 30 are removed, the average of the remaining numbers is:

- (a) 22
- (b) 23
- (c) 24
- (d) 25

Correct Answer: (c) 24

Solution:

Step 1: Understanding the Concept:

An average is the balanced value of a group of numbers, representing the total value divided evenly among the individual entities. When elements are extracted from a set, we calculate the new average by finding the remaining sum total of the values and dividing it by the updated headcount of elements left in the group.

Step 2: Key Formula or Approach:

$$\begin{aligned} 1. \quad \text{Original Sum} &= \text{Original Average} \times \text{Original Count} & 2. \quad \text{Remaining Sum} &= \\ \text{Original Sum} - \text{Sum of Removed Numbers} & & 3. \quad \text{New Average} &= \frac{\text{Remaining Sum}}{\text{Remaining Count}} \end{aligned}$$

Step 3: Detailed Explanation:

Let's find the values systematically:

Initial State: There are 8 values whose collective average matches 24.

$$\text{Original Sum} = 8 \times 24 = 192$$

Removal Step: Two specific numbers (18 and 30) are extracted out of the dataset. Let's

calculate the combined value of these removed entries:

$$\text{Removed Value} = 18 + 30 = 48$$

New State: Deduct this value from our initial total to see the remaining sum:

$$\text{Remaining Sum} = 192 - 48 = 144$$

Since 2 numbers were completely removed from the initial pool of 8 numbers, the remaining headcount is:

$$\text{Remaining Count} = 8 - 2 = 6$$

Now, calculate the revised group average by dividing the remaining sum by the updated headcount:

$$\text{New Average} = \frac{144}{6} = 24$$

Step 4: Final Answer:

The average of the remaining numbers is 24.

Quick Tip: You can solve this instantly by checking the average of the removed items! The average of the two removed numbers is $\frac{18+30}{2} = \frac{48}{2} = 24$. Since the average of the elements leaving the group is exactly equal to the overall group average (24), their removal will have zero impact on the rest of the group. The remaining average stays 24!

9. In a certain code language, "PENCIL" is written as "QFODJM". How will "MARKER" be written in that code?

- (a) NBSLFS
- (b) NBSJFS
- (c) NCSLFS
- (d) NARKFS

Correct Answer: (a) NBSLFS

Solution:

Step 1: Understanding the Concept:

Letter coding-decoding puzzles rely on systematic structural transformations along the alphabetic index sequence. To decode the encryption blueprint, we map each individual letter of the example word to its coded counterpart and measure the directional shift step value.

Step 2: Key Formula or Approach:

Analyze the letter shift behavior from the reference example:

$$\text{Letter}_{\text{Coded}} = \text{Letter}_{\text{Original}} + n$$

Determine the index shift step value (n), then map out the target word using the identical shift rule.

Step 3: Detailed Explanation:

Let's inspect the letter shifts inside the reference pattern PENCIL $\rightarrow$ QFODJM: P $\xrightarrow{+1}$ Q E $\xrightarrow{+1}$ F
N $\xrightarrow{+1}$ O C $\xrightarrow{+1}$ D I $\xrightarrow{+1}$ J L $\xrightarrow{+1}$ M

The coding pattern shifts every letter forward by exactly one position (+1 linear progression).

Now, execute this identical +1 shift rule across all letters of the word MARKER: M $\xrightarrow{+1}$ N A $\xrightarrow{+1}$ B
R $\xrightarrow{+1}$ S K $\xrightarrow{+1}$ L E $\xrightarrow{+1}$ F R $\xrightarrow{+1}$ S

Combining the resulting sequence of characters yields the coded word NBSLFS. This matches the text given in option (a).

Step 4: Final Answer:

The word MARKER will be written as NBSLFS.

Quick Tip: To eliminate choices quickly, check the first two letters and the last letter: M $\rightarrow$ N, A $\rightarrow$ B, and R $\rightarrow$ S. This tells you the code must start with "NB..." and end with "...S". This quickly narrows down your options and confirms choice (a)!

10. A sum of money becomes Rs.9680 at 10% simple interest per annum in 4 years. The principal amount is:

- (a) Rs.6800.35
- (b) Rs.6914.28
- (c) Rs.7000.97
- (d) Rs.7200.27

Correct Answer: (b) Rs.6914.28

Solution:

Step 1: Understanding the Concept:

In simple interest calculations, the interest earned each year remains constant because it is calculated only on the initial principal amount (P). The total accumulated amount (A) at the end of a given timeframe is the sum of the original principal amount and the total simple interest (SI) accumulated across those years.

Step 2: Key Formula or Approach:

1. Simple Interest (SI) = $\frac{P \times R \times T}{100}$ 2. Total Amount (A) = $P + SI = P \left(1 + \frac{R \times T}{100}\right)$ Where P = Principal, R = Rate of interest per annum, and T = Time in years.

Step 3: Detailed Explanation:

Given values from the problem statement: Accumulated Amount (A) = Rs.9680 Rate of interest (R) = 10% per annum Time duration (T) = 4 years

Substitute these values into the total amount equation:

$$9680 = P \left(1 + \frac{10 \times 4}{100}\right)$$

$$9680 = P \left(1 + \frac{40}{100}\right)$$

$$9680 = P (1 + 0.4) = 1.4P$$

Isolate the Principal variable (P) by dividing 9680 by 1.4:

$$P = \frac{9680}{1.4} = \frac{96800}{14}$$

Let's divide 96800 by 14 step-by-step:

$$P = \frac{96800}{14} = 6914.28...$$

Step 4: Final Answer:

The principal amount is Rs.6914.28.

Quick Tip: Think in terms of percentages! At 10% per year for 4 years, the total simple interest earned is $10\% \times 4 = 40\%$. Therefore, the total accumulated amount represents 100% (Principal) + 40% (Interest) = 140% of the principal.

$$140\% \text{ of } P = 9680 \implies P = \frac{9680}{1.4} \approx \text{Rs.}6914.28$$