CUET 2026 GAT May 29 Shift 2

Question Paper (Memory-Based) with Solutions

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. Select the odd group of numbers.

(A) $13 - 159$

(B) $9 - 71$

(C) $5 - 31$

(D) $17 - 279$

Correct Answer: (C) $5 - 31$

Solution:

Step 1: Understanding the Question:

The objective of this question is to analyze the relationship between the two numbers in each group and identify which group does not follow the established mathematical pattern.

Step 2: Key Formula or Approach:

Let the pair of numbers in each group be represented as (x, y).

We will test standard algebraic relationships such as $y = ax + b$, $y = x^2 \pm c$, or other common series relations to find a consistent logic.

Step 3: Detailed Explanation:

Let us analyze each option step-by-step:

- **Analyzing Option (A):** For the pair $13-159$, we have $x=13$ and $y=159$.
  Let us evaluate the square of x: $13^2=169$.
  Subtracting 10 from the square gives: $169-10=159$.
  This satisfies the relation $y=x^2-10$.

- **Analyzing Option (B):** For the pair $9-71$, we have $x=9$ and $y=71$.
  Let us evaluate the square of x: $9^2=81$.
  Subtracting 10 from the square gives: $81-10=71$.
  This also satisfies the relation $y=x^2-10$.

- **Analyzing Option (D):** For the pair $17-279$, we have $x=17$ and $y=279$.
  Let us evaluate the square of x: $17^2=289$.
  Subtracting 10 from the square gives: $289-10=279$.
  This satisfies the same relation $y=x^2-10$.

- **Analyzing Option (C):** For the pair $5-31$, we have $x=5$ and $y=31$.
  Applying the established rule: $5^2-10=25-10=15$.
  However, the given value is 31, which does not match 15.
  Thus, this group does not conform to the pattern of the other three.

Step 4: Final Answer:

The group $5-31$ is the odd group of numbers because it does not follow the general mathematical rule $y=x^2-10$ observed in the other options.

Quick Tip: When solving number pair classification problems, always check the squares or cubes of the smaller number first.
If the larger number is close to a perfect square, write down the difference to quickly identify the rule.

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2. A # B means 'A is the brother of B', A @ B means 'A is the daughter of B', A & B means 'A is the husband of B', A % B means 'A is the wife of B'. If G % M # L @ P & C @ B, then how is L related to B?

(A) Daughter
(B) Granddaughter
(C) Sister
(D) Daughter-in-law

Correct Answer: (B) Granddaughter

Solution:

Step 1: Understanding the Question:
The question requires us to decode a coded blood relation expression and determine the exact relationship between the individuals L and B.

Step 2: Key Formula or Approach:
We will decode the symbols in the expression step-by-step from left to right and construct a family tree with appropriate gender representations (e.g., plus sign for male, minus sign for female).

Step 3: Detailed Explanation:
Let us decode each relation segment in the expression $G\%M\#L@P\&C@B$:

- **G % M:** G is the wife of M.
  This means G is female, M is male, and they are a married couple.

- **M # L:** M is the brother of L.

Since M is a brother, M and L are in the same generation as siblings.

- **L @ P:** L is the daughter of P.
  This indicates that L is female, and P belongs to the parent generation above L and M.

- **P & C:** P is the husband of C.
  This means P is male and C is female, representing the father and mother of L and M.

- **C @ B:** C is the daughter of B.
  This indicates B is the parent of C (the grandparent of L and M).

- **Tracing the relationship between L and B:**
  L is the daughter of P and C.
  Since C is the daughter of B, C represents the mother of L.
  B is the parent of L's mother (C).
  Therefore, L is the granddaughter of B.

Step 4: Final Answer:

Based on the decoded family tree, L is the granddaughter of B, which corresponds to option (B).

Quick Tip: To avoid confusion in blood relations, focus on the gender of the target person.
Since "L @ P" tells us L is a daughter, L must be female, which immediately eliminates male options.

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3. What is the fourth proportional to $\sqrt{6}$, $\sqrt{8}$ and $\sqrt{21}$?

(A) $3\sqrt{7}$
(B) $2\sqrt{7}$
(C) $8\sqrt{7}$
(D) $5\sqrt{7}$

Correct Answer: (B) $2\sqrt{7}$

Solution:

Step 1: Understanding the Question:

The goal of this question is to find the fourth proportional to three given mathematical surd values: $\sqrt{6}$, $\sqrt{8}$, and $\sqrt{21}$.

Step 2: Key Formula or Approach:

If a, b, and c are three quantities, then their fourth proportional x satisfies the ratio:

$$\frac{a}{b} = \frac{c}{x} \implies x = \frac{b \times c}{a}$$

Step 3: Detailed Explanation:

Let us substitute the given values into the formula to calculate x:

- Let $a = \sqrt{6}$, $b = \sqrt{8}$, and $c = \sqrt{21}$.
- Set up the proportion equation:

$$x = \frac{\sqrt{8} \times \sqrt{21}}{\sqrt{6}}$$

- Combine the terms under a single square root radical using surd properties:

$$x = \sqrt{\frac{8 \times 21}{6}}$$

- Simplify the fraction inside the square root step-by-step:

$$\frac{8 \times 21}{6} = \frac{168}{6} = 28$$

- Simplify the resulting square root:

$$x = \sqrt{28} = \sqrt{4 \times 7} = 2\sqrt{7}$$

Step 4: Final Answer:

The fourth proportional to the three values is $2\sqrt{7}$, which matches option (B).

Quick Tip: When dealing with square roots in ratios, group them under a single radical sign before simplifying.

This reduces computation errors and makes the fraction easy to divide.

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4. In a certain code language, 'INNER' is written as 'SNNWJ' and 'GLASS' is written as 'UPAII'. How will 'MODEL' be written in that language?

(A) OMXVP

(B) OMXWP

(C) OMWWP

(D) OMXWO

Correct Answer: (B) OMXWP

Solution:

Step 1: Understanding the Question:

The question requires us to decipher the pattern used to convert plaintext words to ciphertext

codes and apply the same pattern to encode the word "MODEL".

Step 2: Key Formula or Approach:

We will map each letter of the alphabet to its numerical position ($A = 1, B = 2, \ldots, Z = 26$) and analyze the transformation rule using the concept of opposite letter pairs.

The opposite position of letter X is given by $27 - \text{position}(X)$.

Step 3: Detailed Explanation:

Let us evaluate the coding pattern for the word "INNER":

- Write the alphabetical positions of "INNER": $I = 9, N = 14, N = 14, E = 5, R = 18$.
- Write the alphabetical positions of "SNNWJ": $S = 19, N = 14, N = 14, W = 23, J = 10$.
- Let us analyze the sum of the positions of the letters in "INNER" and their corresponding code letters:
  - $9 + 19 = 28 \implies$ Code $= 28 -$ Plaintext Position
  - $14 + 14 = 28 \implies$ Code $= 28 -$ Plaintext Position
  - $14 + 14 = 28 \implies$ Code $= 28 -$ Plaintext Position
  - $5 + 23 = 28 \implies$ Code $= 28 -$ Plaintext Position
  - $18 + 10 = 28 \implies$ Code $= 28 -$ Plaintext Position
- This indicates the code letter is the reverse opposite letter plus 1 (since Opposite $+1 = 27 - P + 1 = 28 - P$).
- Let us verify this rule on "GLASS" ($G = 7, L = 12, A = 1, S = 19, S = 19$):
  - $G(7) \rightarrow 28 - 7 = 21$ (U).
  - $L(12) \rightarrow 28 - 12 = 16$ (P).
  - $A(1) \rightarrow 28 - 1 = 27 \equiv 1$ (A).
  - $S(19) \rightarrow 28 - 19 = 9$ (I).
  - $S(19) \rightarrow 28 - 19 = 9$ (I).

The code matches "UPAII".

- Now, apply this rule to the word "MODEL" ($M = 13, O = 15, D = 4, E = 5, L = 12$):
  - $M(13) \rightarrow 28 - 13 = 15$ (O).
  - $O(15) \rightarrow 28 - 15 = 13$ (M).
  - $D(4) \rightarrow 28 - 4 = 24$ (X).
  - $E(5) \rightarrow 28 - 5 = 23$ (W).
  - $L(12) \rightarrow 28 - 12 = 16$ (P).

  The coded word is OMXWP.

Step 4: Final Answer:

Applying the pattern, the word 'MODEL' is written as 'OMXWP', which matches option (B).

Quick Tip: If the sum of matching letters in a code is constant (like 28 here), the rule is a direct variation of the standard opposite letter coding (which always sums to 27).

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5. The average age of 14 students and their teacher is 20 years. If the teacher is excluded, then their average age reduces by 1.5 years. The teacher's age is:

(A) 41 years

(B) 30 years

(C) 39 years

(D) 59 years

Correct Answer: (A) 41 years

Solution:

Step 1: Understanding the Question:

This question requires us to determine the age of the teacher based on the change in the overall average age of the group when the teacher is excluded.

Step 2: Key Formula or Approach:

The sum of ages can be calculated using the formula:

$$\text{Sum of ages} = \text{Average age} \times \text{Number of people}$$

We will find the total sum of ages before and after excluding the teacher, and subtract the latter from the former to get the teacher's age.

Step 3: Detailed Explanation:

Let us perform the calculations systematically:

- **Initial Scenario:**
  Number of people = 14 students + 1 teacher = 15 people.
  Average age = 20 years.
  Sum of initial ages = $15 \times 20 = 300$ years.

- **Scenario after excluding the teacher:**
  Remaining number of people = 14 students.
  New average age reduces by 1.5 years, so New Average = $20 - 1.5 = 18.5$ years.
  Sum of ages of 14 students = $14 \times 18.5 = 259$ years.

- **Calculating the Teacher's Age:**
  Teacher's age = Sum of initial ages - Sum of students' ages
  Teacher's age = $300 - 259 = 41$ years.

Step 4: Final Answer:

The teacher's age is 41 years, which corresponds to option (A).

Quick Tip: Use the deviation method to save time:

Teacher's age = Old Average + (Increase/Decrease in average × remaining number of people)

Teacher's age = $20 + (1.5 \times 14) = 20 + 21 = 41$ years.

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6. The radius of the base of a right circular cone is 7 cm and its curved surface area is 550 cm^2. The volume of the cone is: (use $\pi = 22/7$)

(A) 1223 cm^3

(B) 1233 cm^3

(C) 1322 cm^3

(D) 1232 cm^3

Correct Answer: (D) 1232 cm^3

Solution:

Step 1: Understanding the Question:

The goal of this question is to calculate the volume of a right circular cone given its base radius and its curved surface area.

Step 2: Key Formula or Approach:

The curved surface area of a cone is:

$$\text{CSA} = \pi r l$$

The relation between slant height l, radius r, and vertical height h is:

$$l^2 = r^2 + h^2$$

The volume V of a cone is:

$$V = \frac{1}{3}\pi r^2 h$$

Step 3: Detailed Explanation:

Let us execute the calculations step-by-step:

- **Step 1: Find the slant height (l):**

  Given radius $r = 7$ cm and CSA $= 550$ cm^2.

  Using $\pi r l = 550$:

$$\frac{22}{7} \times 7 \times l = 550 \implies 22 \times l = 550 \implies l = 25 \text{ cm}$$

- **Step 2: Find the vertical height (h):**

  Using the Pythagorean relationship:

$$h^2 = l^2 - r^2 = 25^2 - 7^2 = 625 - 49 = 576$$

$$h = \sqrt{576} = 24 \text{ cm}$$

- **Step 3: Calculate the volume (V):**

  Substitute $r = 7$ cm and $h = 24$ cm into the volume formula:

$$V = \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times 24$$

$$V = \frac{1}{3} \times 22 \times 7 \times 24$$

$$V = 22 \times 7 \times 8 = 1232 \text{ cm}^3$$

Step 4: Final Answer:

The volume of the cone is 1232 cm^3, matching option (D).

Quick Tip: Recognizing the standard Pythagorean triplet $(7, 24, 25)$ saves precious calculation time when finding the height of the cone.

If radius is 7 and slant height is 25, the vertical height is immediately 24.

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7. Successive discounts of 13 percent and 19 percent are equivalent to a single discount of:

(A) 9.53 percent

(B) 39.53 percent

(C) 29.53 percent

(D) 19.53 percent

Correct Answer: (C) 29.53 percent

Solution:

Step 1: Understanding the Question:

The objective of this question is to find a single equivalent percentage discount that represents two successive discounts of 13% and 19%.

Step 2: Key Formula or Approach:

For two successive discounts of $x\%$ and $y\%$, the net equivalent single discount $D\%$ is given by the formula:

$$D = \left(x + y - \frac{x \times y}{100}\right)\%$$

Step 3: Detailed Explanation:

Let us substitute the given discount percentages into the formula:

- Identify the values: $x = 13$ and $y = 19$.
- Find the sum of the discounts:

$$x + y = 13 + 19 = 32\%$$

- Calculate the product term:

$$\frac{13 \times 19}{100} = \frac{13 \times (20 - 1)}{100} = \frac{260 - 13}{100} = \frac{247}{100} = 2.47\%$$

- Find the net discount by subtracting the product term from the sum:

$$D = 32 - 2.47 = 29.53\%$$

Step 4: Final Answer:

The equivalent single discount is 29.53%, which corresponds to option (C).

Quick Tip: For successive discounts, the net value is always less than the simple sum of the individual discounts.

Since $13 + 19 = 32$, the answer must be slightly less than 32, immediately ruling out options (A), (B), and (D).

8. What is the angle made by hands of clock at 11 O' clock?

(A) 15°

(B) $22\frac{1}{2}^\circ$

(C) 30°

(D) 36°

Correct Answer: (C) 30°

Solution:

Step 1: Understanding the Question:

The question asks for the angle formed between the hour hand and the minute hand of an analog clock at exactly 11:00.

Step 2: Key Formula or Approach:

A circular clock face is divided into 12 major hours representing a total of 360°.

Each hour division represents:

$$\text{Angle per hour division} = \frac{360^\circ}{12} = 30^\circ$$

Step 3: Detailed Explanation:

Let us analyze the position of the clock hands at 11:00:

- At exactly 11:00, the minute hand points directly at the 12 mark.
- The hour hand points directly at the 11 mark.
- The separation between the 11 mark and the 12 mark is exactly 1 hour division.
- Therefore, the angle between the two hands is equal to the value of 1 hour division:

$$\text{Angle} = 1 \times 30^\circ = 30^\circ$$

Step 4: Final Answer:

The angle made by the hands of the clock at 11 O'clock is 30°, which corresponds to option (C).

Quick Tip: To quickly find the angle at any exact hour H (where $H \leq 6$), multiply the hour value by 30. For hours greater than 6, subtract H from 12 and multiply the result by 30: $(12 - 11) \times 30 = 30^\circ$.

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9. Two unbiased dice are thrown simultaneously. Find the probability of getting a sum 5.

(A) 1/9

(B) 2/3

(C) 5/9

(D) 6/11

Correct Answer: (A) 1/9

Solution:

Step 1: Understanding the Question:

This probability question asks us to calculate the likelihood that rolling two standard six-sided dice simultaneously results in a face value sum of 5.

Step 2: Key Formula or Approach:

The formula for probability is:

$$P(\text{Event}) = \frac{\text{Number of favorable outcomes}}{\text{Total number of possible outcomes}}$$

Step 3: Detailed Explanation:

Let us evaluate the outcomes systematically:

- **Calculate Total Outcomes:**

  Each die has 6 possible face values $(1, 2, 3, 4, 5, 6)$.

  For two dice, total possible outcomes $= 6 \times 6 = 36$ outcomes.

- **Identify Favorable Outcomes:**

  We need the pairs of values (x, y) such that $x + y = 5$:

  - $(1, 4)$
  - $(2, 3)$
  - $(3, 2)$
  - $(4, 1)$

  There are no other combinations because a die face must be at least 1 and at most 6.

  The number of favorable outcomes is exactly 4.

- **Calculate Probability:**

$$P(\text{sum} = 5) = \frac{4}{36} = \frac{1}{9}$$

Step 4: Final Answer:

The probability of getting a sum of 5 is 1/9, which matches option (A).

Quick Tip: The number of ways to get a sum S on two dice (for $S \leq 7$) is always $S - 1$.

Since $S = 5$, the number of favorable cases is $5 - 1 = 4$ out of 36, which immediately reduces to 1/9.

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10. 5 bells start commencing together at 9 AM. They ring at the intervals of 12 seconds, 18

seconds, 24 seconds, 36 seconds and 45 seconds. At what time do the bells ring together again?

(A) 9:10 AM

(B) 9:06 AM

(C) 9:08 AM

(D) 9:05 AM

Correct Answer: (B) 9:06 AM

Solution:

Step 1: Understanding the Question:

This problem requires us to determine when multiple events (ringing of bells) with different time periods will next occur simultaneously.

Step 2: Key Formula or Approach:

The time interval after which all bells ring together is the Least Common Multiple (LCM) of their individual ringing intervals.

Step 3: Detailed Explanation:

Let us calculate the LCM of the intervals 12, 18, 24, 36, and 45 seconds using prime factorization:

- Find prime factors for each number:
  - $12 = 2^2 \times 3^1$
  - $18 = 2^1 \times 3^2$
  - $24 = 2^3 \times 3^1$
  - $36 = 2^2 \times 3^2$
  - $45 = 3^2 \times 5^1$

- Select the highest power of each prime factor present in the factorizations:
  - Highest power of 2 is $2^3 = 8$.
  - Highest power of 3 is $3^2 = 9$.
  - Highest power of 5 is $5^1 = 5$.

- Calculate LCM:

$$\text{LCM} = 8 \times 9 \times 5 = 360 \text{ seconds}$$

- Convert the time duration from seconds into minutes:

$$360 \text{ seconds} = \frac{360}{60} = 6 \text{ minutes}$$

- Calculate the next ringing time:
  Adding 6 minutes to the initial start time of 9:00 AM gives 9:06 AM.

Step 4: Final Answer:

The bells will ring together again at 9:06 AM, which corresponds to option (B).

Quick Tip: For any problem involving intervals of recurring events (such as traffic lights, bells, or running laps), finding the LCM of the intervals is always the standard approach.
