

MAT 2026 Question Paper with Solutions

Time Allowed :2 Hours	Maximum Marks :150	Total Questions :150
-----------------------	--------------------	----------------------

General Instructions

1. The MAT 2026 exam consists of 150 multiple-choice questions (MCQs) divided into 5 sections.
2. Marking Scheme: +1 for correct answer-0.25 for incorrect, 0 for unattempted.
3. Each of the five sections contains 40 questions.
4. Each MAT section carries an equal weightage of 40 marks, and for every correct answer, 1 mark will be rewarded.

1. The half of the average value of three numbers is 20. The second number is thrice the third number and first number is twice the second number. What is the sum of smallest and largest number?

- (A) 68
(B) 56
(C) 84
(D) 96

Correct Answer: (C) 84

Solution:

Step 1: Understanding the Concept:

This problem involves calculating the average of numbers and using algebraic ratios to establish relationships between individual values.

Step 2: Key Formula or Approach:

1. Average of n numbers = $\frac{\text{Sum of numbers}}{n}$.
2. Establish algebraic equations based on the relationships given between the three numbers.

Step 3: Detailed Explanation:

Let the three numbers be a, b , and c .

According to the problem, half of the average of these three numbers is 20:

$$\begin{aligned}\frac{1}{2} \times \left(\frac{a + b + c}{3} \right) &= 20 \\ \frac{a + b + c}{6} &= 20 \\ a + b + c &= 120\end{aligned}$$

Now, we define the relationships between the numbers:

1. The second number (b) is thrice the third number (c): $b = 3c$.
2. The first number (a) is twice the second number (b): $a = 2b = 2(3c) = 6c$.

Substitute these values into the sum equation:

$$6c + 3c + c = 120$$

$$10c = 120$$

$$c = 12$$

Finding the other numbers:

$$b = 3 \times 12 = 36$$

$$a = 6 \times 12 = 72$$

The smallest number is $c = 12$ and the largest number is $a = 72$.

The sum of the smallest and largest number is:

$$12 + 72 = 84$$

Step 4: Final Answer:

The sum of the smallest and largest number is 84.

💡 Quick Tip

Always try to express all variables in terms of the smallest unit (in this case, the third number c) to simplify the calculation into a single-variable linear equation.

2. If a train runs at 50 km/hr, it reaches 60 minutes earlier than its schedule time at its destination but if it runs at 8.33 m/s it reaches at its destination 300 minutes late, find the correct time for the train to complete its journey.

- (A) 10 hours
- (B) 6.5 hours
- (C) 7.44 hours
- (D) 13.3 hours

Correct Answer: (A) 10 hours

Solution:

Step 1: Understanding the Concept:

This problem relates speed, distance, and time. Since the distance remains constant, we can

use the formula Distance = Speed $\times$ Time.

Step 2: Key Formula or Approach:

1. Convert all units to km/hr and hours for consistency.
2. Distance(D) = $S_1 \times (T - t_1) = S_2 \times (T + t_2)$, where T is the scheduled time.

Step 3: Detailed Explanation:

Speed 1 (S_1) = 50 km/hr.

Time difference 1: Reaches 60 minutes earlier = 1 hour early.

Speed 2 (S_2) = 8.33 m/s.

Convert S_2 to km/hr:

$$8.33 \text{ m/s} \approx \frac{25}{3} \times \frac{18}{5} = 5 \times 6 = 30 \text{ km/hr}$$

Time difference 2: Reaches 300 minutes late = $\frac{300}{60} = 5$ hours late.

Let the correct (scheduled) time be T .

Since distance D is the same:

$$50 \times (T - 1) = 30 \times (T + 5)$$

$$5(T - 1) = 3(T + 5)$$

$$5T - 5 = 3T + 15$$

$$2T = 20$$

$$T = 10 \text{ hours}$$

Step 4: Final Answer:

The correct time for the train to complete its journey is 10 hours.

💡 Quick Tip

When speeds are S_1 and S_2 and time differences are t_1 (early) and t_2 (late), you can find the scheduled time directly using the ratio of speeds: $\frac{T+t_2}{T-t_1} = \frac{S_1}{S_2}$.

3. Average age of a nuclear family of 4 members, five years ago was 12 years. On including age of the boy from neighbourhood, the present average age is 15 years. What is the present age of the boy from the neighbourhood?

- (A) 17
- (B) 9
- (C) 7
- (D) 12

Correct Answer: (C) 7

Solution:

Step 1: Understanding the Concept:

To find the age of an additional person, calculate the total sum of ages of the group before and after that person joined.

Step 2: Key Formula or Approach:

1. Sum of ages = Average age $\times$ Number of people.
2. To find the present sum from a past average: Present Sum = Past Sum + (Years Passed $\times$ Number of People).

Step 3: Detailed Explanation:

Five years ago:

Number of members = 4.

Average age = 12 years.

Sum of their ages 5 years ago = $4 \times 12 = 48$ years.

Present sum of their ages:

Since each of the 4 members has aged by 5 years:

$$\text{Present Sum (4 members)} = 48 + (4 \times 5) = 48 + 20 = 68 \text{ years}$$

Now, a boy joins the group, so total members = 5.

New average age = 15 years.

Total sum of ages (5 people) = $5 \times 15 = 75$ years.

Age of the boy = Total sum (5 people) – Total sum (4 people).

$$\text{Age of boy} = 75 - 68 = 7 \text{ years}$$

Step 4: Final Answer:

The present age of the boy from the neighbourhood is 7 years.

 Quick Tip

The present average age of the original 4 members is $12 + 5 = 17$ years.
Present sum = $4 \times 17 = 68$. This saves one step in the calculation.

4. A bag contains 25-paise, 50-paise and 1-rupee coins in the ratio 4:2:5. If the total value of all the coins in the bag is Rs. 770, then find the value of all the 25 paise and 50 paise coins in the bag.

(A) Rs. 220

(B) Rs. 70

- (C) Rs. 110
(D) Rs. 140

Correct Answer: (A) Rs. 220

Solution:

Step 1: Understanding the Concept:

This problem involves the ratio of the number of coins and their monetary value. We need to convert the coin counts into a single currency unit (Rupees).

Step 2: Key Formula or Approach:

1. Let the number of coins be $4x$, $2x$, and $5x$.
2. Total Value = $\sum(\text{Value of one coin} \times \text{Number of coins})$.

Step 3: Detailed Explanation:

Number of 25-paise coins = $4x$.

Number of 50-paise coins = $2x$.

Number of 1-rupee coins = $5x$.

Convert the values to Rupees:

25-paise = Rs. 0.25.

50-paise = Rs. 0.50.

Total value equation:

$$(0.25 \times 4x) + (0.50 \times 2x) + (1.00 \times 5x) = 770$$

$$1.00x + 1.00x + 5.00x = 770$$

$$7x = 770$$

$$x = 110$$

Now, find the value of 25-paise and 50-paise coins:

Value of 25-paise coins = $1.00x = 110$ Rupees.

Value of 50-paise coins = $1.00x = 110$ Rupees.

Total value of 25 and 50 paise coins = $110 + 110 = 220$ Rupees.

Step 4: Final Answer:

The total value of all the 25 paise and 50 paise coins is Rs. 220.

💡 Quick Tip

Notice that in this specific ratio, the total value contributed by 25-paise coins ($4 \times 0.25 = 1$) is the same as that of 50-paise coins ($2 \times 0.5 = 1$). This symmetry simplifies calculations.

5. In 15 days, 9 women and 15 girls can reap a field. In what time could 15 women and 16 girls reap the same field, assuming 3 women can do as much work as 4 girls?

- (A) 10.5 days
- (B) 25 days
- (C) 11.25 days
- (D) 20 days

Correct Answer: (C) 11.25 days

Solution:

Step 1: Understanding the Concept:

This is a Time and Work problem involving different efficiencies. We must convert the labor force into a single common unit (either all women or all girls) to use the work-rate formula.

Step 2: Key Formula or Approach:

1. Efficiency relation: $3W = 4G \Rightarrow 1W = \frac{4}{3}G$.
2. Work = Rate $\times$ Time. Since work is constant, $M_1D_1 = M_2D_2$.

Step 3: Detailed Explanation:

Given: Efficiency of 3 women = Efficiency of 4 girls.

Therefore, 1 woman = $\frac{4}{3}$ girls.

Case 1: 9 women and 15 girls.

Convert 9 women to girls: $9 \times \frac{4}{3} = 12$ girls.

Total labor in Case 1 = $12 + 15 = 27$ girls.

Time taken = 15 days.

Total Work = 27×15 girl-days.

Case 2: 15 women and 16 girls.

Convert 15 women to girls: $15 \times \frac{4}{3} = 20$ girls.

Total labor in Case 2 = $20 + 16 = 36$ girls.

Let the time taken be D .

Using $M_1D_1 = M_2D_2$:

$$27 \times 15 = 36 \times D$$

$$D = \frac{27 \times 15}{36}$$

$$D = \frac{3 \times 15}{4}$$

$$D = \frac{45}{4} = 11.25 \text{ days}$$

Step 4: Final Answer:

15 women and 16 girls can reap the field in 11.25 days.

 Quick Tip

Always convert to the unit that yields whole numbers where possible. Here, converting women to girls was easier because the number of women (9 and 15) were both multiples of 3.

6. Aman walks 1 km towards East and then he turns to South and walks 5 km. Again he turns to East and walks 2 km, after this he turns to North and walks 9 km. Now, how far is he from his starting point?

- (A) 3 km
- (B) 4 km
- (C) 7 km
- (D) 5 km

Correct Answer: (D) 5 km

Solution:

Step 1: Understanding the Concept:

This is a displacement problem based on the Pythagorean theorem. We track the net movement in the East-West (X-axis) and North-South (Y-axis) directions.

Step 2: Key Formula or Approach:

1. Let the starting point be $(0, 0)$.
2. Final Displacement = $\sqrt{(\text{Net East/West distance})^2 + (\text{Net North/South distance})^2}$.

Step 3: Detailed Explanation:

Let's track Aman's coordinates step-by-step:

1. Walks 1 km East: Coordinates = $(1, 0)$.
2. Turns South and walks 5 km: Coordinates = $(1, -5)$.
3. Turns East and walks 2 km: Coordinates = $(1 + 2, -5) = (3, -5)$.
4. Turns North and walks 9 km: Coordinates = $(3, -5 + 9) = (3, 4)$.

Now, calculate the distance from the origin $(0, 0)$ to the final point $(3, 4)$:

$$\text{Distance} = \sqrt{(3 - 0)^2 + (4 - 0)^2}$$

$$\text{Distance} = \sqrt{3^2 + 4^2}$$

$$\text{Distance} = \sqrt{9 + 16}$$

$$\text{Distance} = \sqrt{25} = 5 \text{ km}$$

Step 4: Final Answer:

Aman is 5 km away from his starting point.

 Quick Tip

Recognize common Pythagorean triples like (3, 4, 5) and (5, 12, 13). Once you find the legs are 3 and 4, the hypotenuse (distance) is automatically 5.

7. What should come in place of question mark (?) in the following number/alphabet series?

X U S P N K ?

- (A) I
- (B) M
- (C) L
- (D) Q

Correct Answer: (A) I

Solution:

Step 1: Understanding the Concept:

To solve an alphabet series, assign numerical values to each letter based on their position in the English alphabet (A=1, B=2, ..., Z=26) and look for a mathematical pattern.

Step 2: Key Formula or Approach:

Analyze the gaps between consecutive terms in the series.

Step 3: Detailed Explanation:

The given series is: X, U, S, P, N, K, ?

Numerical values of the letters:

X $\rightarrow$ 24

U $\rightarrow$ 21 (Gap: $24 - 3 = 21$)

S $\rightarrow$ 19 (Gap: $21 - 2 = 19$)

P $\rightarrow$ 16 (Gap: $19 - 3 = 16$)

N $\rightarrow$ 14 (Gap: $16 - 2 = 14$)

K $\rightarrow$ 11 (Gap: $14 - 3 = 11$)

The pattern of subtraction is alternate: $-3, -2, -3, -2, -3$.

The next gap should be -2 .

Target value $= 11 - 2 = 9$.

The 9th letter of the alphabet is I.

Step 4: Final Answer:

The letter that should come in place of the question mark is I.

 Quick Tip

Use the acronym "EJOTY" (5, 10, 15, 20, 25) to quickly remember the positions of letters in the alphabet during the exam.

8. Each of these questions has a text portion followed by four alternative summaries. best captures the essence of the text.

Some decisions will be fairly obvious "no-brainers". Your bank account is low, but you have a two-week vacation coming up and you want to get away to someplace warm to relax with your family. Will you accept your in-laws' offer of free use of their Florida beachfront condo? Sure. You like your employer and feel ready to move forward in your career. Will you step in for your boss for three weeks while she attends a professional development course? Of course.

(A) Some decisions are obvious under certain circumstances. You may, for example, readily accept a relative's offer of free holiday accommodation or step in for your boss when she is away

(B) Easy decisions are called "no-brainers" because they do not require any cerebral activity. Examples such as accepting free holiday accommodation abound in our lives

(C) Some decisions are no-brainers. You need not think when making them. Examples are condo offers from in-laws and job offers from bosses when your bank account is low or your boss is away

(D) Accepting an offer from in-laws when you are short on funds and want a holiday is a no-brainer. Another no-brainer is taking the boss's job when she is away

Correct Answer: (C) Some decisions are no-brainers. You need not think when making them. Examples are condo offers from in-laws and job offers from bosses when your bank account is low or your boss is away

Solution:

Step 1: Understanding the Concept:

A good summary must capture the main theme (no-brainer decisions) and the specific logic or context provided in the examples (the "why" behind the decisions).

Step 2: Detailed Explanation:

The passage defines "no-brainer" decisions through two scenarios.

The first scenario involves a low bank balance and the need for a vacation, making a free offer logical.

The second involves career ambition and the boss being away, making stepping in an obvious choice.

Option (A) is too generic and lacks the specific condition of the bank account.

Option (B) focuses on "cerebral activity" which is not mentioned in the text.

Option (C) correctly identifies the core term ("no-brainers"), explains what they are ("need not think"), and includes the crucial situational contexts ("bank account low" and "boss away") mentioned in the text.

Option (D) is a list of examples rather than a comprehensive summary of the concept.

Step 3: Final Answer:

Option (C) is the most accurate summary as it encapsulates the concept and the specific conditions that make the decisions "no-brainers".

💡 Quick Tip

In summary questions, ensure the chosen option covers the "Cause-Effect" relationship mentioned in the text. Here, the "no-brainer" (effect) is triggered by the "circumstances" (cause).

9. A positive number is exactly divisible by 4 and 3 both. What is that number?

I. It is greater than 15

II. It is less than 14

(A) Option a

(B) Option b

(C) Option c

(D) Option d

Correct Answer: (A) Option a

Solution:

Step 1: Understanding the Concept:

A number divisible by both 4 and 3 must be a multiple of their Lowest Common Multiple (LCM).

$$\text{LCM}(3, 4) = 12$$

The positive numbers divisible by 12 are $\{12, 24, 36, 48, \dots\}$.

Step 2: Detailed Explanation:

The question asks "What is that number?", implying we need a unique value.

Statement I: The number is greater than 15.

Possible values are $\{24, 36, 48, \dots\}$. This does not provide a single unique answer.

Statement II: The number is less than 14.

The only positive multiple of 12 less than 14 is 12. This provides a unique answer.

According to the directions:

a) If the question can be answered by one of the statements alone and not by the other.

Since Statement II alone answers the question and Statement I does not, condition (a) is satisfied.

Step 3: Final Answer:

The answer is Option a.

💡 Quick Tip

In data sufficiency, "can be answered" means finding a **unique** value. If a statement results in multiple possibilities, it is insufficient.

10. Fill in the blank with an appropriate word and complete the given sentence.
The individual _____ of international student mobility are well known.

- (A) benefits
- (B) temper
- (C) energy
- (D) position

Correct Answer: (A) benefits

Solution:

Step 1: Understanding the Concept:

This is a vocabulary-based sentence completion question. We need a noun that logically fits the context of "international student mobility".

Step 2: Detailed Explanation:

The sentence talks about aspects of student mobility that are "well known".

"Benefits" refers to the advantages or positive outcomes, which is the most common and logical word used when discussing educational exchange programs.

"Temper" (disposition), "Energy", and "Position" do not fit the context of a phenomenon like mobility being "well known" in a general academic or policy sense.

Step 3: Final Answer:

The word "benefits" completes the sentence logically.

💡 Quick Tip

In context-based blanks, look for the tone of the sentence. "Well known" usually precedes "benefits," "challenges," or "features" in academic writing.

11. Fill in the blanks with the appropriate words and complete the given sentence.
A well-known chef, started his career _____ the age of 15 when the prodigy

----- cooking under Eric Ripert at the iconic New York restaurant.

- (A) in, has begun
- (B) to, have begin
- (C) on, begin
- (D) at, began

Correct Answer: (D) at, began

Solution:

Step 1: Understanding the Concept:

The question tests the correct usage of prepositions for age and the appropriate verb tense for past actions.

Step 2: Detailed Explanation:

1. Preposition for age: The standard English idiom for specifying a particular point in time or age is "at the age of...". Therefore, the first blank must be "at".
2. Tense: The sentence refers to a completed action in the past ("started his career"). Therefore, the second blank requires the simple past tense "began" to maintain consistency with "started".

Step 3: Final Answer:

The correct pair is "at" and "began".

💡 Quick Tip

Always ensure tense consistency across the sentence. If the first part uses "started" (Simple Past), the related clause describing the same period should also use Simple Past ("began").