

CUET 2026 May 14 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. If a person buys 15 pencils for 12, and sells 12 pencils for 15, find the gain or loss percentage.

- (A) Loss of 56.25%
- (B) Gain of 65.25%
- (C) Loss of 56.52%
- (D) Gain of 56.25%

Correct Answer: (D) Gain of 56.25%

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

To calculate gain or loss percentage, the number of items bought and sold must be made equal, or we must find the cost and selling price of a single unit. If the selling price is higher than the cost price, it is a gain.

Step 2: Key Formula or Approach:

We will find the Cost Price (CP) and Selling Price (SP) for 1 pencil.

$$\text{Gain \%} = \left(\frac{SP - CP}{CP} \right) \times 100$$

Step 3: Detailed Explanation:

Given: Cost Price of 15 pencils = 12

$$CP \text{ of 1 pencil} = \frac{12}{15} = 0.8$$

Selling Price of 12 pencils = 15

$$SP \text{ of 1 pencil} = \frac{15}{12} = 1.25$$

Since $SP > CP$, there is a gain:

$$\text{Gain} = 1.25 - 0.8 = 0.45$$

$$\text{Gain \%} = \left(\frac{0.45}{0.8} \right) \times 100$$

$$\text{Gain \%} = \frac{45}{80} \times 100 = \frac{9}{16} \times 100 = 56.25\%$$

Step 4: Final Answer:

The person has a gain of 56.25%.

Quick Tip: To solve this faster, use the cross-multiplication method: $(15 \times 15) - (12 \times 12) = 225 - 144 = 81$. Then $\text{Gain \%} = (81/144) \times 100 = 56.25\%$.

2. Find the median of first 6 multiples of 5.

- (A) 7.5
- (B) 17.5
- (C) 27.5
- (D) 37.5

Correct Answer: (B) 17.5

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

The median is the middle value of a sorted data set. For an even number of observations (n), the median is the average of the two middle terms: the $(n/2)^{th}$ and $(n/2 + 1)^{th}$ terms.

Step 2: Key Formula or Approach:

First 6 multiples of 5 are: 5, 10, 15, 20, 25, 30. Since $n = 6$ (even),

$$\text{Median} = \frac{(\text{Value at } 3^{rd} \text{ position} + \text{Value at } 4^{th} \text{ position})}{2}$$

Step 3: Detailed Explanation:

The sorted multiples are 5, 10, 15, 20, 25, 30. The 3^{rd} term is 15. The 4^{th} term is 20.

$$\text{Median} = \frac{15 + 20}{2}$$

$$\text{Median} = \frac{35}{2} = 17.5$$

Step 4: Final Answer:

The median of the first 6 multiples of 5 is 17.5.

Quick Tip: For an Arithmetic Progression with an even number of terms, the median is always exactly halfway between the two central numbers.

3. Potato's per-kilogram price has risen from Rs.18 to Rs.25. What should be the percentage reduction in potato use so that expenditure does NOT increase?

- (A) 28%
- (B) 31%
- (C) 22%
- (D) 34%

Correct Answer: (A) 28%

Solution:

Step 1: Understanding the Concept:

When the price of a commodity increases, the consumption must decrease to keep the total expenditure constant. The reduction is calculated based on the increased price to return to the original budget level.

Step 2: Key Formula or Approach:

$$\text{Percentage Reduction} = \left(\frac{\text{Increase in Price}}{\text{New Price}} \right) \times 100$$

Step 3: Detailed Explanation:

Initial Price = Rs. 18 New Price = Rs. 25 Increase in Price = $25 - 18 = 7$ To keep expenditure the same:

$$\text{Reduction \%} = \left(\frac{7}{25} \right) \times 100$$

$$\text{Reduction \%} = 7 \times 4 = 28\%$$

Step 4: Final Answer:

The percentage reduction in potato use should be 28%.

Quick Tip: Think of it this way: for every Rs. 25 you would now spend, you need to cut back by Rs. 7 to stay at your original cost. $7/25$ is exactly $28/100$.

4. Find the missing character in the given table:

16	210	14
14	156	12
12	?	10

(A) 90

- (B) 100
(C) 110
(D) 120

Correct Answer: (C) 110

Solution:

Step 1: Understanding the Concept:

In matrix-based reasoning puzzles, we look for a mathematical relationship between the numbers in each row or column. Usually, the outer numbers are manipulated to result in the central number.

Step 2: Key Formula or Approach:

We check the relationship between the first and third columns to derive the second column. Let the numbers be C_1 , C_2 , and C_3 . We observe the pattern:

$$C_2 = (C_1 \times C_3) - (C_1 + C_3)$$

Alternatively,

$$C_2 = (C_1 - 1) \times (C_3 + 1) \text{ or } C_1 \times C_3 - \text{adjustment}$$

Let's test $C_2 = C_1 \times (C_3 + 1)$: Row 1: $16 \times (14 + 1) = 16 \times 15 = 240$ (No) Let's test $C_2 = (C_1 \times C_3) - (C_1 + C_3)$: Row 1: $(16 \times 14) - (16 + 14) = 224 - 30 = 194$ (No) Let's try: $C_2 = (C_1 + C_3) \times \frac{(C_1 + C_3)}{2} - \text{constant}$? No. Correct Pattern: $C_2 = (C_1 \times C_3) - \text{something}$. Row 1: $16 \times 14 = 224$. $224 - 14 = 210$. Row 2: $14 \times 12 = 168$. $168 - 12 = 156$.

Step 3: Detailed Explanation:

The pattern identified is: Middle Number = (First Number $\times$ Third Number) – Third Number.

$$\text{Row 1: } (16 \times 14) - 14 = 224 - 14 = 210$$

$$\text{Row 2: } (14 \times 12) - 12 = 168 - 12 = 156$$

Applying this to Row 3:

$$? = (12 \times 10) - 10$$

$$? = 120 - 10 = 110$$

Step 4: Final Answer:

The missing character is 110.

Quick Tip: Another way to see this pattern is $C_2 = (C_1 - 1) \times C_3$. For Row 1: $(16 - 1) \times 14 = 15 \times 14 = 210$.

For Row 3: $(12 - 1) \times 10 = 11 \times 10 = 110$.

5. If $\left(\frac{3}{5}\right)^{3p-2} = \left(\frac{9}{25}\right)^8 \times \left(\frac{3}{5}\right)^{-3}$, then the value of $2p + 1$ is:

- (A) 10
- (B) 11
- (C) 14
- (D) 15

Correct Answer: (B) 11

Solution:

Step 1: Understanding the Concept:

To solve equations involving exponents, we must express all terms with the same base. Once the bases are identical, we can equate the exponents.

Step 2: Key Formula or Approach:

The properties of exponents used are: 1. $(a^m)^n = a^{m \times n}$ 2. $a^m \times a^n = a^{m+n}$ 3. If $a^x = a^y$, then $x = y$.

Step 3: Detailed Explanation:

Given:

$$\left(\frac{3}{5}\right)^{3p-2} = \left(\frac{9}{25}\right)^8 \times \left(\frac{3}{5}\right)^{-3}$$

Step A: Convert $\frac{9}{25}$ to base $\frac{3}{5}$. Since $\frac{9}{25} = \left(\frac{3}{5}\right)^2$, the equation becomes:

$$\left(\frac{3}{5}\right)^{3p-2} = \left[\left(\frac{3}{5}\right)^2\right]^8 \times \left(\frac{3}{5}\right)^{-3}$$

Step B: Simplify the right side.

$$\left(\frac{3}{5}\right)^{3p-2} = \left(\frac{3}{5}\right)^{16} \times \left(\frac{3}{5}\right)^{-3}$$

$$\left(\frac{3}{5}\right)^{3p-2} = \left(\frac{3}{5}\right)^{16-3}$$

$$\left(\frac{3}{5}\right)^{3p-2} = \left(\frac{3}{5}\right)^{13}$$

Step C: Equate the exponents.

$$3p - 2 = 13$$

$$3p = 15 \implies p = 5$$

Step D: Calculate $2p + 1$.

$$2(5) + 1 = 11$$

Step 4: Final Answer:

The value of $2p + 1$ is 11.

Quick Tip: Always simplify the bases to the smallest prime-based fraction possible. Here, seeing that 9 and 25 are squares of 3 and 5 immediately points to the common base.

6. Find the next term in the series: M13, O18, ?, S28, U33

- (A) R22
- (B) Q23
- (C) P22
- (D) R24

Correct Answer: (B) Q23

Solution:

Step 1: Understanding the Concept:

This is an alphanumeric series. We need to identify separate patterns for the alphabets and the numbers.

Step 2: Detailed Explanation:

Let's analyze the Alphabets: M (13th letter), O (15th letter), ?, S (19th letter), U (21st letter). The pattern is +2 letters:

$$M \xrightarrow{+2} O \xrightarrow{+2} Q \xrightarrow{+2} S \xrightarrow{+2} U$$

Now, let's analyze the Numbers: 13, 18, ?, 28, 33. The pattern is +5 for each term:

$$13 \xrightarrow{+5} 18 \xrightarrow{+5} 23 \xrightarrow{+5} 28 \xrightarrow{+5} 33$$

Combining both, the missing term is Q23.

Step 4: Final Answer:

The missing term is Q23.

Quick Tip: For alphabets, remember the EJOTY rule (E=5, J=10, O=15, T=20, Y=25) to quickly find positions and calculate shifts!

7. The area of an equilateral $\triangle ABC$ is $169\sqrt{3} \text{ cm}^2$. Find the in-radius of $\triangle ABC$.

- (A) $10/\sqrt{3}$
- (B) $13/\sqrt{3}$
- (C) $12/\sqrt{3}$
- (D) $11/\sqrt{3}$

Correct Answer: (B) $13/\sqrt{3}$

Solution:

Step 1: Understanding the Concept:

An equilateral triangle has all sides equal. The in-radius (r) is the radius of the circle that touches all three sides internally. It is related to the side length (a) of the triangle.

Step 2: Key Formula or Approach:

1. Area of an equilateral triangle = $\frac{\sqrt{3}}{4}a^2$
2. In-radius (r) of an equilateral triangle = $\frac{a}{2\sqrt{3}}$

Step 3: Detailed Explanation:

First, we find the side (a) using the given area:

$$\frac{\sqrt{3}}{4}a^2 = 169\sqrt{3}$$

$$a^2 = 169 \times 4$$

$$a = \sqrt{169 \times 4} = 13 \times 2 = 26 \text{ cm}$$

Now, we calculate the in-radius (r):

$$r = \frac{a}{2\sqrt{3}}$$

$$r = \frac{26}{2\sqrt{3}}$$

$$r = \frac{13}{\sqrt{3}} \text{ cm}$$

Step 4: Final Answer:

The in-radius of the triangle is $13/\sqrt{3}$.

Quick Tip: In an equilateral triangle, the circum-radius (R) is exactly double the in-radius (r). So, $R = a/\sqrt{3}$ and $r = a/2\sqrt{3}$.

8. If the word 'LEADER' is coded as 20-13-9-12-13-26. How would you write "LIGHT"?

- (A) 20-16-15-17-22
- (B) 20-17-15-16-28
- (C) 20-15-16-18-23
- (D) 20-16-17-15-27

Correct Answer: (B) 20-17-15-16-28

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

In coding-decoding, we identify the numerical position of each letter in the English alphabet (A=1, B=2, ..., Z=26) and find the mathematical operation applied to it.

Step 2: Key Formula or Approach:

Pattern: Code = Alphabetical Position + 8.

Step 3: Detailed Explanation:

Check for 'LEADER':

- L (12) + 8 = 20
- E (5) + 8 = 13
- A (1) + 8 = 9
- D (4) + 8 = 12
- E (5) + 8 = 13
- R (18) + 8 = 26

Applying the same to 'LIGHT':

- L (12) + 8 = 20
- I (9) + 8 = 17
- G (7) + 8 = 15
- H (8) + 8 = 16
- T (20) + 8 = 28

Wait, re-checking the provided options against the calculation: If we look at option (B) 20-17-15-16-28, it matches our logic perfectly. (Note: Looking at the user options provided, option B matches the logic).

Step 4: Final Answer:

Following the +8 logic, "LIGHT" is written as 20-17-15-16-28.

Quick Tip: Always write down the alphabetical positions first. If the code starts with a higher number than the letter's position, check for a constant addition or a reverse alphabet pattern.

9. A sum of money becomes 7 times itself in 2 years at a certain rate of simple interest. Find the rate of interest per annum.

- (A) 100%
- (B) 10%
- (C) 200%
- (D) 300%

Correct Answer: (D) 300%

Solution:

Step 1: Understanding the Concept:

Simple interest (SI) is calculated on the principal amount. When a sum "becomes n times," it means the Amount (A) is $n \times P$, where P is the Principal.

Step 2: Key Formula or Approach:

1. $SI = A - P$
2. $SI = \frac{P \times R \times T}{100}$

Step 3: Detailed Explanation:

Let Principal (P) = x . Then, Amount (A) = $7x$. Time (T) = 2 years. Simple Interest (SI) = $A - P = 7x - x = 6x$. Now, using the SI formula:

$$6x = \frac{x \times R \times 2}{100}$$

$$6 = \frac{2R}{100}$$

$$3 = \frac{R}{100}$$

$$R = 300\%$$

Step 4: Final Answer:

The rate of interest per annum is 300%.

Quick Tip: For these problems, you can use the direct formula: $R = \frac{(n-1) \times 100}{T}$. Here, $R = \frac{(7-1) \times 100}{2} = \frac{600}{2} = 300\%$.

10. The difference between the CI and the SI on a sum of money lent for 2 years at 20% interest per annum is 80. The sum is:

- (A) 2,000
- (B) 1,200
- (C) 1,500
- (D) 1,000

Correct Answer: (A) 2,000

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

Compound Interest (CI) is interest calculated on the principal and the accumulated interest of previous periods. Simple Interest (SI) is calculated only on the principal. For the first year, CI and SI are the same, but they diverge from the second year onwards.

Step 2: Key Formula or Approach:

For a period of 2 years, the difference (D) between CI and SI is given by the formula:

$$D = P \left(\frac{R}{100} \right)^2$$

Where: P = Principal (Sum), R = Rate of interest per annum.

Step 3: Detailed Explanation:

Given: Difference (D) = 80 Rate (R) = 20% Time (T) = 2 years Substituting the values into

the formula:

$$80 = P \left(\frac{20}{100} \right)^2$$

$$80 = P \left(\frac{1}{5} \right)^2$$

$$80 = P \left(\frac{1}{25} \right)$$

$$P = 80 \times 25$$

$$P = 2000$$

Step 4: Final Answer:

The sum of money (Principal) is 2,000.

Quick Tip: For 2 years, the difference between CI and SI is simply the "interest on the first year's interest."

Interest for 1st year = 20% of P .

Difference = 20% of (20% of P) = 80.

$0.04P = 80 \implies P = 2000$.