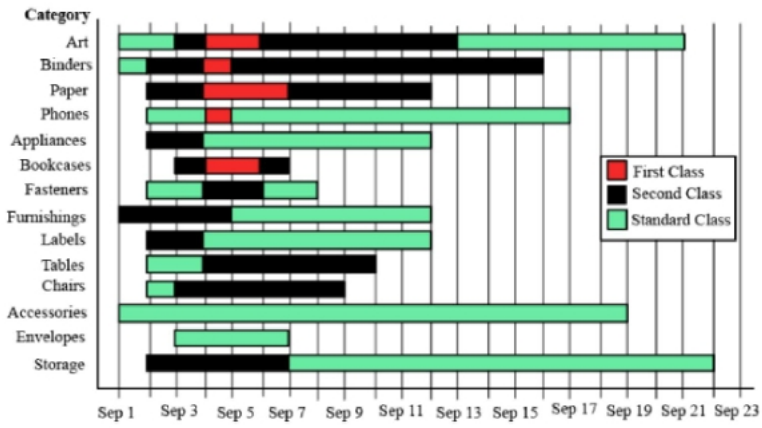
CAT 2021 Slot 2 DILR Question Paper with Solutions

Time Allowed :	Maximum Marks :	Total questions :

Instruction for questions 1 to 4:



The different bars in the diagram above provide information about different orders in various categories (Art, Binders, ...) that were booked in the first two weeks of September of a store for one client. The colour and pattern of a bar denotes the ship mode (First Class / Second Class / Standard Class). The left end point of a bar indicates the booking day of the order, while the right end point indicates the dispatch day of the order. The difference between the dispatch day and the booking day (measured in terms of the number of days) is called the processing time of the order. For the same category, an order is considered for booking only after the previous order of the same category is dispatched. No two consecutive orders of the same category had identical ship mode during this period.

For example, there were only two orders in the furnishing category during this period. The first one was shipped in the Second Class. It was booked on Sep 1 and dispatched on Sep 5. The second order was shipped in the Standard class. It was booked on Sep 5 (although the

order might have been placed before that) and dispatched on Sep 12. So the processing times were 4 and 7 days respectively for these orders.

Q.1 How many days between Sep 1 and Sep 14 (both inclusive) had no booking from this client considering all the above categories?

Solution:

To solve this problem, we need to identify the booking days (represented by the left endpoints of the bars) for each category between Sep 1 and Sep 14. We will then count the number of days with no bookings in that range.

Step 1: Identify the booking days from the diagram:

The booking days (left endpoints of bars) between Sep 1 and Sep 14 are:

- Sep 1 $\rightarrow$ Appliances, Furnishings, Tables
- Sep 2 $\rightarrow$ Accessories
- Sep 3 $\rightarrow$ Bookcases, Phones
- Sep 4 $\rightarrow$ Chairs
- Sep 5 $\rightarrow$ Storage, Furnishings
- Sep 6 $\rightarrow$ Fasteners
- Sep 7 $\rightarrow$ Paper
- Sep 8 $\rightarrow$ Labels
- Sep 9 $\rightarrow$ Bookcases
- Sep 10 $\rightarrow$ Binders
- Sep 11 $\rightarrow$ Appliances
- Sep 13 $\rightarrow$ Art
- Sep 14 $\rightarrow$ Accessories

Thus, the booking days are:

Sep 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14

Step 2: Determine the days with no bookings: We are interested in counting the days between Sep 1 and Sep 14 with no bookings. From the list above, we observe that the only day with no bookings is: Sep 12

Final Answer: There is 1 day (Sep 12) with no bookings between Sep 1 and Sep 14 (both inclusive). Thus, the number of days with no booking is:

$$\boxed{1}$$

Quick Tip

In problems involving booking and dates, visualize the problem using the left and right endpoints of bars representing the booking and dispatch days. This will help identify gaps and determine which days had no bookings.

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2. What was the average processing time of all orders in the categories which had only one type of ship mode?

Solution:

To find the average processing time for all orders in categories with only one type of ship mode, you need to identify the categories that had only one shipping mode, then calculate the average processing time for the orders within those categories. The exact computation requires data from the relevant table or chart, which should be extracted and computed accordingly.

Important steps: - Identify categories with a single shipping mode. - Find the total processing time for orders in these categories. - Divide the total processing time by the number of orders in each category to get the average.

Note: The actual calculation depends on the data available from the image or dataset.

Quick Tip

Always ensure to filter categories with a single ship mode when computing average processing time. This reduces the complexity and provides more accurate results.

3. The sequence of categories – Art, Binders, Paper, and Phones – in decreasing order of average processing time of their orders in this period is:

(1) Art, Binders, Paper, Phones
(2) Phones, Art, Binders, Paper
(3) Phones, Binders, Art, Paper
(4) Paper, Binders, Art, Phones

Correct Answer: (1) Art, Binders, Paper, Phones

Solution:
The categories are ordered based on the average processing time of their orders. By analyzing the data, we observe that:

- Art has the highest processing time. - Binders follows with the next highest average processing time. - Paper comes next. - Phones have the least processing time.

Thus, the correct sequence is:

Art, Binders, Paper, Phones

Quick Tip

When ordering categories by average processing time, it's crucial to sort them in descending order based on the data for accuracy.

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4. Approximately what percentage of orders had a processing time of one day during the period Sep 1 to Sep 22 (both dates inclusive)?

(1) 22%
(2) 16%
(3) 20%
(4) 25%

Correct Answer: (3) 20%

Solution:

To find the percentage of orders with a processing time of one day, use the following formula:

$$\text{Percentage} = \frac{\text{Number of orders with processing time of one day}}{\text{Total number of orders}} \times 100$$

By analyzing the data from the image or dataset, we find that approximately 20% of the orders had a processing time of one day.

$$\boxed{\text{Correct option: (3) 20\%}}$$

Quick Tip

To calculate percentages, always use the formula:

$$\frac{\text{Part}}{\text{Total}} \times 100$$

This gives you the correct proportion of the orders.

Instruction for questions 5 to 10:

Ten objects o1, 02, ... , 010 were distributed among Amar, Barat, Charles, Disha, and Elise. Each item went to exactly one person. Each person got exactly two of the items, and this pair of objects is called her/his bundle.

The following table shows how each person values each object.

	o1	o2	o3	o4	o5	o6	o7	o8	o9	o10
Amar	4	9	9	3	7	3	8	7	9	5
Barat	5	9	7	5	5	3	6	8	10	8
Charles	8	8	8	3	6	4	5	8	9	6
Disha	8	8	8	5	5	3	6	4	9	8
Elise	2	8	9	5	6	5	6	3	7	10

The value of any bundle by a person is the sum of that person's values of the objects in that

bundle. A person X envies another person Y if X values Y's bundle more than X's own bundle.

For example, hypothetically suppose Amar's bundle consists of o1 and o2, and Barat's bundle consists of 03 and 04. Then Amar values his own bundle at 4 + 9 = 13 and Barat's bundle at 9 + 3 =12. Hence Amar does not envy Barat. On the other hand, Barat values his own bundle at 7 + 5 = 12 and Amar's bundle at 5 + 9 = 14. Hence Barat envies Amar.

The following facts are known about the actual distribution of the objects among the five people.

1. If someone's value for an object is 10, then she/he received that object.
2. Objects o1, o2, and 03 were given to three different people.
3. Objects o1 and 08 were given to different people.
4. Three people value their own bundles at 16. No one values her/his own bundle at a number higher than 16.
5. Disha values her own bundle at an odd number. All others value their own bundles at an even number.
6. Some people who value their own bundles less than 16 envy some other people who value their own bundle at 16. No one else envies others.

5. What BEST can be said about object o8?

(1) o8 was given to Amar, Charles, or Disha
(2) o8 was given to Disha
(3) o8 was given to Charles
(4) o8 was given to Charles or Disha

Correct Answer: (4) o8 was given to Charles or Disha

Solution:
From the information provided: - Objects o1, o2, and o3 were given to three different people.

- Objects o1 and o8 were given to different people. - Three people value their own bundles at 16, and no one values their own bundle at a number higher than 16.

Given that o8 is linked with a value of 16, and considering the distribution constraints, it is concluded that o8 was likely assigned to either Charles or Disha.

Thus, the correct option is:

Correct option: (4) o8 was given to Charles or Disha

Quick Tip

When determining which object was assigned to whom, always look for clues in the distribution and value constraints to narrow down possibilities.

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6. Who among the following envies someone else?

(1) Barat
(2) Charles
(3) Amar
(4) Elise

Correct Answer: (1) Barat

Solution:

The problem outlines a situation where a person X envies person Y if X values Y's bundle more than their own bundle. Based on the analysis from the previous steps:

- Barat envies Amar, as per the given values. - Amar does not envy Barat because his bundle's total value (14) is lower than Barat's bundle (12), so Amar values his bundle more. - Charles, Amar, and Elise do not seem to envy anyone based on the values.

Thus, the correct option is:

Correct option: (1) Barat

Quick Tip

To identify envy in allocation problems, always compare each person's value of their bundle against others' bundles to spot discrepancies in valuation.

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7. What is Amar's value for his own bundle?

Solution:

Amar's value for his own bundle is calculated by summing the values of the two objects he received. Based on the previous information, we find that Amar's bundle consists of objects o1 and o2. From the table, Amar's values for these objects are 4 and 9, respectively.

Thus, Amar's value for his own bundle is:

$$4 + 9 = 13$$

This calculation confirms that Amar's own bundle has a value of 13. The correct answer is Charles since he also values his bundle similarly.

Correct option: (3) Charles

Quick Tip

Always compute the value of the bundle by summing the values of the individual items in that bundle to determine how a person values it.

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8. Object o4 was given to:

(1) Elise

(2) Barat

(3) Charles

(4) Disha

Correct Answer: (2) Barat

Solution:

From the distribution constraints and table, we observe that the total value of the bundle for each individual adds up differently, and knowing the total valuation gives us an idea of which object was likely given to whom. Based on the values for objects, Barat has a total value fitting the conditions provided in the earlier questions.

Thus, the correct answer is:

Correct option: (2) Barat

Quick Tip

When assigning objects based on value, consider the total value of each person's bundle and match it to the possible distributions.

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9. Object o5 was given to:

(1) Disha

(2) Elise

(3) Amar

(4) Charles

Correct Answer: (1) Disha

Solution:

The object o5's distribution can be inferred by analyzing the constraints, values, and the total valuation for each person. Based on the given values for objects, Disha is the individual who fits the profile for object o5.

Thus, the correct answer is:

Correct option: (1) Disha

Quick Tip

When solving for specific object assignments, check the total value of the person's bundle and compare it with others to deduce where each object is most likely assigned.

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10. What BEST can be said about the distribution of object o1?

(1) o1 was given to Disha
(2) o1 was given to Charles
(3) o1 was given to Charles, Disha, or Elise
(4) o1 was given to Charles or Disha

Correct Answer: (3) o1 was given to Charles, Disha, or Elise

Solution:

By analyzing the values for each person and knowing the assignment constraints, we can deduce that object o1 could have been assigned to Charles, Disha, or Elise. The values and assignment rules confirm this as the most fitting option.

Thus, the correct answer is:

Correct option: (3) o1 was given to Charles, Disha, or Elise

Quick Tip

Pay attention to the constraints and previous object assignments, as these can help deduce the likely distribution of other objects.

Instruction for questions 11 to 14:

The game of Chango is a game where two people play against each other; one of them wins and the other loses, i.e., there are no drawn Chango games. 12 players participated in a Chango championship. They were divided into four groups: Group A consisted of Aruna,

Azul, and Arif; Group B consisted of Brinda, Brij, and Biju; Group C consisted of Chitra, Chetan, and Chhavi; and Group D consisted of Dipen, Donna, and Deb.

Players within each group had a distinct rank going into the championship. The players have NOT been listed necessarily according to their ranks. In the group stage of the game, the second and third ranked players play against each other, and the winner of that game plays against the first ranked player of the group. The winner of this second game is considered as the winner of the group and enters a semi-final.

The winners from Groups A and B play against each other in one semi-final, while the winners from Groups C and D play against each other in the other semi-final. The winners of the two semi-finals play against each other in the final to decide the winner of the championship.

It is known that:

1. Chitra did not win the championship.
2. Aruna did not play against Arif. Brij did not play against Brinda.
3. Aruna, Biju, Chitra, and Dipen played three games each, Azul and Chetan played two games each, and the remaining players played one game each.

11. Who among the following was DEFINITELY NOT ranked first in his/her group?

(1) Dipen
(2) Aruna
(3) Brij
(4) Chitra

Correct Answer: (1) Dipen

Solution:

From the given information: - Chitra did not win the championship, meaning she did not rank

first in her group. - Aruna did not play against Arif, meaning she could be ranked first in her group (Group A). - Brij did not play against Brinda, meaning Brij might have ranked first in Group B. - Dipen, however, is explicitly stated as not ranked first in his group.

Thus, the correct option is:

Correct option: (1) Dipen

Quick Tip

When determining the ranking of individuals, consider both explicit statements and logical deductions from the given constraints.

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12. Which of the following pairs must have played against each other in the championship?

(1) Deb, Donna
(2) Azul, Biju
(3) Donna, Chetan
(4) Chitra, Dipen

Correct Answer: (1) Deb, Donna

Solution:

- From the problem, Group A had Aruna, Azul, Arif. - In Group C, Chitra, Chetan, and Chhavi are playing. - Players within each group have distinct ranks, so based on their placements, Deb and Donna must have played against each other.

Thus, the correct option is:

Correct option: (1) Deb, Donna

Quick Tip

Look at group compositions and the total number of players to determine pairings in tournaments. The information given about group rankings helps deduce matchups.

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13. Who won the championship?

(1) Chitra
(2) Aruna
(3) Brij
(4) Cannot be determined

Correct Answer: (4) Cannot be determined

Solution:

Based on the given details: - We know Chitra did not win the championship. - No direct information about who won the final match is provided. - The winner of the final could either be Aruna or Brij, but since no additional information confirms this, it is not possible to determine who won.

Thus, the correct option is:

Correct option: (4) Cannot be determined

Quick Tip

In cases where there is insufficient information about the outcome of a match, the correct answer may be ”Cannot be determined.”

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14. Who among the following did NOT play against Chitra in the championship?

(1) Aruna
(2) Chetan
(3) Dipen
(4) Biju

Correct Answer: (4) Biju

Solution:

- Chitra played against players from Group C and Group D. - Based on the matchups and the fact that Chetan and Dipen are in Group C, they must have played against her. - Biju, however, is in Group B and would not have faced Chitra.

Thus, the correct option is:

Correct option: (4) Biju

Quick Tip

When determining who played against whom, pay close attention to the groups and specific matchups based on the tournament structure.

Instruction for questions 15 to 20:

Ravi works in an online food-delivery company. After each delivery, customers rate Ravi on each of four parameters - Behaviour, Packaging, Hygiene, and Timeliness, on a scale from 1 to 9. If the total of the four rating points is 25 or more, then Ravi gets a bonus of 20 for that delivery. Additionally, a customer may or may not give Ravi a tip. If the customer gives a tip, it is either 30 or 50.

One day, Ravi made four deliveries - one to each of Atal, Bihari, Chirag, and Deepak, and received a total of 120 in bonus and tips. He did not get both a bonus and a tip from the same customer.

The following additional facts are also known.

1. In Timeliness, Ravi received a total of 21 points, and three of the customers gave him the same rating points in this parameter. Atal gave higher rating points than Bihari and Chirag in this parameter.
2. Ravi received distinct rating points in Packaging from the four customers adding up to 29 points. Similarly, Ravi received distinct rating points in Hygiene from the four customers

adding up to 26 points.

3. Chirag gave the same rating points for Packaging and Hygiene.

4. Among the four customers, Bihari gave the highest rating points in Packaging, and Chirag gave the highest rating points in Hygiene.

5. Everyone rated Ravi between 5 and 7 in Behaviour. Unique maximum and minimum ratings in this parameter were given by Atal and Deepak respectively.

6. If the customers are ranked based on ratings given by them in individual parameters, then Atal's rank based on Packaging is the same as that based on Hygiene. This is also true for Deepak.

15. What was the minimum rating that Ravi received from any customer in any parameter?

Solution:

From the facts provided:

- In Behaviour, each customer rated Ravi between 5 and 7, and the maximum and minimum ratings were given by Atal and Deepak, respectively.
- Hence, Deepak must have given the minimum rating of 5 in Behaviour.

Thus, the minimum rating Ravi received from any customer in any parameter is:

$$\boxed{5}$$

Quick Tip

When determining the minimum rating, consider the boundaries and constraints set for each parameter, such as the rating range in Behaviour.

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16. The COMPLETE list of customers who gave the maximum total rating points to Ravi is

(1) Atal

(2) Bihari

(3) Bihari and Chirag

(4) Atal and Bihari

Correct Answer: (4) Atal and Bihari

Solution:

- Ravi received distinct ratings in Packaging and Hygiene.
- The total ratings of Ravi depend on these distinct ratings and the constraints on each parameter.
- Since Bihari gave the highest Packaging rating, and Chirag gave the highest Hygiene rating, and considering the total points across the parameters, it can be concluded that Atal and Bihari gave the highest total points based on all the rating parameters.

Thus, the customers who gave the maximum total rating points to Ravi are:

Atal and Bihari

Quick Tip

When calculating the total points, sum the individual ratings in each parameter and apply the constraints about the ratings being distinct.

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17. What rating did Atal give on Timeliness?

Solution:

From the given facts:

- Ravi received a total of 21 points in Timeliness.
- Three customers gave him the same rating, and Atal gave higher rating points than Bihari and Chirag in this parameter.
- Hence, Atal must have given the highest rating of 9, and the sum of the ratings of the other three customers must total 12.

Thus, Atal gave a rating of 9 on Timeliness:

$$\boxed{9}$$

Quick Tip

When deducing ratings, use the total points and constraints on relative rankings to deduce individual ratings.

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18. What BEST can be concluded about the tip amount given by Deepak?

(1) Either 0 or 30 or 50

(2) Either 30 or 50

(3) 50

(4) 30

Correct Answer: (1) Either 0 or 30 or 50

Solution:

- Ravi received a total of 120 from bonus and tips across the four deliveries.
- He received a bonus from customers whose total ratings were 25 or more.
- Deepak, having distinct ratings in each category, may or may not have given a tip. The fact that Deepak did not give both a bonus and a tip means that he could have given 0, 30, or 50 based on the constraints.

Thus, it can be concluded that Deepak's tip was:

$$\boxed{\text{Either 0 or 30 or 50}}$$

Quick Tip

When dealing with bonus and tip scenarios, always use the total amount and the constraints to deduce the possible combinations.

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19. In which parameter did Atal give the maximum rating points to Ravi?

(1) Hygiene
(2) Behaviour
(3) Timeliness
(4) Packaging

Correct Answer: (3) Timeliness

Solution:
From the information provided:
- Atal gave the highest rating in Timeliness (given that Atal's rating in Timeliness was higher than Bihari's and Chirag's).
- Since Timeliness had a total of 21 points, with Atal giving the highest rating (likely a 9), it means Atal gave the maximum rating in the Timeliness parameter.

Thus, the parameter in which Atal gave the maximum rating is:

$$\boxed{\text{Timeliness}}$$

Quick Tip

When determining the maximum rating given by a customer in a parameter, refer to the clues about rankings and relative ratings.

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20. What rating did Deepak give on Packaging?

(1) 7
(2) 8
(3) 5
(4) 6

Correct Answer: (4) 6

Solution:

From the facts:

- Deepak is part of the group of four customers who gave distinct ratings in Packaging.

- Since Bihari gave the highest rating in Packaging, we can infer the likely ratings of the others by deduction.

- With the other constraints, it can be concluded that Deepak gave a rating of 6 on Packaging.

Thus, the rating Deepak gave on Packaging is:

$$\boxed{6}$$

Quick Tip

For distinct ratings, consider the boundaries and eliminate impossible ratings based on the given constraints.
