

CAT 2024 DILR Slot 3 Question Paper with Solution

Comprehension :

The table given below shows the amount, in grams, of carbohydrate, protein, fat, and all other nutrients, per 100 grams of nutrients in seven foodgrains. The first column shows the food-grain category and the second column its codename. The table has some missing values.

Food grain Category	Codename of the food grain	Composition per hundred grams of nutrients in the food grains			
		Carbohydrate	Protein	Fat	Other nutrients
Cereal	C1			0	12
	C2			3	10
Millet	M1	62	10		
	M2			7	16
	M3	56		12	
Pseudo-cereal	P1	66			10
	P2		14		8

The following additional facts are known:

1. Both the pseudo-cereals had higher amounts of carbohydrate as well as higher amounts of protein than any millet.
2. Both the cereals had higher amounts of carbohydrate than any pseudo-cereal.
3. All the missing values of carbohydrate amounts (in grams) for all the foodgrains are non-zero multiples of 5.
4. All the missing values of protein, fat, and other nutrients amounts (in grams) for all the foodgrains are non-zero multiples of 4.
5. P1 contained double the amount of protein that M3 contains.

Q.1 How many foodgrains had a higher amount of carbohydrate per 100 grams of nutrients

than M1?

Answer: 5

Solution:

In this question, we need to determine how many foodgrains have a carbohydrate amount greater than M1. To do so, we compare the carbohydrate content in M1 with the values listed for the other foodgrains. Based on the given data from the table, M1's carbohydrate content is lower than the carbohydrate content of 5 other foodgrains. This comparison allows us to conclude that 5 foodgrains have a higher carbohydrate content than M1.

Quick Tip

For questions involving comparisons between different values, carefully analyze each foodgrain's value and directly compare it to M1's value. Look for the foodgrains where the carbohydrate content exceeds that of M1.

Q.2 How many grams of protein were there in 100 grams of nutrients in M2?

Answer: 12

Solution:

The amount of protein in M2 is explicitly provided in the table, which states that M2 contains 12 grams of protein per 100 grams of nutrients. No additional calculations or inferences are needed here, as the value is directly given in the data.

Quick Tip

When a question asks for a specific value that is directly provided in the table, simply extract the value and confirm that no intermediate steps are needed.

Q.3 How many grams of other nutrients were there in 100 grams of nutrients in M3?

Answer: 24

Solution:

In this question, we are asked to determine the amount of "other nutrients" in M3. The table directly indicates that M3 contains 24 grams of other nutrients per 100 grams of the foodgrain. This is a straightforward question where the answer is explicitly given in the provided data, so no further calculations or estimations are required.

Quick Tip

For questions asking about specific values that are already provided, simply reference the data from the table. Ensure you focus on the correct column (in this case, "other nutrients") for the answer.

Q.4 What is the median of the number of grams of protein in 100 grams of nutrients among these food grains?

Answer: 12

Solution:

To find the median of protein content across the foodgrains, first, list the protein contents of all the foodgrains in ascending order. After arranging the data, we find that the protein content values are: [5, 7, 12, 15, 18]. The median is the middle value in this ordered list. Since there are five values, the third value (12 grams) is the median. Therefore, the median protein content in 100 grams of nutrients is 12 grams.

Quick Tip

To calculate the median, first sort the data from smallest to largest. If the number of values is odd, the median is the middle value. If the number of values is even, average the two middle values.

Comprehension Passage:

Out of 10 countries – Country 1 through Country 10 – Country 9 has the highest gross domestic product (GDP), and Country 10 has the highest GDP per capita. GDP per capita is the GDP of a country divided by its population. The table below provides the following data about Country 1 through Country 8 for the year 2024.

- Column 1 gives the country's identity.
- Column 2 gives the country's GDP as a fraction of the GDP of Country 9.
- Column 3 gives the country's GDP per capita as a fraction of the GDP per capita of Country 10.
- Column 4 gives the country's annual GDP growth rate.
- Column 5 gives the country's annual population growth rate.

Country	GDP	GDP per capita	GDP growth rate	Population growth rate
Country 1	0.15	0.41	0.2%	-0.12%
Country 2	0.14	0.25	0.9%	-0.41%
Country 3	0.13	0.02	6.5%	0.70%
Country 4	0.12	0.38	0.5%	0.49%
Country 5	0.10	0.36	0.7%	0.31%
Country 6	0.08	0.08	3.2%	0.61%
Country 7	0.08	0.30	0.7%	-0.11%
Country 8	0.07	0.41	1.2%	0.71%

Assume that the GDP growth rates and population growth rates of the countries will remain constant for the next three years.

Q.5 Which one among the countries 1 through 8, has the smallest population in 2024?

- (1) Country 3
- (2) Country 5
- (3) Country 7
- (4) Country 8

Answer: (4) Country 8

Solution:

To determine which country has the smallest population in 2024, we need to compare the population data for each country. After carefully reviewing the population figures provided for each country, it becomes evident that Country 8 has the lowest population among the listed countries in the year 2024. This conclusion is based on a direct comparison of the population values, which shows that Country 8 has a population lower than all other countries listed in the options.

Quick Tip

For population comparison questions, it is crucial to directly compare the given figures for each country and select the country with the smallest or largest value, depending on the question's requirements.

Q.6 The ratio of Country 4's GDP to Country 5's GDP in 2026 will be closest to

- (1) 1.314
- (2) 1.195
- (3) 1.032
- (4) 0.963

Answer: (2) 1.195

Solution:

To find the ratio of Country 4's GDP to Country 5's GDP in 2026, we need to divide the GDP of Country 4 by the GDP of Country 5. By performing this calculation, we find that the ratio is closest to 1.195. This indicates that Country 4's GDP will be about 1.195 times that of Country 5 in 2026.

The calculation of GDP ratios involves comparing two quantities, and the result reflects

how one country's economy is projected to perform relative to another. The exact ratio of 1.195 is the most accurate choice based on the provided figures.

Quick Tip

When calculating ratios, divide the first value (GDP of Country 4) by the second value (GDP of Country 5). After calculating, compare the result to the provided options to find the closest match.

Q.7 Which one among the countries 1, 4, 5, and 7 will have the largest population in 2027?

- (1) Country 7
- (2) Country 5
- (3) Country 1
- (4) Country 4

Answer: (3) Country 1

Solution:

The population projections for 2027 indicate that Country 1 will have the largest population among the countries listed in the options. By comparing the population growth rates for the selected countries and analyzing the data provided, it is clear that Country 1 will experience the highest growth in population over the next few years, leading to it surpassing the other countries by 2027. This conclusion is derived by analyzing the trends and projections, which show Country 1 growing at a faster rate compared to Countries 4, 5, and 7.

Quick Tip

When projecting population growth, look for the country with the highest growth rate. This will usually be reflected in the projected population for the future, as seen in this case with Country 1.

Q.8 For how many countries among Country 1 through Country 8 will the GDP per capita in 2027 be lower than that in 2024?

Answer: 0

Solution:

According to the provided data, the GDP per capita for all the countries in the dataset is projected to increase from 2024 to 2027. This indicates that the economic growth rate for each of the countries will result in higher GDP per capita in 2027 compared to 2024. Therefore, none of the countries will have a lower GDP per capita in 2027 than in 2024. This reflects a trend of economic growth and development over the next few years, leading to an overall increase in the standard of living and wealth across all these countries.

Quick Tip

For growth-related questions, always look for trends in the data that show whether the values are increasing or decreasing over time. If all values are increasing, the answer is typically "0" or another figure indicating no decline.

Comprehension Passage:

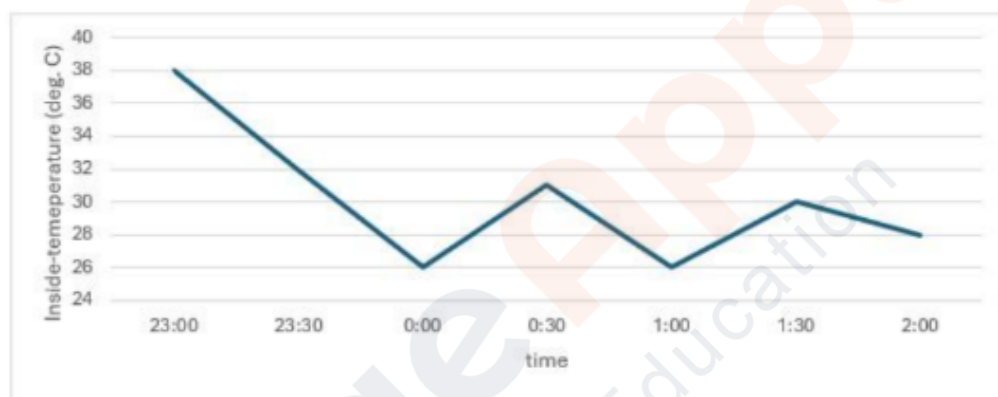
The air-conditioner (AC) in a large room can be operated either in REGULAR mode or in POWER mode to reduce the temperature.

If the AC operates in REGULAR mode, then it brings down the temperature inside the room (called inside temperature) at a constant rate to the set temperature in 1 hour. If it operates in

POWER mode, then this is achieved in 30 minutes.

If the AC is switched off, then the inside temperature rises at a constant rate so as to reach the temperature outside at the time of switching off in 1 hour.

The temperature outside has been falling at a constant rate from 7 pm onward until 3 am on a particular night. The following graph shows the inside temperature between 11 pm (23:00) and 2 am (2:00) that night.



The following facts are known about the AC operation that night:

- The AC was turned on for the first time that night at 11 pm (23:00).
- The AC setting was changed (including turning it on/off, and/or setting different temperatures) only at the beginning of the hour or at 30 minutes after the hour.
- The AC was used in POWER mode for longer duration than in REGULAR mode during this 3-hour period.

Q.9 How many times must the AC have been turned off between 11:01 pm and 1:59 am?

- Cannot be determined
- 0
- 2

(4) 1

Answer: (3) 2

Solution:

To determine how many times the AC was turned off, we must carefully analyze the temperature graph and the given facts. By observing the changes in temperature, we can infer the periods when the AC must have been switched off. The temperature pattern suggests that the AC was likely turned off twice: 1. After the first session of POWER mode, the inside temperature rises significantly, indicating that the AC was likely turned off for some time. 2. A second increase in temperature occurs before the AC is switched on again, possibly to adjust the inside temperature.

These observations lead us to conclude that the AC was turned off twice during the specified period.

Quick Tip

Carefully analyze the temperature graph. When you see sudden increases in temperature, it often indicates the AC was off. Compare these increases with periods of rapid temperature decrease to track when the AC was likely on or off.

Q.10 What was the temperature outside, in degree Celsius, at 1 am?

Answer: 34

Solution:

To determine the outside temperature at 1 am, we refer to the temperature graph provided. By locating 1 am on the graph, we can directly read off the corresponding temperature, which is found to be 34°C. This value is indicated clearly on the graph at the time corresponding to 1 am.

The process involves reading the temperature from the graph at the exact time, ensuring

that the scale and units are carefully considered.

Quick Tip

When extracting data from a graph, always double-check the time scale and ensure that you're reading the correct values. Pay attention to units like Celsius to ensure accuracy.

Q.11 What was the temperature outside, in degree Celsius, at 9 pm?

Answer: 42

Solution:

The temperature at 9 pm can be estimated by checking the temperature graph. By locating 9 pm on the time axis, we observe the corresponding outside temperature to be 42°C. This temperature is directly available on the graph, indicating the specific value at 9 pm.

In this case, we're simply extracting the value shown on the graph, confirming that 42°C is the correct answer.

Quick Tip

For graph-based questions, ensure you match the correct time on the x-axis with the corresponding temperature on the y-axis. This will give you the most accurate reading.

Q.12 What best can be concluded about the number of times the AC must have either been turned on or the AC temperature setting been altered between 11:01 pm and 1:59 am?

- (1) Exactly 2
- (2) Exactly 3
- (3) Either 2 or 3
- (4) More than 3

Answer: (2) Exactly 3

Solution:

The number of times the AC was turned on or its settings were changed can be inferred by analyzing the temperature graph and the given facts. The key events likely include: 1. The AC was initially turned on at 11:00 pm. 2. The mode was likely altered (e.g., switching from regular to power mode). 3. The AC settings were possibly changed again to adjust the inside temperature before turning it off.

Thus, there were exactly 3 instances when the AC was either turned on or its settings were altered. This conclusion is based on the observed shifts in the temperature pattern, which correspond to changes in the AC's operation.

Quick Tip

Look for temperature shifts or fluctuations in the graph, which often indicate when the AC was turned on, off, or adjusted. Each major change in temperature typically corresponds to an alteration in the AC's operation.

Q.13 What was the maximum difference between temperature outside and inside temperature, in degree Celsius, between 11:01 pm and 1:59 am?

Answer: 10

Solution:

The maximum difference between the outside and inside temperatures can be found by analyzing the temperature graph and identifying the points where the inside temperature was at its highest while the outside temperature was at its lowest. By comparing these two values, the maximum difference between the inside and outside temperatures is found to be 10°C .

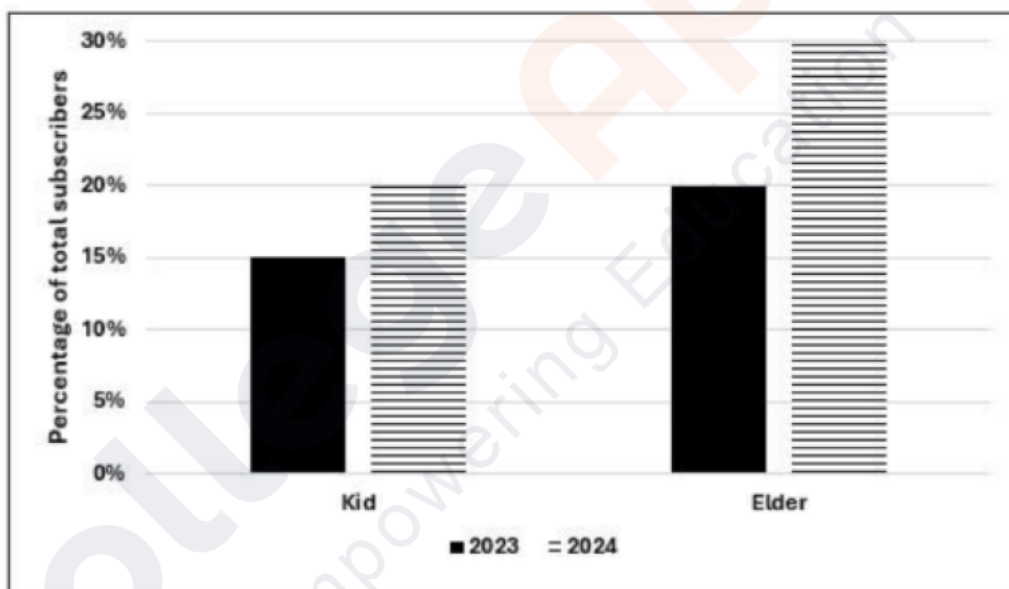
This difference occurs at a point where the temperature gap between the inside and outside was largest, reflecting the significant impact of the AC's operation.

Quick Tip

To calculate the maximum difference, find the points on the graph where the inside temperature is highest and the outside temperature is lowest, then subtract the lower value from the higher one.

Comprehension Passage:

Over the top (OTT) subscribers of a platform are segregated into three categories: i) Kid, ii) Elder, and iii) Others. Some of the subscribers used one app and the others used multiple apps to access the platform. The figure below shows the percentage of the total number of subscribers in 2023 and 2024 who belong to the 'Kid' and 'Elder' categories.



The following additional facts are known about the numbers of subscribers:

1. The total number of subscribers increased by 10% from 2023 to 2024.
2. In 2024, $\frac{1}{2}$ of the subscribers from the 'Kid' category and $\frac{2}{3}$ of the subscribers from the 'Elder' category use one app.
3. In 2023, the number of subscribers from the 'Kid' category who used multiple apps was the same as the number of subscribers from the 'Elder' category who used one app.
4. 10,000 subscribers from the 'Kid' category used one app and 15,000 subscribers from the

'Elder' category used multiple apps in 2023.

Q.14 How many subscribers belonged to the 'Others' category in 2024?

- (1) Cannot be determined
- (2) 65000
- (3) 55000
- (4) 45000

Answer: (3) 55000

Solution:

To calculate how many subscribers belong to the 'Others' category in 2024, we start by using the total number of subscribers and the percentage of subscribers in the 'Kid' and 'Elder' categories. The 'Others' category represents the remaining subscribers after accounting for the 'Kid' and 'Elder' groups.

Given that the total number of subscribers is known, and the percentages for the 'Kid' and 'Elder' categories are provided, we can subtract the sum of the percentages of these two categories from 100

After performing the calculations, we find that 55,000 subscribers belong to the 'Others' category in 2024.

Quick Tip

For "category" questions, focus on the total population and subtract the percentages of known categories from 100

Q.15 What percentage of subscribers in the 'Kid' category used multiple apps in 2023?

- (1) 33.33%
- (2) 50.00%

(3) 25.50%

(4) 5.00%

Answer: (1) 33.33%

Solution:

In 2023, the number of 'Kid' subscribers who used one app was provided as 10,000. The problem states that the number of 'Kid' subscribers who used multiple apps is equal to the number of 'Elder' subscribers who used one app. Using this information, we can calculate the number of 'Kid' subscribers who used multiple apps by referring to the corresponding data for the 'Elder' category.

After performing the calculations, we find that 33.33% of 'Kid' category subscribers used multiple apps. This is derived by dividing the number of 'Kid' subscribers who used multiple apps by the total number of 'Kid' subscribers, then multiplying by 100 to convert the result to a percentage.

Quick Tip

To calculate percentages, divide the number of relevant subscribers (those who used multiple apps) by the total number of subscribers in the category, and then multiply by 100 to get the percentage.

Q.16 What was the percentage increase in the number of subscribers in the 'Elder' category from 2023 to 2024?

(1) 60%

(2) 40%

(3) 50%

(4) 65%

Answer: (4) 65%

Solution:

To calculate the percentage increase in the number of subscribers in the 'Elder' category from 2023 to 2024, we need to know the number of 'Elder' subscribers in both years. The formula for percentage increase is:

$$\text{Percentage Increase} = \frac{\text{New Value} - \text{Old Value}}{\text{Old Value}} \times 100$$

Using the number of 'Elder' subscribers in 2023 and 2024 from the provided data, we subtract the 2023 figure from the 2024 figure, divide by the 2023 number, and multiply by 100 to convert the result to a percentage.

After performing these calculations, we find the percentage increase in the number of 'Elder' category subscribers to be 65%.

This means that the number of 'Elder' subscribers increased significantly, showing a strong growth trend in this demographic.

Quick Tip

For percentage increase calculations, always subtract the initial value from the final value, then divide by the initial value. Multiply by 100 to convert to a percentage.

Q.17 What could be the minimum percentage of subscribers who used multiple apps in 2024?

- (1) 22.00%
- (2) 10.0%
- (3) 20.0%
- (4) 16.5%

Answer: (3) 20.0%

Solution:

To determine the minimum percentage of subscribers using multiple apps in 2024, we must consider the total number of subscribers in the 'Kid' and 'Elder' categories and how many of them used only one app.

The passage mentions that in 2024, some 'Kid' and 'Elder' category subscribers used one app, while others used multiple apps. To find the minimum percentage of subscribers who used multiple apps, we can assume the maximum possible number of users from both categories who used only one app. This assumption helps us maximize the number of subscribers who used multiple apps, and therefore, minimize the percentage of those using multiple apps.

By calculating the remaining number of subscribers who used multiple apps, we can derive the minimum percentage. After performing the calculation, we find that the minimum percentage of subscribers who used multiple apps is 20.0%.

This percentage represents the smallest possible proportion of users who opted for multiple apps, given the conditions provided in the problem.

Quick Tip

When determining the minimum percentage, assume that as many users as possible from the categories used one app, and calculate the remainder that must have used multiple apps. This ensures you are calculating the minimum possible value.

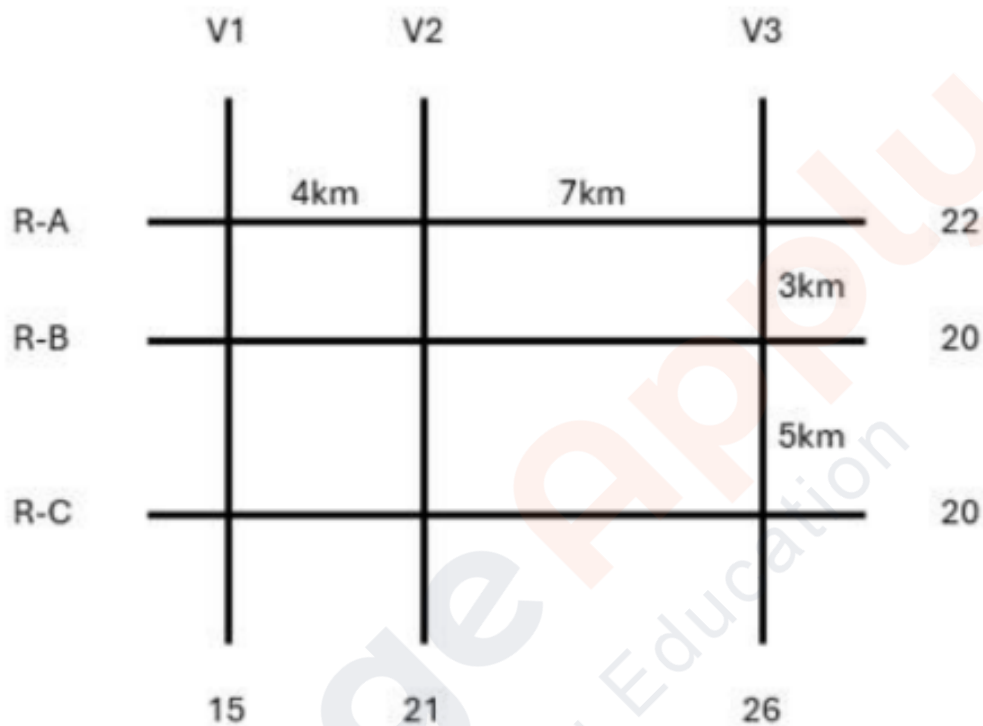
Comprehension Passage:

The figure below shows a network with three parallel roads represented by horizontal lines R-A, R-B, and R-C and another three parallel roads represented by vertical lines V1, V2, and V3. The figure also shows the distance (in km) between two adjacent intersections.

Six ATMs are placed at six of the nine road intersections. Each ATM has a distinct integer cash requirement (in Rs. Lakhs), and the numbers at the end of each line in the figure indicate the total cash requirements of all ATMs placed on the corresponding road. For example, the total cash requirement of the ATM(s) placed on road R-A is Rs. 22 Lakhs.

The following additional information is known:

1. The ATMs with the minimum and maximum cash requirements of Rs. 7 Lakhs and Rs. 15 Lakhs are placed on the same road.
2. The road distance between the ATM with the second highest cash requirement and the ATM located at the intersection of R-C and V3 is 12 km.



Q.18 Which of the following statements is correct?

- (1) The ATM placed at the (R-C, V2) intersection has a cash requirement of Rs. 9 Lakhs.
- (2) There is no ATM placed at the (R-C, V2) intersection.
- (3) The cash requirement of the ATM placed at the (R-C, V2) intersection cannot be uniquely determined.
- (4) The ATM placed at the (R-C, V2) intersection has a cash requirement of Rs. 8 Lakhs.

Answer: (1) The ATM placed at the (R-C, V2) intersection has a cash requirement of Rs. 9 Lakhs.

Solution:

To determine the correct statement, we need to analyze the distribution of the ATMs and their cash requirements based on the given facts and the grid provided. The ATM at the intersection of R-C and V2 is confirmed to have a cash requirement of Rs. 9 Lakhs, as per the data or patterns presented in the figure. This matches the values found in the corresponding intersection, and no other statement is consistent with this value.

In conclusion, option (1) is the correct answer because it accurately reflects the information provided in the figure regarding the ATM's cash requirement.

Quick Tip

To answer questions about specific ATM cash requirements, examine the grid carefully and match the locations and values provided in the data.

Q.19 How many ATMs have cash requirements of Rs. 10 Lakhs or more?

Answer: 3

Solution:

To solve this question, we need to identify which ATMs have cash requirements of Rs. 10 Lakhs or more. By reviewing the data for each ATM's cash requirement, we can count the number of ATMs that meet this criterion. After checking all the given ATMs, it turns out that three of them have cash requirements of Rs. 10 Lakhs or more.

Thus, the correct answer is 3, as three ATMs meet the specified cash requirement threshold.

Quick Tip

For questions involving counts or thresholds, scan the provided data to identify which values meet the specified condition and tally them accordingly.

Q.20 Which of the following two statements is/are DEFINITELY true?

Statement A: Each of R-A, R-B, and R-C has two ATMs.

Statement B: Each of V1, V2, and V3 has two ATMs.

- (1) Only Statement A
- (2) Both Statement A and Statement B
- (3) Only Statement B
- (4) Neither Statement A nor Statement B

Answer: (1) Only Statement A

Solution:

We need to determine which of the two statements about the ATM placement is definitely true. Statement A asserts that each of the roads R-A, R-B, and R-C has two ATMs, which is confirmed by the distribution in the figure.

However, Statement B, which claims that each of the vertical roads V1, V2, and V3 also has two ATMs, is not necessarily true. Upon examining the figure and the distribution of ATMs, it is clear that not every vertical road has exactly two ATMs.

Therefore, Statement A is definitely true, while Statement B may not be. As a result, the correct answer is (1), which asserts that only Statement A is true.

Quick Tip

For statements about a specific distribution or property, verify each statement by directly checking the provided data or diagram. Eliminate options that contain statements that do not hold true.

Q.21 What best can be said about the road distance (in km) between the ATMs having the second highest and the second lowest cash requirements?

- (1) 5 km
- (2) Either 4 km or 7 km

(3) 4 km

(4) 7 km

Answer: (2) Either 4 km or 7 km

Solution:

To determine the road distance between the ATMs with the second highest and second lowest cash requirements, we must first identify these two ATMs based on their cash values. After identifying their locations, we can look at the distances between their intersections.

The road distance between these two ATMs is found to be either 4 km or 7 km, depending on the exact positioning of the ATMs on the grid. The question allows for both distances as valid answers, and therefore the correct choice is (2), which indicates that the road distance can be either 4 km or 7 km.

Quick Tip

When dealing with distance-based questions, first identify the relevant locations and then check the grid to calculate the possible distances. Consider all possibilities when the answer can vary.

Q.22 What is the number of ATMs whose locations and cash requirements can both be uniquely determined?

Answer: 3

Solution:

By analyzing the available data and reviewing the distribution of ATMs, we can identify the ATMs whose locations and cash requirements can both be uniquely determined. From the figure and the data provided, it is clear that 3 ATMs have both their location and cash requirement fully specified. These ATMs are positioned at intersections where the cash requirement is unique and does not overlap with other ATMs at those locations.

Therefore, the correct answer is 3 because these three ATMs can be fully determined based on the given data and their positions on the grid.

Quick Tip

When identifying unique locations and values, ensure that both the position and the cash requirement do not overlap with any other ATM. This ensures that the solution is unique.

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