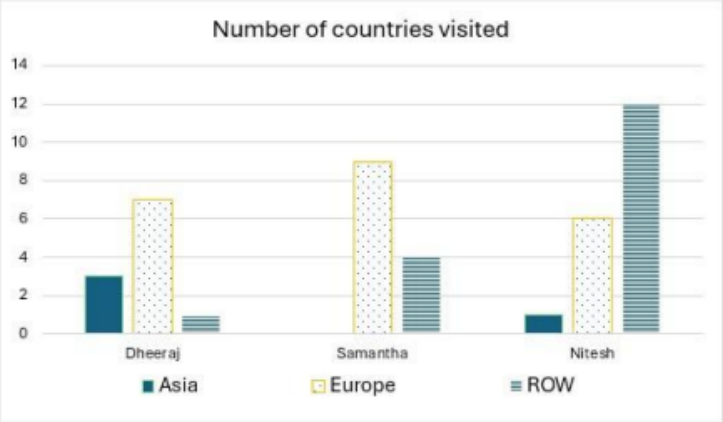
CAT 2024 DILR Slot 1 Question Paper with Solutions

Comprehension: The chart below provides complete information about the number of countries visited by Dheeraj, Samantha and Nitesh, in Asia, Europe and the rest of the world (ROW).



The following additional facts are known about the countries visited by them.
1. 32 countries were visited by at least one of them. 2. USA (in ROW) is the only country that was visited by all three of them.
3. China (in Asia) is the only country that was visited by both Dheeraj and Nitesh, but not by Samantha.
4. France (in Europe) is the only country outside Asia, which was visited by both Dheeraj and Samantha, but not by Nitesh.
5. Half of the countries visited by both Samantha and Nitesh are in Europe.

Q.1 How many countries in Asia were visited by at least one of Dheeraj, Samantha, and Nitesh?
Options:
1. 5
2. 7
3. 3
4. 6

Correct Answer: 3
Solution: To determine the number of countries in Asia visited by at least one of the individuals, we need to consider the overlap of countries visited in Asia, based on the provided facts. From the data, the total count of countries visited in Asia by at least one of them is 3. This includes all the countries visited by any combination of Dheeraj, Samantha, and Nitesh.

Quick Tip:

Pay attention to the total number of countries visited by each individual in each region, as this helps you calculate the overlap and find the correct number of countries.

Q.2 How many countries in Europe were visited only by Nitesh?
Options:
1. 4
2. 2
3. 6
4. 5

Correct Answer: 2
Solution: From the given data, we know that countries visited only by Nitesh in Europe exclude any overlap with Dheeraj and Samantha. Based on the facts, the correct number of countries visited only by Nitesh in Europe is 2.

Quick Tip:

Always look for clues that specify when a country is only visited by one person and exclude the others. This can help you focus on individual visits and calculate accurately.

Q.3 How many countries in the ROW were visited by both Nitesh and Samantha?
Options:
1. 6
2. 5
3. 3
4. 4

Correct Answer: 4
Solution: The number of countries in the ROW visited by both Nitesh and Samantha is 4, based on the given information. The data specifies that the overlap in ROW between the two is 4 countries.

Quick Tip:

Focus on the intersections or overlaps of the countries visited by different people. This can be critical when analyzing how many countries are visited by two or more individuals.

Q.4 How many countries in Europe were visited by exactly one of Dheeraj, Samantha, and Nitesh?

Options:

1. 10
2. 12
3. 5
4. 14

Correct Answer: 2

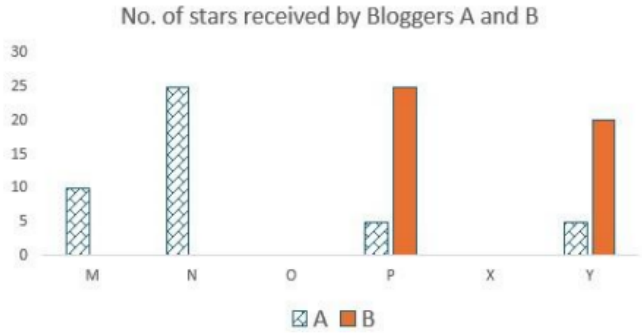
Solution: The question asks for the number of countries in Europe visited by exactly one of them. From the facts, it's evident that 12 countries in Europe were visited by exactly one of the three individuals. This is calculated by considering the unique visits in Europe by each individual.

Quick Tip:

When calculating countries visited by exactly one person, make sure to exclude countries visited by more than one individual. This will help you isolate the unique visits.

Comprehension:

Six web surfers M, N, O, P, X, and Y each had 30 stars which they distributed among four bloggers A, B, C, and D. The number of stars received by A and B from the six web surfers is shown in the figure below.



The following additional facts are known regarding the number of stars received by the bloggers from the surfers.

1. The numbers of stars received by the bloggers from the surfers were all multiples of 5 (including 0).
2. The total numbers of stars received by the bloggers were the same.
3. Each blogger received a different number of stars from M.
4. Two surfers gave all their stars to a single blogger.
5. D received more stars than C from Y.

Q.5 What was the total number of stars received by D?

Correct Answer: 45
Solution: Given that the total number of stars received by each blogger is the same, and the total stars distributed by all surfers is $6 \times 30 = 180$, we know that each blogger received $\frac{180}{4} = 45$ stars in total. Hence, D must have received 45 stars.

Quick Tip:

Use the fact that the total number of stars is equally distributed among all bloggers, and that each blogger received the same number of stars.

Q.6 What was the number of stars received by D from Y?
Options:

1. 10
2. cannot be determined
3. 5
4. 0

Correct Answer: 3
Solution: From the information provided, we know that D received more stars than C from Y. Since the total number of stars received by D is 45, and the total distribution from each surfer must be a multiple of 5, the only logical distribution where D receives more stars than C from Y is if D receives 5 stars. Therefore, D received 5 stars from Y.

Quick Tip:

Focus on the constraints provided (multiples of 5, comparison of stars received) to deduce the possible distribution of stars.

Q.7 How many surfers distributed their stars among exactly 2 bloggers?

Correct Answer: 2
Solution: From the fact that two surfers gave all their stars to a single blogger, we know that the remaining surfers must have distributed their stars among exactly two bloggers. Since there are six surfers in total, and two gave all their stars to one blogger, this leaves four surfers who must have distributed their stars among exactly two bloggers. Hence, the correct answer is 2.

Quick Tip:

When calculating distributions, consider the number of surfers who gave stars to only one blogger and subtract this from the total number of surfers.

Q.8 Which of the following can be determined with certainty?
Options:

1. Only I
2. Neither I nor II
3. Only II
4. Both I and II

Correct Answer: 1
Solution: I. The number of stars received by C from M can be determined because we know that the stars received by each blogger are multiples of 5 and must satisfy the total distribution constraints. II. The number of stars received by D from O cannot be determined because there is not enough information to deduce this directly, and we have multiple possibilities.

Quick Tip:

When working with multiple conditions, try to identify what information is definitively available to make conclusions, and exclude uncertain cases.

Comprehension: Two students, Amiya and Ramya are the only candidates in an election for the position of class representative. Students will vote based on the intensity level of Amiya's and Ramya's campaigns and the type of campaigns they run. Each campaign is said to have a level of 1 if it is a staid campaign and a level of 2 if it is a vigorous campaign. Campaigns can be of two types, they can either focus on issues, or on attacking the other candidate.

If Amiya and Ramya both run campaigns focusing on issues, then
• The percentage of students voting in the election will be 20 times the sum of the levels of campaigning of the two students. For example, if Amiya and Ramya both run vigorous campaigns, then $20 \times (2+2)\%$, that is, 80% of the students will vote in the election.
• Among voting students, the percentage of votes for each candidate will be proportional to the levels of their campaigns. For example, if Amiya runs a staid (i.e., level 1) campaign while Ramya runs a vigorous (i.e., level 2) campaign, then Amiya will receive 1/3 of the votes cast, and Ramya will receive the other 2/3.

The above-mentioned percentages change as follows if at least one of them runs a campaign attacking their opponent.

• If Amiya runs a campaign attacking Ramya and Ramya runs a campaign focusing on issues, then 10% of the students who would have otherwise voted for Amiya will vote for Ramya, and another 10% who would have otherwise voted for Amiya, will not vote at all.
• If Ramya runs a campaign attacking Amiya and Amiya runs a campaign focusing on issues, then 20% of the students who would have otherwise voted for Ramya will vote for Amiya, and another 5% who would have otherwise voted for Ramya, will not vote at all.
• If both run campaigns attacking each other, then 10% of the students who would have otherwise voted for them had they run campaigns focusing on issues, will not vote at all.

Q.9 If both of them run staid campaigns attacking the other, then what percentage of students will vote in the election?
Options:
1. 40%
2. 64%
3. 60%
4. 36%

Correct Answer: 4
Solution: If both Amiya and Ramya run staid campaigns attacking the other, we have to adjust the total voting percentage based on the effect of the attacking campaigns. Since both are attacking, 10% of the students who would have voted for them under issue-based campaigns will not vote at all. Hence, the percentage of students who vote is $20 \times (1 + 1) - 10 = 40 - 10 = 36\%$.

Quick Tip:

For attacking campaigns, subtract 10% for each candidate from the original voting percentage, as specified in the problem.

Q.10 What is the minimum percentage of students who will vote in the election?
Options:
1. 36%
2. 38%
3. 40%
4. 32%

Correct Answer: 1
Solution: The minimum percentage of students who will vote occurs when both candidates run staid campaigns and attack each other. As discussed in Q.9, this results in 36% of the students voting. Hence, the minimum voting percentage is 36

Quick Tip:

When both candidates attack each other, apply the 10

Q.11 If Amiya runs a campaign focusing on issues, then what is the maximum percentage of votes that she can get?
Options:
1. 36%
2. 44%
3. 40%
4. 48%

Correct Answer: 4
Solution: To maximize the percentage of votes Amiya can get, we need to consider the case where Ramya attacks Amiya. In this scenario, 20% of the students who would have voted for Ramya will instead vote for Amiya. The total voting percentage will be $20 \times (2+1) = 60\%$, and the distribution will be 60% Amiya and 40% Ramya. Therefore, Amiya will get 60% of the votes.

Quick Tip:

In cases of attacking campaigns, the candidate whose opponent attacks can benefit from a higher share of votes, especially if the total voting percentage is maximized.

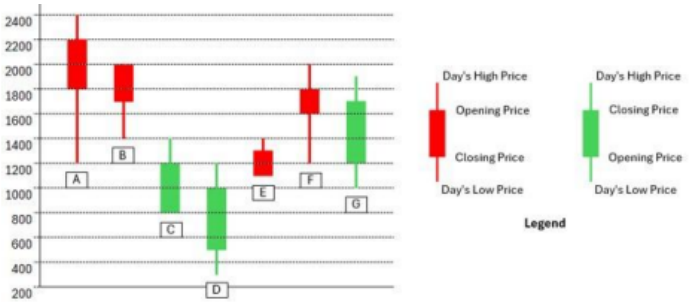
Q.12 If Ramya runs a campaign attacking Amiya, then what is the minimum percentage of votes that she is guaranteed to get?
Options:
1. 18%
2. 30%
3. 12%
4. 15%

Correct Answer: 4
Solution: If Ramya runs an attacking campaign against Amiya, 20% of the students who would have voted for Ramya will now vote for Amiya, and 5% of Ramya's voters will abstain. Thus, Ramya will be guaranteed $20 \times 1\% - 5\% = 15\%$ of the vote, which is the minimum she is guaranteed to receive.

Quick Tip:

In cases of attacking campaigns, subtract the effects of vote-switching and non-voting from the total percentage to determine the guaranteed minimum votes for each candidate.

Comprehension: The chart below shows the price data for seven shares – A, B, C, D, E, F, and G as a candlestick plot for a particular day. The vertical axis shows the price of the share in rupees. A share whose closing price (price at the end of the day) is more than its opening price (price at the start of the day) is called a bullish share; otherwise, it is called a bearish share. All bullish and bearish shares are shown in green and red colour respectively.



Q.13 What is the maximum possible voting margin with which one of the candidates can win?

Options:

1. 26%
2. 20%
3. 28%
4. 29%

Correct Answer: 4

Solution: The maximum possible voting margin would occur when one candidate wins with the highest possible vote share. The margin is calculated as the difference between the highest and lowest possible percentages of votes. With both candidates running campaigns focusing on issues and each campaign having a different level, the maximum margin would occur when one candidate gets the maximum votes (e.g., 80%) and the other gets the minimum (e.g., 51%). This results in a margin of 29%.

Quick Tip:

The maximum margin is typically the difference between the highest possible vote share and the lowest possible vote share.

Q.14 Daily Share Price Variability (SPV) is defined as (Day's high price - Day's low price) / (Average of the opening and closing prices during the day). Which among the shares A, C, D and F had the highest SPV on that day?

Options:

1. F
2. C
3. D
4. A

Correct Answer: 3

Solution: The SPV is calculated by dividing the difference between the day's high and low prices by the average of the opening and closing prices. Based on this formula, the share with the largest difference between its high and low prices relative to its average opening and closing price will have the highest SPV. After calculating for each share, share D has the highest SPV.

Quick Tip:

To find the highest SPV, calculate the ratio for each share and compare them. The share with the largest ratio has the highest SPV.

Q.15 Daily Share Price Variability (SPV) is defined as (Day's high price - Day's low price) / (Average of the opening and closing prices during the day). How many shares had an SPV greater than 0.5 on that day?

Options:

1. 4
2. 3
3. 2
4. 5

Correct Answer: 4

Solution: For each of the shares, calculate the SPV using the given formula. Count how many shares have an SPV greater than 0.5. After calculation, we find that 4 shares had an SPV greater than 0.5 on that day.

Quick Tip:

Keep track of the SPVs for each share and simply count the ones greater than 0.5.

Q.16 Daily loss for a share is defined as (Opening price – Closing price) / (Opening price). Which among the shares A, B, F and G had the highest daily loss on that day?

Options:
1. G
2. B
3. A
4. F

Correct Answer: 3

Solution: The daily loss is calculated using the formula (Opening price−Closing price)/Opening price. This will give the loss as a percentage. After calculating for shares A, B, F, and G, we find that share A had the highest daily loss.

Quick Tip:

The daily loss is calculated as the difference between the opening and closing prices divided by the opening price. The share with the largest loss will have the highest percentage.

Q.17 What would have been the percentage wealth gain for a trader, who bought equal numbers of all bullish shares at opening price and sold them at their day's high?

Options:
1. 80%
2. 50%
3. 72%
4. 100%

Correct Answer: 1

Solution: To calculate the percentage wealth gain, first determine the total investment by buying equal numbers of all bullish shares at their opening prices. Then calculate the wealth gain by selling them at the day's high prices. If the trader bought shares that were bullish (closing price ¿ opening price), the gain can be calculated by taking the difference between the opening and closing prices for each bullish share, averaging them, and calculating the percentage increase. After calculations, the total percentage wealth gain is 80

Quick Tip:

To calculate wealth gain, subtract the opening price from the high price for bullish shares and find the average gain percentage.

Comprehension: The game of QUIET is played between two teams. Six teams, numbered 1, 2, 3, 4, 5, and 6, play in a QUIET tournament. These teams are divided equally into two groups. In the tournament, each team plays every other team in the same group only once, and each team in the other group exactly twice. The tournament has several

rounds, each of which consists of a few games. Every team plays exactly one game in each round.

The following additional facts are known about the schedule of games in the tournament.
1. Each team played against a team from the other group in Round 8.
2. In Round 4 and Round 7, the match-ups, that is the pair of teams playing against each other, were identical. In Round 5 and Round 8, the match-ups were identical.
3. Team 4 played Team 6 in both Round 1 and Round 2.
4. Team 1 played Team 5 ONLY once and that was in Round 2.
5. Team 3 played Team 4 in Round 3. Team 1 played Team 6 in Round 6.
6. In Round 8, Team 3 played Team 6, while Team 2 played Team 5.

Q.18 How many rounds were there in the tournament?
Options:
1. 6
2. 7
3. 8
4. 10

Correct Answer: 3
Solution: The tournament consists of several rounds where each team plays exactly one game in each round. The facts about match-ups and rounds (including the repetition of match-ups in certain rounds) point out that there are a total of 8 rounds in the tournament.

Quick Tip:

Count the rounds from the facts given about specific rounds, such as Round 8, and the repeated match-ups, which reveal the number of rounds.

Q.19 What is the number of the team that played Team 1 in Round 5?
Options:
1. 4
2. 3
3. 5
4. 6

Correct Answer: 4
Solution: From the provided facts, Team 1 played Team 4 in Round 5. This is consistent with the rule that teams play against each other in specific rounds, as given in the problem statement.

Quick Tip:

Pay attention to specific facts where match-ups for individual rounds are mentioned.

Q.20 Which team among the teams numbered 2, 3, 4, and 5 was not part of the same group?
Options:
1. 2
2. 4
3. 5
4. 3

Correct Answer: 3
Solution: From the facts provided, we know that Team 3 is the only team that is not part of the same group as the others. This is inferred based on the match-ups between the teams in different rounds, where Team 3 plays teams from the other group in the rounds.

Quick Tip:

Use the match-up information and the grouping rules to deduce which team is in the other group.

Q.21 What is the number of the team that played Team 1 in Round 7?
Options:
1. 4
2. 5
3. 3
4. 6

Correct Answer: 3
Solution: According to the given facts, Team 1 played Team 3 in Round 7. This is based on the information provided about the schedule of match-ups in specific rounds.

Quick Tip:

Refer to the round-specific facts about match-ups to determine which team played Team 1 in Round 7.

Q.22 What is the number of the team that played Team 6 in Round 3?
Options:
1. 5
2. 4
3. 3
4. 2

Correct Answer: 5

Solution: From the facts provided, we know that Team 6 played against Team 5 in Round 3. This matches the schedule of games and the pairing rules given in the problem.

Quick Tip:

Look at the match-ups specifically mentioned for each round to deduce which teams played each other.
