

MAT 2026 Question Paper with Solutions

Time Allowed :2 Hours	Maximum Marks :150	Total Questions :200
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General Instructions

Read the following instructions very carefully and strictly follow them:

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 30 questions.
4. Each MAT 2026 exam pattern 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 number 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 Question:

We are given the relationship between three numbers and the half of their average. We need to find the sum of the smallest and the largest of these three numbers.

Step 2: Key Formula or Approach:

The average of three numbers A, B, and C is given by the formula:

$$\text{Average} = \frac{A + B + C}{3}$$

We will set up equations based on the given conditions to solve for the numbers.

Step 3: Detailed Explanation:

First, let's find the average of the three numbers. Given that half of the average value is 20.

$$\frac{1}{2} \times \text{Average} = 20$$

$$\text{Average} = 20 \times 2 = 40$$

Let the three numbers be the first, second, and third number. The sum of these three numbers is:

$$\text{Sum of numbers} = \text{Average} \times 3 = 40 \times 3 = 120$$

Now, let's establish the relationship between the numbers. Let the third number be x . According to the question: The second number is thrice the third number, so:

$$\text{Second number} = 3x$$

The first number is twice the second number, so:

$$\text{First number} = 2 \times (3x) = 6x$$

The three numbers are $6x$, $3x$, and x . Their sum is 120.

$$6x + 3x + x = 120$$

$$10x = 120$$

$$x = \frac{120}{10} = 12$$

Now we can find the three numbers: Smallest number (the third one) = $x = 12$.

Second number = $3x = 3 \times 12 = 36$.

Largest number (the first one) = $6x = 6 \times 12 = 72$.

The question asks for the sum of the smallest and largest numbers.

$$\text{Sum} = \text{Smallest number} + \text{Largest number}$$

$$\text{Sum} = 12 + 72 = 84$$

Step 4: Final Answer:

The sum of the smallest and largest number is 84.

Quick Tip

In problems involving relationships between numbers, always start by defining one number as a variable (e.g., x) and expressing the other numbers in terms of x . This simplifies the process of forming a single equation to solve.

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 Question:

We have two scenarios for a train journey with different speeds and corresponding deviations from the scheduled time. We need to find the scheduled time of the journey. The distance is constant in both scenarios.

Step 2: Key Formula or Approach:

The fundamental relationship is **Distance = Speed × Time**. We will set up two equations based on the two scenarios and solve them simultaneously.

Step 3: Detailed Explanation:

Let the distance be D km and the scheduled time be T hours.

Unit Conversion: First, convert all units to be consistent (km and hours). Speed in the second case is 8.33 m/s. Let's convert this to km/hr. Note that $8.33 \approx 8\frac{1}{3} = \frac{25}{3}$.

$$\text{Speed}_2 = \frac{25}{3} \text{ m/s} = \frac{25}{3} \times \frac{18}{5} \text{ km/hr} = 5 \times 6 = 30 \text{ km/hr}$$

Time deviations: 60 minutes = 1 hour. 300 minutes = 5 hours.

Scenario 1: Speed $S_1 = 50$ km/hr. Time taken $T_1 = T - 1$ hours (since it's 1 hour earlier). Distance $D = S_1 \times T_1 = 50(T - 1)$. (Equation 1)

Scenario 2: Speed $S_2 = 30$ km/hr. Time taken $T_2 = T + 5$ hours (since it's 5 hours late). Distance $D = S_2 \times T_2 = 30(T + 5)$. (Equation 2)

Since the distance D is the same in both cases, we can equate the two expressions for D .

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

$$50T - 50 = 30T + 150$$

$$50T - 30T = 150 + 50$$

$$20T = 200$$

$$T = \frac{200}{20} = 10 \text{ hours}$$

Step 4: Final Answer:

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

Quick Tip

In speed-distance-time problems with two scenarios, always set up equations where the constant quantity (usually distance) is isolated. This allows you to equate the variable expressions and solve for the unknown.

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 Question:

We are given the average age of a family in the past. We need to find the age of a new person who joins the group, given the new present average age.

Step 2: Key Formula or Approach:

The key formula is **Sum of ages = Average age × Number of people**. We will use this to find the sum of ages at different points in time.

Step 3: Detailed Explanation:

Part 1: Family's age five years ago. Number of family members = 4. Average age five years ago = 12 years. Sum of their ages five years ago = $4 \times 12 = 48$ years.

Part 2: Family's present age. Five years have passed, so each of the 4 members is 5 years older. Total increase in the sum of their ages = $4 \times 5 = 20$ years. Present sum of the ages of the 4 family members = $48 + 20 = 68$ years.

Part 3: Including the boy. A boy from the neighbourhood joins them. New number of people = $4 + 1 = 5$. The new present average age of the 5 people = 15 years. New sum of the present ages of all 5 people = $5 \times 15 = 75$ years.

Part 4: Finding the boy's age. The difference between the new total sum of ages and the family's total sum of ages will give us the boy's age. Present age of the boy = (Sum of ages of 5 people) - (Sum of ages of 4 family members)

$$\text{Boy's age} = 75 - 68 = 7 \text{ years}$$

Step 4: Final Answer:

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

Quick Tip

When dealing with average age problems that span a period of time, first calculate the sum of ages at one point in time. Then, adjust this sum for the time elapsed before performing any further calculations.

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 Question:

We are given the ratio of the number of coins of different denominations and the total value in the bag. We need to find the combined value of two of the denominations.

Step 2: Key Formula or Approach:

We will represent the number of coins of each denomination using a common multiplier x . Then, we will form an equation for the total value of the coins to solve for x . It's best to convert all monetary values to a single unit (paise or rupees).

Step 3: Detailed Explanation:

Let's work with paise to avoid decimals. 1 Rupee = 100 paise. Total value = Rs. 770 = $770 \times 100 = 77000$ paise.

The ratio of the number of 25-paise, 50-paise, and 100-paise coins is 4:2:5. Let the number of coins be: Number of 25-paise coins = $4x$ Number of 50-paise coins = $2x$ Number of 100-paise (1-rupee) coins = $5x$

Now, let's calculate the total value in terms of x . Value of 25-paise coins = $25 \times (4x) = 100x$ paise. Value of 50-paise coins = $50 \times (2x) = 100x$ paise. Value of 100-paise coins = $100 \times (5x) = 500x$ paise.

The total value of all coins is 77000 paise.

$$100x + 100x + 500x = 77000$$

$$700x = 77000$$

$$x = \frac{77000}{700} = 110$$

The question asks for the total value of all 25 paise and 50 paise coins. Value of 25-paise coins = $100x = 100 \times 110 = 11000$ paise. Value of 50-paise coins = $100x = 100 \times 110 = 11000$ paise. Total value = Value of 25p coins + Value of 50p coins

$$\text{Total Value} = 11000 + 11000 = 22000 \text{ paise}$$

Converting back to rupees:

$$\frac{22000}{100} = \text{Rs. } 220$$

Step 4: Final Answer:

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

Quick Tip

When a problem involves ratios of quantities and a total value, the quickest method is to find the value contributed by one 'unit' of the ratio and then scale it up. Here, one ratio unit (4:2:5) has a value of $4(25) + 2(50) + 5(100) = 100 + 100 + 500 = 700$ paise. The total value is 77000 paise, so the multiplying factor is $77000/700 = 110$.

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 Question:

This is a time and work problem where we have two types of workers (women and girls) with a given efficiency relationship. We need to calculate the time required for a different combination of workers to complete the same task.

Step 2: Key Formula or Approach:

The core concept is that **Total Work = (Number of Workers × Efficiency of one worker) × Time**. A simpler form is **Total Work = Total Work Rate × Time**. We will first establish the efficiency ratio, calculate the total work done, and then find the time for the new group.

Step 3: Detailed Explanation:

Part 1: Establish the efficiency ratio. We are given that 3 women can do as much work as 4 girls in the same amount of time. Let W be the work rate of one woman and G be the work rate of one girl.

$$3 \times W = 4 \times G$$
$$W = \frac{4}{3}G$$

This means one woman is as efficient as $4/3$ of a girl. We will convert all workers into a single equivalent unit (e.g., girls).

Part 2: Calculate the total work. The first group consists of 9 women and 15 girls, and they take 15 days. Let's find the total work rate of this group in terms of 'G'.

$$\text{Rate}_1 = (9 \times W) + (15 \times G)$$

Substitute $W = \frac{4}{3}G$:

$$\text{Rate}_1 = \left(9 \times \frac{4}{3}G\right) + (15 \times G) = (3 \times 4G) + 15G = 12G + 15G = 27G$$

So, the combined work rate is equivalent to that of 27 girls. Total Work = Rate \times Time

$$\text{Total Work} = 27G \times 15 \text{ days} = 405G \text{ (girl-days)}$$

Part 3: Calculate the time for the second group. The second group has 15 women and 16 girls. Let's find the total work rate of this new group in terms of 'G'.

$$\text{Rate}_2 = (15 \times W) + (16 \times G)$$

Substitute $W = \frac{4}{3}G$:

$$\text{Rate}_2 = \left(15 \times \frac{4}{3}G\right) + (16 \times G) = (5 \times 4G) + 16G = 20G + 16G = 36G$$

The second group's work rate is equivalent to that of 36 girls.

Now, we can find the time they will take to complete the same total work.

$$\text{Time}_2 = \frac{\text{Total Work}}{\text{Rate}_2} = \frac{405G}{36G} = \frac{405}{36}$$

$$\text{Time}_2 = \frac{45}{4} = 11.25 \text{ days}$$

Step 4: Final Answer:

It would take 15 women and 16 girls 11.25 days to reap the same field.

Quick Tip

In work problems with different types of workers, always start by converting all worker types into a single equivalent unit based on their given efficiency ratio. This transforms the problem into a simpler one with a single type of worker.

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 Question:

The question asks for the shortest distance (displacement) between the starting and ending points after a series of movements in cardinal directions.

Step 2: Key Formula or Approach:

We can solve this by calculating the net movement along the East-West axis and the North-South axis. Then, we use the Pythagorean theorem to find the straight-line distance. Let the starting point be the origin (0,0).

$$\text{Distance} = \sqrt{(\text{net horizontal displacement})^2 + (\text{net vertical displacement})^2}$$

Step 3: Detailed Explanation:

Let's break down Aman's movements: 1. **1 km towards East:** Net Eastward movement = +1 km. 2. **5 km towards South:** Net Southward movement = -5 km. 3. **2 km towards East:** Total Eastward movement = +1 km + 2 km = +3 km. 4. **9 km towards North:** Total North-South movement = -5 km (South) + 9 km (North) = +4 km (North).

So, the final position relative to the starting point is: - 3 km to the East. - 4 km to the North. These two displacements form the two perpendicular sides of a right-angled triangle, with the hypotenuse being the direct distance from the start to the end point. Using the Pythagorean theorem:

$$\text{Distance}^2 = (\text{Eastward distance})^2 + (\text{Northward distance})^2$$

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

$$\text{Distance}^2 = 9 + 16 = 25$$

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

Step 4: Final Answer:

Aman is 5 km from his starting point.

Quick Tip

For direction and distance problems, always calculate the net displacement for the North-South and East-West axes separately. The final distance is the hypotenuse of the right triangle formed by these net displacements.

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

X U S P N K ?

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

Correct Answer: (A) I

Solution:

Step 1: Understanding the Question:

We need to identify the pattern in the given series of alphabets and find the next letter that follows the pattern.

Step 2: Key Formula or Approach:

The best approach is to find the numerical position of each letter in the alphabet and then determine the mathematical relationship (difference, sum, etc.) between consecutive terms.

Step 3: Detailed Explanation:

Let's write down the letters and their corresponding positions in the English alphabet (A=1, B=2, ... Z=26).

- X is the 24th letter.
- U is the 21st letter.
- S is the 19th letter.
- P is the 16th letter.
- N is the 14th letter.
- K is the 11th letter.

Now let's find the difference between the positions of consecutive letters:

$$24 \xrightarrow{-3} 21 \xrightarrow{-2} 19 \xrightarrow{-3} 16 \xrightarrow{-2} 14 \xrightarrow{-3} 11$$

The pattern is a repeating sequence of subtractions: -3, -2, -3, -2, -3, ... The last operation was -3 (from N to K). Therefore, the next operation should be -2.

$$11 - 2 = 9$$

The 9th letter of the alphabet is I.

Step 4: Final Answer:

The next letter in the series is I.

Quick Tip

For alphabetic series, quickly converting letters to their numerical positions often reveals a simple arithmetic or geometric pattern that is otherwise hard to spot.

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: (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

Solution:

Step 1: Understanding the Question:

The goal is to select the summary that best captures the main idea and the overall message of the provided text. The text introduces the concept of "no-brainers" and provides two detailed examples.

Step 2: Detailed Explanation:

Let's analyze the text's core message. The main point is that some decisions are very easy or obvious, which the author calls "no-brainers." The text supports this by giving two specific scenarios: accepting a free vacation spot when you need a vacation but are low on funds, and taking on a temporary higher responsibility at work to advance your career. The best summary should reflect this general principle along with the illustrative nature of the examples.

- **Option (A):** This option starts with the general principle ("Some decisions are obvious under certain circumstances") which perfectly matches the opening sentence of the text. It then correctly and accurately summarizes the two examples provided without adding new information or misinterpreting them. This is a very strong candidate.
- **Option (B):** This option focuses on defining the term "no-brainer" ("do not require any cerebral activity"). While true, the main thrust of the text is to provide examples of such decisions rather than to give a dictionary definition. The phrase "abound in our lives" is also an exaggeration not stated in the original text.
- **Option (C):** This option is close, but it misinterprets the second example. The text says "step in for your boss," which is a temporary assignment. This option calls it a "job offer from bosses," which is incorrect and changes the meaning.
- **Option (D):** This option is too specific. It merely restates the examples without capturing the broader, introductory statement that "Some decisions will be fairly obvious 'no-brainers'." A good summary captures the general idea, not just the specific examples. It also misinterprets the second example as "taking the boss's job."

Step 3: Final Answer:

Option (A) is the most accurate and comprehensive summary. It correctly identifies the main idea and faithfully represents the supporting examples given in the text.

Quick Tip

When choosing the best summary, look for the option that captures the main thesis or topic sentence of the paragraph and also correctly reflects the purpose of the supporting details, without misinterpreting them or being too narrow.

Direction for question 1 to 15: Each item is followed by two statements, I and II. Answer each question using the following instructions.

- a) If the question can be answered by one of the statements alone and not by the other.
- b) If the question can be answered by using either statement alone.
- c) If the question can be answered by using both the statements together, but cannot be using either statement alone.
- d) If the question cannot be answered even by using both the statements together.

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 Question:

The main question asks for a specific positive number. The property of the number is that it is divisible by both 3 and 4. A number divisible by both 3 and 4 must be a multiple of their Least Common Multiple (LCM).

Step 2: Key Formula or Approach:

The LCM of 3 and 4 is 12. So, the number must be a multiple of 12. The possible numbers are 12, 24, 36, 48, and so on. We need to check if the given statements can uniquely identify one of these numbers.

Step 3: Detailed Explanation:

Analyze Statement I alone:

Statement I says, "It is greater than 15". The multiples of 12 that are greater than 15 are 24, 36, 48, ... Since we get multiple possible numbers, Statement I alone is not sufficient to answer the question.

Analyze Statement II alone:

Statement II says, "It is less than 14". The only positive multiple of 12 that is less than 14 is 12. This statement gives a unique answer. Therefore, Statement II alone is sufficient to answer the question.

Conclusion:

The question can be answered by using Statement II alone, but not by using Statement I alone. This corresponds to option (a).

Step 4: Final Answer:

The correct choice is (a) as the question can be answered by one of the statements alone (Statement II) and not by the other.

Quick Tip

In Data Sufficiency, always check each statement individually first. Only if neither statement is sufficient alone should you proceed to check them combined.

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 Question:

We need to select the word from the options that best fits the context of the sentence. The sentence discusses "international student mobility".

Step 2: Detailed Explanation:

The sentence implies that certain aspects of students studying abroad are widely recognized. Let's evaluate the options in this context:

- **benefits:** "The individual benefits of international student mobility are well known." This makes logical and contextual sense. Student mobility is known for providing benefits like cultural exposure, better education, and career opportunities.
- **temper:** "The individual temper..." Temper refers to a person's nature or mood, which does not fit the context of student mobility as a general concept.
- **energy:** "The individual energy..." While students have energy, it is not a characteristic or outcome of "student mobility" that would be described as "well known".
- **position:** "The individual position..." This is vague and does not fit the sentence structure or context properly.

The word "benefits" is the most appropriate choice as it refers to the positive outcomes or advantages associated with international student mobility.

Step 3: Final Answer:

The correct word to fill in the blank is "benefits".

Quick Tip

For fill-in-the-blank questions, read the entire sentence to understand the overall context before evaluating the options. The correct word will be both grammatically correct and logically consistent with the sentence's meaning.

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 Question:

We need to fill in two blanks in the sentence with the correct preposition and verb form. The sentence describes events that happened in the past.

Step 2: Detailed Explanation:

Analyzing the first blank:

The phrase "started his career ____ the age of 15" requires a preposition to indicate a specific point in time (age). The correct preposition to use with a specific age is "at". So, the phrase

should be "at the age of 15".

Analyzing the second blank:

The main clause "A well-known chef, started his career..." is in the simple past tense ("started"). The action in the subordinate clause ("when the prodigy ____ cooking...") also occurred at the same time in the past. Therefore, the verb in the second blank must also be in the simple past tense. The simple past tense of the verb "begin" is "began".

Evaluating the options:

- (A) in, has begun: "in" is an incorrect preposition, and "has begun" is present perfect tense, which is incorrect.
- (B) to, have begin: "to" is incorrect, and "have begin" is grammatically incorrect.
- (C) on, begin: "on" is an incorrect preposition, and "begin" is the present tense form.
- (D) at, began: "at" is the correct preposition, and "began" is the correct simple past tense verb.

Step 3: Final Answer:

The correct pair of words is "at, began", making the sentence: "A well-known chef, started his career **at** the age of 15 when the prodigy **began** cooking under Eric Ripert at the iconic New York restaurant."

Quick Tip

Ensure verb tense consistency throughout a sentence. If the main action is in the past, related actions that occurred at the same time should also be in the past tense. Also, remember the correct prepositions for time, such as 'at' for specific times and ages.