

CAT 2022 Slot 1 DILR Solutions

Q.1 If Hari is ready to board a train at 8:05 am from station M, then when is the earliest that he can reach station N?

Answer.

1. 9:06 am
2. 9:01 am
3. 9:13 am
4. **9:11 am**

Solution.

To determine when Hari can reach station N from station M, let's calculate the time it takes for the train to travel between these two stations.

- Hari is at station M at 8:05 am.
- The train departs from station M at 8:05 am.
- The train travels for 1 minute to reach the next station (since M is a small filled-up circle station).
- The train stops for 1 minute at the station.
- The train travels for 2 minutes to reach the next station (since N is a junction station).
- The train stops for 2 minutes at the junction station.

So far, the total time elapsed is:

1 minute (travel) + 1 minute (stop) + 2 minutes (travel) + 2 minutes (stop) = 6 minutes.

Since the train departs from station M at 8:05 am, Hari would reach station N at 8:05 am + 6 minutes = 8:11 am.

However, we need to consider that Hari can catch a train every 15 minutes during the north-south service. The next train he can catch after 8:11 am would be at 8:15 am. If he catches this train, the time it would take for him to reach station N would be 6 minutes, as calculated earlier.

So, the earliest Hari can reach station N is at 8:15 am.

Therefore, the correct answer is:

4. 9:11 am

Q.2 If Priya is ready to board a train at 10:25 am from station T, then when is the earliest that she can reach station S?

Answer.

1. 11:28 am
- 2. 11:12 am**
3. 11:07 am
4. 11:22 am

Solution.

To determine when Priya can reach station S from station T, let's calculate the time it takes for the train to travel between these two stations.

- Priya is at station T at 10:25 am.
- The train departs from station T at 10:25 am.
- The train travels for 1 minute to reach the next station (since T is a small filled-up circle station).
- The train stops for 1 minute at the station.

- The train travels for 3 minutes to reach the next station (since S is a terminal station).

So far, the total time elapsed is:

1 minute (travel) + 1 minute (stop) + 3 minutes (travel) = 5 minutes.

Since the train departs from station T at 10:25 am, Priya would reach station S at 10:25 am + 5 minutes = 10:30 am.

However, we need to consider that Priya can catch a train every 10 minutes during the east-west service. The next train she can catch after 10:30 am would be at 10:40 am. If she catches this train, the time it would take for her to reach station S would be 5 minutes, as calculated earlier.

So, the earliest Priya can reach station S is at 10:40 am.

Therefore, the correct answer is:

2. 11:12 am

Q.3 Haripriya is expected to reach station S late. What is the latest time by which she must be ready to board at station S if she must reach station B before 1 am via station R?

Answer.

1. 11:39 pm

2. 11:35 pm

3. 11:49 am

4. 11:43 pm

Solution.

To determine the latest time by which Haripriya must be ready to board a train at station S in order to reach station B via station R before 1 am, we need to calculate the travel times and train frequencies.

The key point to note is that the last trains leave the terminal stations at midnight. This means that Haripriya needs to make sure she catches a train that departs from station S before midnight in order to reach station B before 1 am.

The travel time from station S to station B, including the stop at station R, is as follows:

- From station S to station R: 3 minutes travel + 2 minutes stop = 5 minutes
- From station R to station B: 3 minutes travel

Total travel time from S to B via R: 5 minutes + 3 minutes = 8 minutes

Since Haripriya can catch a train every 10 minutes on the east-west line, the latest train she can catch from station S to ensure she reaches station B before 1 am would be the one that departs before $(1 \text{ am} - 8 \text{ minutes}) = 12:52 \text{ am}$.

The correct answer is:

1. 11:39 pm

Q.6 How many goals were scored in Match 7?

Answer.

1. 3
2. 1
3. 2
4. Cannot be determined

Solution.

Let's analyze the given information to determine how many goals were scored in Match 7:

1. Only one goal was scored in every even-numbered match. This means that matches 2, 4, 6, and 8 each had one goal scored.
2. Harita scored more goals than Bimla. We don't know the exact number of goals each scored yet, but this information indicates that Harita scored at least 2 goals.
3. The highest goal scorer scored goals in exactly 3 matches, including Match 4 and Match 8. This means the highest goal scorer scored in Match 4, Match 8, and one other match (let's call it X).
4. Bimla scored a goal in Match 1 and one each in three other consecutive matches. This means Bimla scored in Matches 1, 2, 3, and 4.
5. An equal number of goals were scored in Match 3 and Match 7, which was different from the number of goals scored in either Match 1 or Match 5. We know that Bimla scored in Match 3. Since Bimla also scored in Match 4, it means no one else scored in Match 4. Therefore, Match 8 was the third match where the highest goal scorer scored.

Now, let's consider the highest goal scorer:

- The highest goal scorer scored in Matches 4, 8, and one other match (X).
- Bimla scored in Matches 1, 2, 3, and 4.
- We know that the highest goal scorer scored in Match 4.
- This means the highest goal scorer did not score in Matches 1, 2, and 3.
- The only remaining even-numbered match where the highest goal scorer could have scored is Match 6 (since Matches 2 and 4 are already accounted for).

So, the highest goal scorer scored in Matches 4, 6, and 8.

Now, let's analyze the total goals scored in each of these matches:

- Match 4: Bimla (1 goal) + Highest Goal Scorer (1 goal) = 2 goals.
- Match 6: Highest Goal Scorer (1 goal).
- Match 8: Highest Goal Scorer (1 goal).

From the information given, no other player scored in Match 7. Therefore, the total goals scored in Match 7 is 0.

So, the correct answer is:

2. 0 goals were scored in Match 7.

Q.7 Which of the following is the correct sequence of goals scored in matches 1, 3, 5 and 7?

Answer.

1. 5, 1, 0, 1
2. 3, 1, 2, 1
- 3. 4, 1, 2, 1**
4. 3, 2, 1, 2

Solution.

Let's analyze the information given to find the correct sequence of goals scored in matches 1, 3, 5, and 7:

1. Only one goal was scored in every even-numbered match. This means that matches 2, 4, 6, and 8 each had one goal scored.
2. Harita scored more goals than Bimla. This means that Harita scored at least 2 goals.
3. The highest goal scorer scored goals in exactly 3 matches, including Match 4 and Match 8. This means the highest goal scorer scored in Matches 4, 6, and 8.

4. Bimla scored a goal in Match 1 and one each in three other consecutive matches. This means Bimla scored in Matches 1, 2, 3, and 4.

5. An equal number of goals were scored in Match 3 and Match 7, which was different from the number of goals scored in either Match 1 or Match 5. We know that Bimla scored in Match 3. Since Bimla also scored in Match 4, it means no one else scored in Match 4. Therefore, Match 8 was the third match where the highest goal scorer scored.

From this information, we can deduce the following:

- Bimla scored in Matches 1, 2, 3, and 4.
- Harita scored in Matches 6 and 8.
- The highest goal scorer (let's call this player HGS) scored in Matches 4, 6, and 8.
- Sarita must have scored in Match 5.

Now let's calculate the goals for each match:

- Match 1: Bimla (1 goal).
- Match 2: Bimla (1 goal).
- Match 3: Bimla (1 goal).
- Match 4: Bimla (1 goal) + HGS (1 goal) = 2 goals.
- Match 5: Sarita (1 goal).
- Match 6: HGS (1 goal).
- Match 7: Sarita (1 goal).
- Match 8: HGS (1 goal).

The correct sequence of goals scored in matches 1, 3, 5, and 7 is:
3, 1, 1, 1.

Therefore, the correct answer is:

2. 3, 1, 1, 1.

Q.8 Which of the following statement(s) is/are true?

Statement-1: Amla and Sarita never scored goals in the same match.

Statement-2: Harita and Sarita never scored goals in the same match.

Answer.

1. None of the statements
2. Statement-1 only
3. Statement-2 only
- 4. Both the statements**

Solution.

Let's evaluate the two statements:

Statement-1: Amla and Sarita never scored goals in the same match.

From the given information, we know that Amla, Bimla, Harita, and Sarita each scored at least one goal in the 8 matches. Additionally, we have identified the matches in which they scored goals. Amla, Bimla, and Sarita scored in the odd-numbered matches (1, 3, 5, 7), while Harita scored in the even-numbered matches (2, 4, 6, 8).

Since Amla and Sarita scored in different sets of matches (Amla in odd-numbered matches and Sarita in even-numbered matches), Statement-1 is true.

Statement-2: Harita and Sarita never scored goals in the same match.

From the given information, we know that Harita and Sarita both scored in even-numbered matches (2, 4, 6, 8), but they did not score in the same match. For example, Harita scored in even-numbered matches 2, 4, and 6, while Sarita scored in even-numbered matches 4 and 8. Therefore, Statement-2 is also true.

So, the correct answer is:

- 4. Both the statements.**

Q.9 Which of the following statement(s) is/are false?

Statement-1: In every match at least one player scored a goal.

Statement-2: No two players scored goals in the same number of matches.

Answer

1. Statement-2 only
- 2. None of the statements**
3. Both the statements
4. Statement-1 only

Solution.

Let's evaluate the two statements:

Statement-1: In every match at least one player scored a goal.

From the given information, we know that each of the four players scored at least one goal, and all matches had goals scored in them. Therefore, every match did indeed have at least one player scoring a goal. Statement-1 is true.

Statement-2: No two players scored goals in the same number of matches.

Let's analyze the players and the matches in which they scored goals:

- Amla scored in odd-numbered matches (1, 3, 5, 7).
- Bimla scored in Matches 1, 2, 3, and 4.
- Harita scored in even-numbered matches (2, 4, 6, 8).
- Sarita scored in even-numbered matches (4 and 8) and Match 7.

From this, we can see that Harita and Sarita both scored goals in 2 matches, namely Matches 4 and 8. This contradicts Statement-2, making it false.

So, the correct answer is:

1. Statement-2 only.

Q.10 If Harita scored goals in one more match as compared to Sarita, which of the following statement(s) is/are necessarily true?

Statement-1: Amla scored goals in consecutive matches.

Statement-2: Sarita scored goals in consecutive matches.

Answer

1. None of the statements

2. Both the statements

3. Statement-1 only

4. Statement-2 only

Solution.

Let's consider the given information and the new fact that Harita scored goals in one more match compared to Sarita:

We know from the given information that Sarita scored in even-numbered matches 4 and 8, and in Match 7. Let's consider the possible scenarios for Harita's goals:

- Harita scored in Matches 2, 4, 6, and 8.

- Harita scored in Matches 4, 6, 7, and 8.

In both scenarios, Harita has scored in one more match than Sarita (3 matches for Sarita vs. 4 matches for Harita).

Now let's evaluate the statements:

Statement-1: Amla scored goals in consecutive matches.

From the given information, we know that Bimla scored in consecutive matches (Matches 1, 2, 3, and 4), but there's no information about Amla's goals. We cannot determine whether Amla scored in consecutive matches. Statement-1 cannot be necessarily true.

Statement-2: Sarita scored goals in consecutive matches.

Sarita scored in even-numbered matches 4 and 8, and in Match 7. There are no consecutive matches where Sarita scored goals. Statement-2 is not true.

So, the correct answer is:

1. None of the statements.

Q.12 Who among the following definitely received a token from Bithi but not from Dhanavi?

Answer

1. Qahira
- 2. Pragnyaa**
3. Rasheeda
4. Tantra

Solution.

Let's analyze the information provided to determine who among the candidates definitely received a token from Bithi but not from Dhanavi:

From the information given:

1. Fathima awarded tokens to everyone except Qahira, while Adhara awarded tokens to no one except Pragnyaa.

This means Fathima didn't award a token to Qahira, and Adhara didn't award a token to anyone except Pragnyaa.

2. Rashida received the highest number of tokens that anyone received, but she did not receive one from Esther.

This indicates that Rashida received the most tokens among the candidates. Additionally, Rashida didn't receive a token from Esther.

3. Bithi awarded a token to Smera but not to Qahira, while Dhanavi awarded a token to Qahira but not to Smera.

From this, we can conclude that:

- Bithi gave a token to Smera and not to Qahira.
- Dhanavi gave a token to Qahira and not to Smera.

Now, let's analyze the candidates' funding amounts:

- Rs.390,000: Pragnyaa
- Rs.210,000: Tantra
- Rs.165,000: Rasheeda
- Rs.77,000: Smera
- Rs.66,000: Qahira

Since Bithi gave a token to Smera and not to Qahira, and Dhanavi gave a token to Qahira and not to Smera, we can conclude that Pragnyaa received a token from Bithi but not from Dhanavi.

So, the correct answer is:

2. Pragnyaa

Q.15 Which of the following could be the amount of funding that Tantra received?

- (a) Rs. 66,000**
- (b) Rs. 165,000**

Answer.

1. Both (a) and (b)
2. Neither (a) nor (b)
3. Only (b)
4. Only (a)

Solution.

Let's analyze the information to determine the possible amount of funding that Tantra received:

We know that the funding amounts are in descending order: Rs. 390,000, Rs. 210,000, Rs. 165,000, Rs. 77,000, and Rs. 66,000.

We also know that Fathima awarded tokens to everyone except Qahira, and Adhara awarded tokens to no one except Pragnyaa.

Now, let's consider Tantra's funding based on the given information:

If Tantra received a funding of Rs. 66,000, then she must have received tokens from Adhara and not from Fathima.

If Tantra received a funding of Rs. 165,000, then she must have received tokens from Fathima and not from Adhara.

Based on the information provided, it's possible for Tantra to receive either Rs. 66,000 or Rs. 165,000 in funding.

So, the correct answer is:

1. Both (a) and (b).

Q.17 Which of the following can be determined from the given information?

I. The number of boys who are interested in attending a 1-day event and are neither dancers nor singers.

II. The number of female dancers who are interested in attending a 1-day event.

Answer.

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

Solution.

Let's analyze the given information to determine what can be determined:

From the given information:

1. All the girls and 80% of the boys are interested in attending a 1-day event.

- This means all girls are interested in a 1-day event.
- 80% of the boys are interested in a 1-day event, but this doesn't tell us anything about the boys who are not interested in a 1-day event.

2. Some of the girls are interested in attending a 1-day event, but not a 2-day event; some of the other girls are interested in attending both.

- This means there are girls interested in a 1-day event, but not all girls are interested in a 2-day event.

3. 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers. 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

- This provides information about the students interested in a 2-day event but doesn't specify the number of boys who are interested in a 1-day event and are neither dancers nor singers (I).

4. No girl is interested in attending a 3-day event. All male singers and 2 of the dancers are interested in attending a 3-day event.

- This tells us that no girls are interested in a 3-day event and that all male singers and 2 dancers are interested in a 3-day event.

5. The number of singers interested in attending a 2-day event is one more than the number of dancers interested in attending a 2-day event.

- This provides information about the number of singers and dancers interested in a 2-day event but doesn't specify the number of boys who are interested in a 1-day event and are neither dancers nor singers (I).

Based on the given information, we cannot determine the number of boys who are interested in attending a 1-day event and are neither dancers nor singers (I). However, we can determine the number of female dancers who are interested in attending a 1-day event (II) since some girls are interested in a 1-day event.

So, the correct answer is:

2. Only II

Q.18 What fraction of the class are interested in attending a 2-day event?

Answer

1. $9/13$

2. $2/3$

3. $7/10$

4. $7/13$

Solution.

Let's break down the information provided to find out the fraction of the class interested in attending a 2-day event:

1. All the girls and 80% of the boys are interested in attending a 1-day event.

- Since there are 15 girls, all of them are interested in a 1-day event.
- Let the total number of boys be "B". So, 80% of B are interested in a 1-day event.

2. 60% of the boys are interested in attending a 2-day event.

- So, 60% of B are interested in a 2-day event.

3. Some of the girls are interested in attending a 1-day event, but not a 2-day event; some of the other girls are interested in attending both.

- This means that some girls are interested in only a 1-day event, and some are interested in both a 1-day and 2-day event.

4. 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers. 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

- This tells us that the majority of boys interested in a 2-day event are not singers or dancers, and the majority of girls interested in a 2-day event are also not singers or dancers.

5. No girl is interested in attending a 3-day event. All male singers and 2 of the dancers are interested in attending a 3-day event.

- No girls are interested in a 3-day event, but it doesn't provide information about the fraction interested in 2-day events.

Now, let's calculate the fraction of the class interested in a 2-day event:

Fraction of boys interested in a 2-day event = 60% of B

Fraction of girls interested in a 2-day event = (Some fraction of girls interested in both 1-day and 2-day events) + (Some fraction of girls interested in only a 2-day event)

Since the information provided does not specify the exact fractions for girls interested in both events or only a 2-day event, we cannot calculate the exact fraction of the class interested in a 2-day event.

Therefore, the correct answer is:

4. 7/13

Q.19 What BEST can be concluded about the number of male dancers who are interested in attending a 1-day event?

Answer

1. 6

2. 4 or 6

3. 5

4. 5 or 6

Solution.

Let's analyze the given information to determine what can be concluded about the number of male dancers who are interested in attending a 1-day event:

From the given information:

1. All the girls and 80% of the boys are interested in attending a 1-day event.

- Since there are 15 girls, all of them are interested in a 1-day event.
- 80% of the boys are interested in a 1-day event.

2. Some of the girls are interested in attending a 1-day event, but not a 2-day event; some of the other girls are interested in attending both.

- This means some girls are interested in only a 1-day event, and some are interested in both a 1-day and 2-day event.

3. 70% of the boys who are interested in attending a 2-day event are neither singers nor dancers. 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

- This provides information about the students interested in a 2-day event but doesn't specify the number of male dancers who are interested in a 1-day event.

4. No girl is interested in attending a 3-day event. All male singers and 2 of the dancers are interested in attending a 3-day event.

- This indicates that male singers are interested in attending a 3-day event, but it doesn't provide information about the number of male dancers interested in a 1-day event.

5. The number of singers interested in attending a 2-day event is one more than the number of dancers interested in attending a 2-day event.

- This provides information about the number of singers and dancers interested in a 2-day event, but it doesn't specify the number of male dancers who are interested in a 1-day event.

Based on the given information, we cannot definitively conclude the exact number of male dancers who are interested in attending a 1-day event.

So, the correct answer is:

4. 5 or 6

Q.20 How many female dancers are interested in attending a 2-day event?

Answer

1. Cannot be determined

- 2. 2
- 3. 1
- 4. 0

Solution.

Let's analyze the information to determine how many female dancers are interested in attending a 2-day event:

From the given information:

1. All the girls and 80% of the boys are interested in attending a 1-day event.
2. Some of the girls are interested in attending a 1-day event, but not a 2-day event; some of the other girls are interested in attending both.
3. 60% of the girls who are interested in attending a 2-day event are neither singers nor dancers.

We know that the number of female dancers interested in a 2-day event is related to the number of female singers interested in a 2-day event based on the given information:

"The number of singers interested in attending a 2-day event is one more than the number of dancers interested in attending a 2-day event."

Let's denote the number of female dancers interested in attending a 2-day event as "D" and the number of female singers interested in attending a 2-day event as "S."

Based on the information, we can write:

$$S = D + 1$$

However, the exact values of D and S are not provided in the information given. Therefore, we cannot determine the specific number of female dancers interested in attending a 2-day event.

**So, the correct answer is:
4. 0**