



CUET 2026 GAT May 21 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. If the compound interest on a certain sum at 10% per annum for 3 years is Rs 33,100, find the simple interest on the same sum at the same rate and for the same period?

- (A) Rs 25,000
- (B) Rs 28,000
- (C) Rs 30,000
- (D) Rs 32,000

Correct Answer: (C) Rs 30,000

Solution:

Step 1: Understanding the Question:

The problem provides the compound interest earned on a certain principal sum over a duration of 3 years at a rate of 10% per annum.

To solve this, we must first determine the original principal sum using the compound interest formula.

Once the principal is obtained, we will calculate the simple interest on this same principal for the same rate and period.

Step 2: Key Formula or Approach:

The formula for Compound Interest (CI) is given by:

$$CI = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right]$$

The formula for Simple Interest (SI) is given by:

$$SI = \frac{P \times R \times T}{100}$$

Where:

P is the Principal sum.

R is the Rate of interest per annum.

T is the Time period in years.

Step 3: Detailed Explanation:**• Calculating the Principal (P):**

We are given:

$$CI = \text{Rs } 33,100$$

$$R = 10\% \text{ per annum}$$

$$T = 3 \text{ years}$$

Substituting these values into the compound interest formula:

$$33,100 = P \left[\left(1 + \frac{10}{100} \right)^3 - 1 \right]$$

$$33,100 = P \left[\left(\frac{11}{10} \right)^3 - 1 \right]$$

$$33,100 = P \left[\frac{1331}{1000} - 1 \right]$$

$$33,100 = P \left[\frac{331}{1000} \right]$$

Solving for P :

$$P = \frac{33,100 \times 1000}{331}$$

$$P = 100 \times 1000 = \text{Rs } 1,00,000$$

The principal sum is Rs 1,00,000.

• **Calculating the Simple Interest (SI):**

Now, we calculate the Simple Interest on the same principal ($P = 1,00,000$), at the same rate ($R = 10\%$), for the same period ($T = 3$ years):

$$SI = \frac{1,00,000 \times 10 \times 3}{100}$$

$$SI = 1,000 \times 30 = \text{Rs } 30,000$$

The simple interest earned is Rs 30,000.

Step 4: Final Answer:

The simple interest on the same sum at the same rate and for the same period is Rs 30,000.

Quick Tip: For a rate of 10% per annum over 3 years, the effective compound interest rate is always 33.1%, while the effective simple interest rate is 30%.

Using this ratio directly:

$$SI = \frac{30\%}{33.1\%} \times CI$$

$$SI = \frac{30}{33.1} \times 33,100 = 30 \times 1,000 = \text{Rs } 30,000$$

This saves calculation time in exams!

2. P scored 30% marks and failed by 30 marks, Q scored 40% marks and obtained 40 marks more than those required to pass. The pass percentage is:

- (A) 32%
- (B) 34.2%
- (C) 36%
- (D) 38%

Correct Answer: (B) 34.2%

Solution:

Step 1: Understanding the Question:

The problem gives the score of two students, P and Q, relative to the passing marks. P scored 30% of the maximum marks and fell short of passing by 30 marks. Q scored 40% of the maximum marks and exceeded the passing marks by 40 marks. We need to determine the passing percentage required to clear the examination.

Step 2: Key Formula or Approach:

Let the maximum marks of the examination be x .

The passing marks can be expressed in two ways based on the scores of P and Q:

$$\text{Passing Marks} = (30\% \text{ of } x) + 30 = (40\% \text{ of } x) - 40$$

By equating these two expressions, we can find the maximum marks x , and then find the passing percentage.

Step 3: Detailed Explanation:

- **Finding the Maximum Marks (x):**

Set up the equation equating passing marks:

$$\frac{30}{100}x + 30 = \frac{40}{100}x - 40$$

$$0.3x + 30 = 0.4x - 40$$

Rearranging the terms:

$$0.4x - 0.3x = 30 + 40$$

$$0.1x = 70$$

$$x = \frac{70}{0.1} = 700$$

The maximum marks for the examination is 700.

- **Finding the Passing Marks:**

Now, substitute $x = 700$ back into either expression to find the passing marks:

$$\text{Passing Marks} = 0.3(700) + 30$$

$$\text{Passing Marks} = 210 + 30 = 240$$

The passing mark is 240.

- **Calculating the Pass Percentage:**

The pass percentage is the ratio of the passing marks to the maximum marks, expressed as a percentage:

$$\text{Pass Percentage} = \left(\frac{\text{Passing Marks}}{\text{Maximum Marks}} \right) \times 100$$

$$\text{Pass Percentage} = \left(\frac{240}{700} \right) \times 100$$

$$\text{Pass Percentage} = \frac{240}{7} \approx 34.28\%$$

Comparing this with the options, Option (B) is 34.2%.

Step 4: Final Answer:

The pass percentage for the examination is approximately 34.2%.



Quick Tip: Alternatively, look at the difference in percentages and marks directly:

Difference in percentage = $40\% - 30\% = 10\%$

Difference in marks = $40 - (-30) = 70$ marks

Therefore, $10\% = 70$ marks, which implies $1\% = 7$ marks.

To pass, P needs 30 more marks, which is equal to:

$$\frac{30}{7} \approx 4.28\%$$

Pass Percentage = $30\% + 4.28\% = 34.28\% \approx 34.2\%$.

3. How much time will it take for an amount of 450 to yield 81 as interest at 4.5% per annum of simple interest?

- (A) 3 years
- (B) 2 years
- (C) 4 years
- (D) 5 years

Correct Answer: (C) 4 years

Solution:

Step 1: Understanding the Question:

This question asks for the time duration required for a specific principal sum to accumulate a given simple interest amount at a specified annual simple interest rate.

We are given the principal, the interest earned, and the rate, and we need to solve for time.

Step 2: Key Formula or Approach:

The basic formula for Simple Interest is:

$$SI = \frac{P \times R \times T}{100}$$

Rearranging the formula to solve for Time (T):

$$T = \frac{SI \times 100}{P \times R}$$

Where:

P is the Principal amount = 450.

SI is the Simple Interest = 81.

R is the annual Rate of Interest = 4.5%.

Step 3: Detailed Explanation:

- **Substituting the Given Values:**

We substitute the given values into our rearranged equation:

$$T = \frac{81 \times 100}{450 \times 4.5}$$

- **Simplifying the Expression:**

Let's first simplify the denominator:

$$450 \times 4.5 = 45 \times 45 = 2025$$

Now, substitute this value back into the numerator:

$$T = \frac{8100}{2025}$$

- **Step-by-step Division:**

Dividing both the numerator and the denominator by 9:

$$T = \frac{900}{225}$$

Dividing further by 25:

$$T = \frac{36}{9}$$

$$T = 4 \text{ years}$$

Step 4: Final Answer:

The time required to yield an interest of 81 is 4 years.

Quick Tip: To simplify the decimal calculation, write 4.5% as $\frac{9}{2}\%$.

$$81 = \frac{450 \times \frac{9}{2} \times T}{100}$$

$$81 = \frac{225 \times 9 \times T}{100}$$

Divide both sides by 9:

$$9 = \frac{225 \times T}{100} \implies 9 = 2.25 \times T$$

Since $2.25 \times 4 = 9$, we get $T = 4$ years. This avoids tedious decimal multiplications.

4. If the mean of the numbers 3, $(3p+3)$, 8, 14, 18, 5 and $(p-2)$ is 9, then find their median.

- (A) 6
- (B) 8
- (C) 9

(D) 14

Correct Answer: (B) 8

Solution:

Step 1: Understanding the Question:

We are given a list of seven numbers, two of which are expressed in terms of an unknown variable p .

The arithmetic mean of these seven numbers is given as 9.

We need to first find the value of p using the mean formula, then substitute it back to obtain the numerical values of all terms, and finally determine their median.

Step 2: Key Formula or Approach:

The arithmetic mean of N observations is given by:

$$\text{Mean} = \frac{\text{Sum of all observations}}{N}$$

The median of an ordered set of N observations (where N is odd) is:

$$\text{Median} = \left(\frac{N+1}{2} \right)^{\text{th}} \text{ observation}$$

Step 3: Detailed Explanation:

• **Step 1: Set up the equation for Mean:**

The seven numbers are: 3, $(3p+3)$, 8, 14, 18, 5, and $(p-2)$.

Number of terms (N) = 7.

Mean = 9.

Sum of the numbers:

$$\text{Sum} = 3 + (3p+3) + 8 + 14 + 18 + 5 + (p-2)$$

Group the constant terms and the variable terms:

$$\text{Sum} = (3p + p) + (3 + 3 + 8 + 14 + 18 + 5 - 2)$$

$$\text{Sum} = 4p + 49$$

Using the mean formula:

$$9 = \frac{4p + 49}{7}$$

$$4p + 49 = 63$$

$$4p = 63 - 49$$

$$4p = 14 \implies p = 3.5$$

• **Step 2: Substitute the value of p into the terms:**

Now substitute $p = 3.5$ to get all seven numbers:

First term = 3

Second term = $3p + 3 = 3(3.5) + 3 = 10.5 + 3 = 13.5$

Third term = 8

Fourth term = 14

Fifth term = 18

Sixth term = 5

Seventh term = $p - 2 = 3.5 - 2 = 1.5$

The list of numbers is: 3, 13.5, 8, 14, 18, 5, 1.5.

- **Step 3: Sort the terms in ascending order:**

Arranging the numbers from smallest to largest:

1.5, 3, 5, 8, 13.5, 14, 18.

- **Step 4: Find the Median:**

Since $N = 7$ (which is odd), the median is the $\left(\frac{7+1}{2}\right)^{\text{th}} = 4^{\text{th}}$ term.

Looking at our sorted list, the 4^{th} term is 8.

Thus, the median is 8.

Step 4: Final Answer:

The median of the given set of numbers is 8.

Quick Tip: When finding the median, always remember to arrange the numbers in ascending or descending order first.

Skipping this step is a very common source of error where students select the middle term of the unsorted list.

5. The median and mean of a frequency distribution are 12 and 15 respectively. Then the mode is:

- (A) 3
- (B) 4
- (C) 6
- (D) 33

Correct Answer: (C) 6

Solution:

Step 1: Understanding the Question:

We are given the median and the mean of a frequency distribution, which are 12 and 15,

respectively.

We are asked to calculate the mode of this distribution.

Since the individual data points are not provided, we must use the empirical relationship established for moderately asymmetrical distributions.

Step 2: Key Formula or Approach:

The empirical relationship between Mean, Median, and Mode is:

$$\text{Mode} = 3 \times \text{Median} - 2 \times \text{Mean}$$

Step 3: Detailed Explanation:

• **Identify the given values:**

$$\text{Median} = 12$$

$$\text{Mean} = 15$$

• **Substitute the values into the empirical formula:**

$$\text{Mode} = 3(12) - 2(15)$$

Calculate each term individually:

$$3 \times 12 = 36$$

$$2 \times 15 = 30$$

Subtract the terms:

$$\text{Mode} = 36 - 30$$

$$\text{Mode} = 6$$

Therefore, the mode of the frequency distribution is 6.

Step 4: Final Answer:

The mode of the given frequency distribution is 6.

Quick Tip: A quick way to memorize the empirical formula is to arrange the terms alphabetically: Mean, Median, Mode.

Note the coefficients: 3 goes with the longer word (**Median** has 6 letters) and 2 goes with the shorter word (**Mean** has 4 letters).

Formula: **Mode** = 3 **Median** - 2 **Mean**.

6. Two vertices of $\triangle ABC$ are $A(-1, 4)$ and $B(5, 2)$ and its centroid is $G(0, -3)$. The coordinate of C is

- (A) $(4, 3)$
- (B) $(4, 15)$
- (C) $(-4, -15)$
- (D) $(-15, -4)$

Correct Answer: (C) $(-4, -15)$

Solution:

Step 1: Understanding the Question:

The question provides two vertices of a triangle, $A(-1, 4)$ and $B(5, 2)$, along with the coordinates of its centroid, $G(0, -3)$.

We need to determine the coordinates of the third vertex, $C(x_3, y_3)$.

Step 2: Key Formula or Approach:

In a coordinate plane, if a triangle has vertices $A(x_1, y_1)$, $B(x_2, y_2)$, and $C(x_3, y_3)$, then its centroid $G(x_g, y_g)$ is given by the formulas:

$$x_g = \frac{x_1 + x_2 + x_3}{3}$$

$$y_g = \frac{y_1 + y_2 + y_3}{3}$$

Step 3: Detailed Explanation:**• Step 1: Set up the coordinate values:**

Given:

$$x_1 = -1, y_1 = 4 \text{ (Vertex A)}$$

$$x_2 = 5, y_2 = 2 \text{ (Vertex B)}$$

$$x_g = 0, y_g = -3 \text{ (Centroid G)}$$

Let the coordinates of the third vertex C be (x_3, y_3) .

• Step 2: Solve for x_3 (the x-coordinate):

Using the centroid formula for the x-coordinate:

$$0 = \frac{-1 + 5 + x_3}{3}$$

Multiply both sides by 3:

$$0 = 4 + x_3$$

$$x_3 = -4$$

• **Step 3: Solve for y_3 (the y-coordinate):**

Using the centroid formula for the y-coordinate:

$$-3 = \frac{4 + 2 + y_3}{3}$$

Multiply both sides by 3:

$$-9 = 6 + y_3$$

$$y_3 = -9 - 6$$

$$y_3 = -15$$

Thus, the coordinates of vertex C are $(-4, -15)$.

Step 4: Final Answer:

The coordinate of vertex C is $(-4, -15)$.

Quick Tip: To quickly double-check your centroid coordinates, remember that the sum of the coordinates of all three vertices must be exactly 3 times the coordinates of the centroid:

Sum of x-coordinates: $-1 + 5 + (-4) = 0 = 3 \times 0$

Sum of y-coordinates: $4 + 2 + (-15) = -9 = 3 \times (-3)$.

This serves as an instant verification method in coordinate geometry problems.

7. Aman spends 50% of his income. If income increases by 20% and expenses increases by 10%, his saving will increase by:

- (A) 25%
- (B) 30%
- (C) 35%
- (D) 40%

Correct Answer: (B) 30%

Solution:

Step 1: Understanding the Question:

The question describes Aman's initial financial behavior: he spends 50% of his income, which means he saves the remaining 50%.

Then, both his income and his expenses undergo a percentage increase.

We need to calculate his new income, new expenses, and the resulting new savings to find the percentage increase in his savings.

Step 2: Key Formula or Approach:

We use the fundamental accounting identity:

$$\text{Income} = \text{Expenditure} + \text{Savings}$$

We can assume a convenient baseline value for Aman's initial income, such as 100, to make the percentage calculations straightforward.

Step 3: Detailed Explanation:

• **Step 1: Define Initial Scenario:**

Let Aman's initial Income (I_1) = 100.

Since he spends 50% of his income:

Initial Expenses (E_1) = 50% of 100 = 50.

Initial Savings (S_1) = $I_1 - E_1 = 100 - 50 = 50$.

• **Step 2: Define New Scenario after Increases:**

His income increases by 20%:

$$\text{New Income } (I_2) = 100 \times \left(1 + \frac{20}{100}\right) = 120.$$

His expenses increase by 10%:

$$\text{New Expenses } (E_2) = 50 \times \left(1 + \frac{10}{100}\right) = 55.$$

$$\text{New Savings } (S_2) = I_2 - E_2 = 120 - 55 = 65.$$

• **Step 3: Calculate the Percentage Increase in Savings:**

$$\text{Absolute increase in savings} = S_2 - S_1 = 65 - 50 = 15.$$

Percentage increase in savings:

$$\text{Percentage Increase} = \left(\frac{\text{Increase in Savings}}{\text{Initial Savings}} \right) \times 100$$

$$\text{Percentage Increase} = \left(\frac{15}{50} \right) \times 100$$

$$\text{Percentage Increase} = 15 \times 2 = 30\%$$

Therefore, Aman's savings will increase by 30%.

Step 4: Final Answer:

Aman's savings will increase by 30%.

Quick Tip: Using 100 as a base value simplifies almost all percentage increase/decrease problems. It eliminates the need to work with complex fractions or variables, which minimizes the likelihood of calculation mistakes during timed tests.

8. Four women and three men appear for an interview. Three persons have to be selected. Find the probability of selecting one man and two women in the team.

(A) $13/25$

- (B) 18/35
(C) 19/45
(D) 9/25

Correct Answer: (B) 18/35

Solution:

Step 1: Understanding the Question:

The pool of candidates consists of 4 women and 3 men, totaling 7 candidates.

We need to select 3 persons from this pool.

We are asked to find the probability that this selection consists of exactly 1 man and 2 women.

Step 2: Key Formula or Approach:

We use the classical definition of probability:

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

The number of ways to select r items from a pool of n items is calculated using the combinations formula:

$$\binom{n}{r} = \frac{n!}{r!(n-r)!}$$

Step 3: Detailed Explanation:

• **Step 1: Calculate the Total Number of Possible Outcomes:**

We need to select 3 persons out of the total 7 candidates (4 women + 3 men).

The total number of ways to do this is:

$$\text{Total Outcomes} = \binom{7}{3} = \frac{7 \times 6 \times 5}{3 \times 2 \times 1}$$

$$\text{Total Outcomes} = 7 \times 5 = 35$$

- **Step 2: Calculate the Number of Favorable Outcomes:**

We need to select exactly 1 man and 2 women.

- Number of ways to select 1 man from the 3 available men:

$$\binom{3}{1} = 3$$

- Number of ways to select 2 women from the 4 available women:

$$\binom{4}{2} = \frac{4 \times 3}{2 \times 1} = 6$$

Using the multiplication principle, the total number of favorable ways is:

$$\text{Favorable Outcomes} = \binom{3}{1} \times \binom{4}{2} = 3 \times 6 = 18$$

- **Step 3: Calculate the Probability:**

Now, substitute the values back into the probability formula:

$$P(\text{Selecting 1 man and 2 women}) = \frac{\text{Favorable Outcomes}}{\text{Total Outcomes}} = \frac{18}{35}$$

Step 4: Final Answer:

The probability of selecting one man and two women is $18/35$.

Quick Tip: Always calculate the denominator first in probability questions involving combinations. Finding that the total ways is 35 immediately helps you narrow down the options, as the correct answer will likely have a denominator that is a factor of 35 (like 35 or 5). Option (B) stands out immediately.

9. 16 workers working 8 hours per day can demolish a building in 32 days. In how many days 24 workers working 12 hours per day can demolish the same building?

- (A) 128/3 days
- (B) 56/3 days
- (C) 128/9 days
- (D) 56/9 days

Correct Answer: (C) 128/9 days

Solution:

Step 1: Understanding the Question:

This problem involves multiple variables related to work, including the number of workers, the number of hours they work per day, and the number of days they take to complete a task. We are given a completed scenario of a demolition job and asked to find the time (in days) required to complete the same job under a different configuration of workers and hours.

Step 2: Key Formula or Approach:

We use the work equivalence principle (the MDH formula):

$$\frac{M_1 \times D_1 \times H_1}{W_1} = \frac{M_2 \times D_2 \times H_2}{W_2}$$

Where:

M is the number of men (workers).

D is the number of days.

H is the number of hours worked per day.

W is the work done. Since the same building is being demolished in both cases, $W_1 = W_2$.

Thus, the equation simplifies to:

$$M_1 \times D_1 \times H_1 = M_2 \times D_2 \times H_2$$

Step 3: Detailed Explanation:**• Step 1: Identify the given values:**

$$M_1 = 16 \text{ workers}$$

$$D_1 = 32 \text{ days}$$

$$H_1 = 8 \text{ hours/day}$$

$$M_2 = 24 \text{ workers}$$

$$H_2 = 12 \text{ hours/day}$$

Let D_2 be the number of days required.

• Step 2: Substitute values into the simplified MDH equation:

$$16 \times 32 \times 8 = 24 \times D_2 \times 12$$

• Step 3: Solve for D_2 :

Rearrange the equation:

$$D_2 = \frac{16 \times 32 \times 8}{24 \times 12}$$

Let's simplify by canceling out common factors:

- Divide 8 in the numerator and 24 in the denominator by 8:

$$D_2 = \frac{16 \times 32 \times 1}{3 \times 12}$$

- Now, divide 16 and 12 by their common factor of 4:

$$D_2 = \frac{4 \times 32}{3 \times 3}$$

$$D_2 = \frac{128}{9} \text{ days}$$

Step 4: Final Answer:

The number of days required by 24 workers working 12 hours per day to demolish the building is $128/9$ days.

Quick Tip: To avoid calculation errors, do not multiply the numbers out before dividing.

Keep them in factored form, as shown in Step 3. This allows for quick cancellation and prevents dealing with unnecessarily large numbers during the exam.

10. There are 52 cards in a pack. All jacks are removed from the pack. Two cards are chosen at a random without replacement. Find the probability that both cards are spade.

- (A) $22/119$
- (B) $45/118$
- (C) $21/112$
- (D) $11/188$

Correct Answer: (D) $11/188$

Solution:**Step 1: Understanding the Question:**

A standard deck contains 52 playing cards.

First, all "jacks" are removed from this deck.

We then draw two cards consecutively without replacement.

We need to determine the probability that both of the drawn cards are spades.

Step 2: Key Formula or Approach:

For dependent events (without replacement), the joint probability of drawing two cards of the same suit is:

$$P(S_1 \cap S_2) = P(S_1) \times P(S_2|S_1)$$

Where:

$P(S_1)$ is the probability that the first card drawn is a spade.

$P(S_2|S_1)$ is the conditional probability that the second card drawn is a spade, given that the first card drawn was also a spade.

Step 3: Detailed Explanation:

- **Step 1: Calculate the remaining cards in the deck after removing jacks:**

A standard deck has 4 jacks (one for each of the four suits: Spades, Hearts, Diamonds, Clubs).

Total initial cards = 52.

If we remove all 4 jacks:

Total remaining cards = $52 - 4 = 48$ cards.

- **Step 2: Calculate the remaining spades in the deck:**

A standard deck contains 13 spade cards.

One of these spade cards is the Jack of Spades, which has been removed.

Therefore, the number of spade cards left in the deck is:

Total spade cards remaining = $13 - 1 = 12$ cards.

- **Step 3: Calculate the probability of the first card being a spade (S_1):**

We select 1 spade out of the 12 available spades, from a total of 48 cards:

$$P(S_1) = \frac{12}{48} = \frac{1}{4}$$

- **Step 4: Calculate the probability of the second card being a spade (S_2) given S_1 :**

Since we do not replace the first card, we now have:

Remaining total cards = $48 - 1 = 47$.

Remaining spade cards = $12 - 1 = 11$.

$$P(S_2|S_1) = \frac{11}{47}$$

- **Step 5: Calculate the combined probability:**

$$P(S_1 \cap S_2) = P(S_1) \times P(S_2|S_1)$$

$$P(S_1 \cap S_2) = \frac{1}{4} \times \frac{11}{47}$$

Multiply the denominators:

$$4 \times 47 = 188$$

$$P(S_1 \cap S_2) = \frac{11}{188}$$

Step 4: Final Answer:

The probability that both chosen cards are spades is 11/188.

Quick Tip: When dealing with card probability questions, always write out the initial state and the state change.

A common trap is forgetting that removing "all jacks" also removes the Jack of Spades, which decreases the count of spades from 13 to 12. Always account for suit-specific cards when modifying the deck!