CAT 2017 DILR Slot 2 Answer Key

QNo:- 35 ,Correct Answer:- *B*

	Thin Crust		Deep Dish		
	Normal Cheese	Extra Cheese	Normal Cheese	Extra Cheese	
Party 1	x	72 - x	w	48 - w	120
Party 2	y	66 - y	36 - y	18 + y	120
Party 3	z	162 - z	364 - z	34 + z	560
Total					800
	300		500		

Thin Crust pizzas delivered to party 3 = z + 162 – z = 162.

QNo:- 36 ,Correct Answer:- *C*

Explanation:-

	Thin Crust		Deep Dish		
	Normal Cheese	Extra Cheese	Normal Cheese	Extra Cheese	
Party 1	x	72 - x	w	48 - w	120
Party 2	y	66 - y	36 - y	18 + y	120
Party 3	z	162 - z	364 - z	34 + z	560
Total					800
	300		500		

Total Normal Cheese pizzas delivered to the three parties = 0.52 (800) = 416
From the table,
416 = (x + y +z) + (w +36 –y + 364 – z)
416 = 400 + w + x
⇒ w + x = 16
So, party 1 ordered 16 Normal Cheese pizzas

QNo:- 37 ,Correct Answer:- *B*

Explanation:-

	Thin Crust		Deep Dish		
	Normal Cheese	Extra Cheese	Normal Cheese	Extra Cheese	
Party 1	x	72 - x	w	48 - w	120
Party 2	y	66 - y	36 - y	18 + y	120
Party 3	z	162 - z	364 - z	34 + z	560
Total					800
	300		500		

Given, of the 36 Normal Cheese pizzas delivered to party 2, 50% or 18 were of Thin Crust variety
∴ y = 18.
Difference between 66 – y and 18 + y
= 48 –2y = 48 – 36
= 12

QNo:- 38 ,Correct Answer:- *A*

Explanation:-

	Thin Crust		Deep Dish		
	Normal Cheese	Extra Cheese	Normal Cheese	Extra Cheese	
Party 1	x	72 - x	w	48 - w	120
Party 2	y	66 - y	36 - y	18 + y	120
Party 3	z	162 - z	364 - z	34 + z	560
Total					800
	300		500		

We already know, w + x = 16
Further, we're told that of the x + w Normal Cheese pizzas delivered to party 1, 25% are of Deep Dish variety.

$\therefore \frac{w}{x+w} = \frac{1}{4} \Rightarrow x = 3w$

So, x = 12 and w = 4
Cost of a T-EC pizza = Rs. 500
Cost of a D-EC pizza = Rs. 550
Cost of a T-NC pizza = Rs. 330
Cost of a D-NC pizza = Rs. 330
Total pizza bill for part 1 = 12 (330) + 60(500) + 4(330) + 44(550)
= Rs. 59,480

QNo:- 39 ***,Correct Answer:-*** *C*

Explanation:- STEP I:

Given that after change, E2 is 30 more than before. E2 before was at least 46. E2 (after was 76). So, E2 before must have been 76-30 = 46. That indicates that the two empty cells can be filled as 0 each across the row E2. Hence, the table will be as follows (after this condition).

	E1	E2	E3	E4	E5	E6	Total
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25			2	
E4		3	2	14		4	
E5		5			30		
E6		7	3		2	9	
E7	4	16	30	5	5	41	**101**
Total		**76**					**300**

STEP II:

Given that before change E1 = E4 + 6. Now, E1 (before) = 31. Further, E4 (before) must be more than 23 (3 + 2 + 14 + 4 + data in two empty cells). That indicates, the two empty cells across E4 must be 1 and 1. So, after this step, the cells can be filled up as follows.

	E1	E2	E3	E4	E5	E6	**Total**
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25			2	
E4	**1**	3	2	14	**1**	4	**25**
E5		5			30		
E6		7	3		2	9	
E7	4	16	30	5	5	41	101
Total		**76**					**300**

STEP III:

Given that after change, E1 = E4 -3. It is to be noted that E1 (afterwards) can be at least 16 and at most 18. E4 (column) cannot be 20, as in that case, the total number of zeroes will cross 4. E4 must be 21. So, that E1 (afterwards) will be 18. This indicates, there must be 3 zeroes in E4 and one entry as "1" in the column E4. All other entries will be "1".

	E1	E2	E3	E4	E5	E6	**Total**
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25	**0**	**1**	2	**36**
E4	**1**	3	2	14	**1**	4	**25**
E5	**1**	5	**1**	**0**	30	**1**	**38**
E6	**1**	7	3	**1**	2	9	**23**
E7	4	16	30	5	5	41	**101**
Total	**18**	**76**	**79**	**21**	**45**	**61**	**300**

The electives which had a decrease in the enrollments after the change process are E1, E4. So, a total of 2 electives.

QNo:- 40 ***,Correct Answer:-*** *D*

Explanation:- STEP I:

Given that after change, E2 is 30 more than before. E2 before was at least 46. E2 (after was 76). So, E2 before must have been 76-30 = 46. That indicates that the two empty cells can be filled as 0 each across the row E2. Hence, the table will be as follows (after this condition).

	E1	E2	E3	E4	E5	E6	Total
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25			2	
E4		3	2	14		4	
E5		5			30		
E6		7	3		2	9	
E7	4	16	30	5	5	41	**101**
Total		**76**					**300**

STEP II:

Given that before change E1 = E4 + 6. Now, E1 (before) = 31. Further, E4 (before) must be more than 23 (3 + 2 + 14 + 4 + data in two empty cells). That indicates, the two empty cells across E4 must be 1 and 1. So, after this step, the cells can be filled up as follows.

	E1	E2	E3	E4	E5	E6	**Total**
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25			2	
E4	**1**	3	2	14	**1**	4	**25**
E5		5			30		
E6		7	3		2	9	
E7	4	16	30	5	5	41	101
Total		**76**					**300**

STEP III:

Given that after change, E1 = E4 -3. It is to be noted that E1 (afterwards) can be at least 16 and at most 18. E4 (column) cannot be 20, as in that case, the total number of zeroes will cross 4. E4 must be 21. So, that E1 (afterwards) will be 18. This indicates, there must be 3 zeroes in E4 and one entry as "1" in the column E4. All other entries will be "1".

	E1	E2	E3	E4	E5	E6	**Total**
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25	**0**	**1**	2	**36**
E4	**1**	3	2	14	**1**	4	**25**
E5	**1**	5	**1**	**0**	30	**1**	**38**
E6	**1**	7	3	**1**	2	9	**23**
E7	4	16	30	5	5	41	**101**
Total	**18**	**76**	**79**	**21**	**45**	**61**	**300**

After the change process, correct sequence of number of persons in electives E1 to E6 is as shown below:
⇒ 18, 76, 79, 21, 45 and 61.

QNo:- 41 ***,Correct Answer:-*** *D*

Explanation:- STEP I:

Given that after change, E2 is 30 more than before. E2 before was at least 46. E2 (after was 76). So, E2 before must have been 76-30 = 46. That indicates that the two empty cells can be filled as 0 each across the row E2. Hence, the table will be as follows (after this condition).

	E1	E2	E3	E4	E5	E6	Total
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25			2	
E4		3	2	14		4	
E5		5			30		
E6		7	3		2	9	
E7	4	16	30	5	5	41	**101**
Total		**76**					**300**

STEP II:

Given that before change E1 = E4 + 6. Now, E1 (before) = 31. Further, E4 (before) must be more than 23 (3 + 2 + 14 + 4 + data in two empty cells). That indicates, the two empty cells across E4 must be 1 and 1. So, after this step, the cells can be filled up as follows.

	E1	E2	E3	E4	E5	E6	**Total**
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25			2	
E4	**1**	3	2	14	**1**	4	**25**
E5		5			30		
E6		7	3		2	9	
E7	4	16	30	5	5	41	101
Total		**76**					**300**

STEP III:

Given that after change, E1 = E4 -3. It is to be noted that E1 (afterwards) can be at least 16 and at most 18. E4 (column) cannot be 20, as in that case, the total number of zeroes will cross 4. E4 must be 21. So, that E1 (afterwards) will be 18. This indicates, there must be 3 zeroes in E4 and one entry as "1" in the column E4. All other entries will be "1".

	E1	E2	E3	E4	E5	E6	**Total**
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25	**0**	**1**	2	**36**
E4	**1**	3	2	14	**1**	4	**25**
E5	**1**	5	**1**	**0**	30	**1**	**38**
E6	**1**	7	3	**1**	2	9	**23**
E7	4	16	30	5	5	41	**101**
Total	**18**	**76**	**79**	**21**	**45**	**61**	**300**

The maximum change occurs in E6. From 23 to 61. A change of 38 and a % change of approx 165%

QNo:- 42 ***,Correct Answer:-*** *A*

Explanation:- STEP I:

Given that after change, E2 is 30 more than before. E2 before was at least 46. E2 (after was 76). So, E2 before must have been 76-30 = 46. That indicates that the two empty cells can be filled as 0 each across the row E2. Hence, the table will be as follows (after this condition).

	E1	E2	E3	E4	E5	E6	Total
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25			2	
E4		3	2	14		4	
E5		5			30		
E6		7	3		2	9	
E7	4	16	30	5	5	41	**101**
Total		**76**					**300**

STEP II:

Given that before change E1 = E4 + 6. Now, E1 (before) = 31. Further, E4 (before) must be more than 23 (3 + 2 + 14 + 4 + data in two empty cells). That indicates, the two empty cells across E4 must be 1 and 1. So, after this step, the cells can be filled up as follows.

	E1	E2	E3	E4	E5	E6	**Total**
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25			2	
E4	**1**	3	2	14	**1**	4	**25**
E5		5			30		
E6		7	3		2	9	
E7	4	16	30	5	5	41	101
Total		**76**					**300**

STEP III:

Given that after change, E1 = E4 -3. It is to be noted that E1 (afterwards) can be at least 16 and at most 18. E4 (column) cannot be 20, as in that case, the total number of zeroes will cross 4. E4 must be 21. So, that E1 (afterwards) will be 18. This indicates, there must be 3 zeroes in E4 and one entry as "1" in the column E4. All other entries will be "1".

	E1	E2	E3	E4	E5	E6	**Total**
E1	9	5	10	1	4	2	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25	**0**	**1**	2	**36**
E4	**1**	3	2	14	**1**	4	**25**
E5	**1**	5	**1**	**0**	30	**1**	**38**
E6	**1**	7	3	**1**	2	9	**23**
E7	4	16	30	5	5	41	**101**
Total	**18**	**76**	**79**	**21**	**45**	**61**	**300**

Total number of persons in E1 (after the shift) is less than 20. All the 31 persons (earlier in E1) stayed back in E1. This implies no one shifted to E2, E3, E4, E5 and E6. In this scenario, total number of persons is as shown below.

	E1	E2	E3	E4	E5	E6	**Total**
E1	31	0	0	0	0	0	**31**
E2	**0**	34	8	**0**	2	2	**46**
E3	2	6	25	**0**	**1**	2	**36**
E4	**1**	3	2	14	**1**	4	**25**
E5	**1**	5	**1**	**0**	30	**1**	**38**
E6	**1**	7	3	**1**	2	9	**23**
E7	4	16	30	5	5	41	**101**
Total	**40**	**71**	**99**	**20**	**41**	**59**	**300**

The number of persons in decreasing order: E2, E3, E6, E5, E1, E4.

QNo:- 43 ***,Correct Answer:-*** *C*

Explanation:- *Total amount distributed by the old woman = Rs.70 lakh (bank deposits) + Rs.50 lakh (House) + Rs.90 lakhs (3 flats) i.e Rs.210 lakhs + Gold coins worth Rs.1 lakh each*

Given that Neeta received the least amount and Geeta received the highest amount in bank deposits. Given, all assets are equally distributed. Hence each one should get Rs.70 lakh. Neeta should get 2 flats (Rs.60 lakh), Seetha should get the house and Geeta should get 1 flat (Rs.30 lakh). Hence the bank deposits received by the three are Rs.10 lakh, Rs.20 lakh and Rs.40 lakh respectively. Choice (3)

QNo:- 44 ,Correct Answer:- *2*

Explanation:- *Total amount distributed by the old woman = Rs.70 lakh (bank deposits) + Rs.50 lakh (House) + Rs.90 lakhs (3 flats) i.e Rs.210 lakhs + Gold coins worth Rs.1 lakh each*

Given that Neeta received the least amount and Geeta received the highest amount in bank deposits. Given, all assets are equally distributed. Hence each one should get Rs.70 lakh. Neeta should get 2 flats (Rs.60 lakh), Seetha should get the house and Geeta should get 1 flat (Rs.30 lakh).

So Neeta should get 2 flats.

QNo:- 45 ,Correct Answer:- *B*

Explanation:- *Total amount distributed by the old woman = Rs.70 lakh (bank deposits) + Rs.50 lakh (House) + Rs.90 lakhs (3 flats) i.e Rs.210 lakhs + Gold coins worth Rs.1 lakh each.*
From the given data, the gold coins were distributed in the ratio 2 : 3 : 4, and the total assets were distributed in the ratio 1 : 2 : 3. From both the ratios, we can see that Seeta received 1/3 of the total property and 1/3 of the gold coins. This means her share is 1/3 (Bank deposits + house + flats) = Rs.70 lakhs.
Also, one child got all the three flats but not the house. One child other than Geeta got Rs.30 lakhs in bank deposits.
From this we can conclude that Seeta cannot get all the three flats. As her share is Rs.70 lakhs + 1/3 (gold coins).
∴Seeta should receive one house and bank deposits of Rs.20 lakhs. This implies Neeta should get Rs.30 lakhs in bank deposits. Hence Geeta should get Rs.20 lakhs in bank deposits. From this all the three flats should be received by Geeta.
Let the number of gold coins received by Neeta, Seeta and Geeta be 2x, 3x and 4x respectively.
From these we've, $\frac{30+2x}{70+3x}=\frac{1}{2}\Rightarrow x=10$
∴Number of gold coins must be 90. Choice (2)

QNo:- 46 ,Correct Answer:- *20*

Explanation:- *Total amount distributed by the old woman = Rs.70 lakh (bank deposits) + Rs.50 lakh (House) + Rs.90 lakhs (3 flats) i.e Rs.210 lakhs + Gold coins worth Rs.1 lakh each*

From the given data, the gold coins were distributed in the ratio 2 : 3 : 4, and the total assets were distributed in the ratio 1 : 2 : 3. From both the ratios, we can see that Seeta received 1/3 of the total property and 1/3 of the gold coins. This means her share is 1/3 (Bank deposits + house + flats) = Rs.70 lakhs.
Also, one child got all the three flats but not the house. One child other than Geeta got Rs.30 lakhs in bank deposits.
From this we can conclude that Seeta cannot get all the three flats. As her share is Rs.70 lakhs + 1/3 (gold coins).
∴Seeta should receive one house and bank deposits of Rs.20 lakhs. This implies Neeta should get Rs.30 lakhs in bank deposits. Hence Geeta should get Rs.20 lakhs in bank deposits.

QNo:- 47 ,Correct Answer:- *D*

Explanation:- *From the data, there are 2 dorms which require Rs.1 crore, 1 dorm which requires Rs.2 crore, 3 dorms which require Rs.3 crore, 1 dorm which requires Rs.4 crore, 1 dorm which requires Rs.5 crore and two dorms which require Rs.6 crore. Hence the total amount needed is Rs.34 crore.*
Dorms 4 to 9 have different repair costs. Dorm 7 needs the maximum and Dorm 8 needs the minimum. From the other conditions given, we have the following table with partial data.

Dorm Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Repair Type	H/M	L /H	M	L/H	M/H	L	M/H	L/H	M	L /H
Conclusion (Rs. in Cr)	3	1/6	3	5	3/4	2	6	1	4/3	6/1

L = Light
M = Moderate
H = Extensive
Going by the options, Dorm 1 needs a moderate repair is possibly true. Dorm 5 not needing more than Rs.4 crore is true. Hence Dorm 10's repair not costing more than Rs.4 crore is not necessarily true as it may require Rs.6 crore or Rs.1 crore.
Choice (4)

QNo:- 48 ,Correct Answer:- *19*

Explanation:- *From the data, there are 2 dorms which require Rs.1 crore, 1 dorm which requires Rs.2 crore, 3 dorms which require Rs.3 crore, 1 dorm which requires Rs.4 crore, 1 dorm which requires Rs.5 crore and two dorms which require Rs.6 crore. Hence the total amount needed is Rs.34 crore.*
Dorms 4 to 9 have different repair costs. Dorm 7 needs the maximum and Dorm 8 needs the minimum. From the other conditions given, we have the following table with partial data.

Dorm Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Repair Type	H/M	L /H	M	L/H	M/H	L	M/H	L/H	M	L /H
Conclusion (Rs. in Cr)	3	1/6	3	5	3/4	2	6	1	4/3	6/1

L= Light
M= Moderate
H = Extensive
The total cost for the odd numbered dorms are 3 + 3 + 3 (or) 4 + 6 + 4 (or) 3 i.e. Rs.19 crore
Ans : 19

QNo:- 49 ,Correct Answer:- *3*

Explanation:- *From the data, there are 2 dorms which require Rs.1 crore, 1 dorm which requires Rs.2 crore, 3 dorms which require Rs.3 crore, 1 dorm which requires Rs.4 crore, 1 dorm which requires Rs.5 crore and two dorms which require Rs.6 crore. Hence the total amount needed is Rs.34 crore.*
Dorms 4 to 9 have different repair costs. Dorm 7 needs the maximum and Dorm 8 needs the minimum. From the other conditions given, we have the following table with partial data.

Dorm Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Repair Type	H/M	L /H	M	L/H	M/H	L	M/H	L/H	M	L /H
Conclusion (Rs. in Cr)	3	1/6	3	5	3/4	2	6	1	4/3	6/1

L= Light
M= Moderate
H = Extensive

Additional data for Solutions
4 of the 10 dorms are women's dorms which need Rs.20 crore for repairs. Also from 1 to 5 there is only one women's dorm. This is possible with repairing costs Rs.6, Rs.6, Rs.5 and Rs.3 crore. Among the first 5, dorm 4 should be women's dorm. Rs.6 cr dorms can only be dorm 7 and dorm 10. Rs.3 crore can be from dorm 1, 3, 5 or 9. But 1, 3 or 5 are not women's dorm. So it has to be dorm 9.

From the above, the repair cost for dorm 9 is Rs.3 crore Ans : 3

QNo:- 50 ,Correct Answer:- *D*

Explanation:- *From the data, there are 2 dorms which require Rs.1 crore, 1 dorm which requires Rs.2 crore, 3 dorms which require Rs.3 crore, 1 dorm which requires Rs.4 crore, 1 dorm which requires Rs.5 crore and two dorms which require Rs.6 crore. Hence the total amount needed is Rs.34 crore.*
Dorms 4 to 9 have different repair costs. Dorm 7 needs the maximum and Dorm 8 needs the minimum. From the other conditions given, we have the following table with partial data.

Dorm Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Repair Type	H/M	L /H	M	L/H	M/H	L	M/H	L/H	M	L /H
Conclusion (Rs. in Cr)	3	1/6	3	5	3/4	2	6	1	4/3	6/1

L= Light
M= Moderate
H = Extensive

Additional data for Solutions
4 of the 10 dorms are women's dorms which need Rs.20 crore for repairs. Also from 1 to 5 there is only one women's dorm. This is possible with repairing costs Rs.6, Rs.6, Rs.5 and Rs.3 crore. Among the first 5, dorm 4 should be women's dorm. Rs.6 cr dorms can only be dorm 7 and dorm 10. Rs.3 crore can be from dorm 1, 3, 5 or 9. But 1, 3 or 5 are not women's dorm. So it has to be dorm 9.

From the above, dorm 10 should be women's dorm. Choice (4)

QNo:- 51 ***,Correct Answer:-*** *7*

Explanation:- *Let the ratings be such that the tea with the highest rating is ranked 1 and the tea with the lowest rating is ranked 6. From (2) and (5), we get the following:*

Ranking	Place	Cup No	Rating
1	Ooty		
2			
3			
4			
5			
6		Cup 2	

From (4), only two cups have been given even numbered ratings and one of them is given to the tea in Cup 2 (from (5))
From (3), it can be inferred that the rating of the tea in Cup 3, is an even number.
Hence, the rating of the tea in Cup 5 is an odd number.
Besides, the tea in Cup 3 has a higher rating than those in Cup 5, Cup 2 and Cup 1 (from (6))
Therefore, the ranking of Cup 3 is either 2 or 3. It cannot be 1 since the tea from Ooty is not in Cup 6.
From (5), the rating of the tea in Cup 2 can either be 2 or 4. Any other even number below 10 cannot be assigned to it since there are five other cups in which the tea has been rated from 1 to 10 and all the ratings are distinct numbers.
If the rating of the tea in Cup 2 is 4, the minimum possible rating for the tea in Cup 5 will be 5 and from that, the rating of the tea in Cup 3 will be 10. But 10 is the highest rating and it is not given to the tea in Cup 3 (from (2)).
Therefore, the tea in Cup 2 has a rating of 2.
The only rating that can be given to the tea in Cup 5 is 3. (Since it cannot be an even number and it has to be less than 5).
Therefore, the rank of the tea in Cup 5 will be 5 with a rating of 3. Hence, the rating of the tea in Cup 3 will be 6.
Between the ratings 3 and 6, only one rating is possible i.e. 5, because there are only two even ratings that are given to the tea in Cup 3 and Cup 2. Also, the tea in Cup 1 has a less rating than the tea in Cup 3. So the only possibility is that the tea in Cup 1 has a rating of 5 and is ranked fourth and the tea in Cup 3 has a rating of 6 and is ranked third.
From (1), only the tea which has got the second highest rating can belong to Himachal and it is the tea in Cup 6. Therefore, the tea from Himachal is in Cup 6 and it has the second highest rating. The rating has to be an odd number greater than 6 and less than 10. The only number possible is 7. If it were 9, then the tea from Ooty has to be given a rating of 10 but there are only two even ratings. Hence, the tea from Himachal has got a rating of 7.
The tea from Ooty will be in Cup 4. The rating of the tea from Ooty should be an odd number greater than 7 and less than 10. The only possible value is 9.
The final table will be as follows:

Ranking	Place	Cup No	Rating
1	Ooty	Cup 4	9
2	Himachal	Cup 6	7
3		Cup 3	6
4		Cup 1	5
5		Cup 5	3
6		Cup 2	2

The second highest rating is given to the tea from Himachal and it is 7. Ans: 7

QNo:- 52 ***,Correct Answer:-*** *7*

Explanation:- *Let the ratings be such that the tea with the highest rating is ranked 1 and the tea with the lowest rating is ranked 6. From (2) and (5), we get the following:*

Ranking	Place	Cup No	Rating
1	Ooty		
2			
3			
4			
5			
6		Cup 2	

From (4), only two cups have been given even numbered ratings and one of them is given to the tea in Cup 2 (from (5))
From (3), it can be inferred that the rating of the tea in Cup 3, is an even number.
Hence, the rating of the tea in Cup 5 is an odd number.
Besides, the tea in Cup 3 has a higher rating than those in Cup 5, Cup 2 and Cup 1 (from (6))
Therefore, the ranking of Cup 3 is either 2 or 3. It cannot be 1 since the tea from Ooty is not in Cup 6.
From (5), the rating of the tea in Cup 2 can either be 2 or 4. Any other even number below 10 cannot be assigned to it since there are five other cups in which the tea has been rated from 1 to 10 and all the ratings are distinct numbers.
If the rating of the tea in Cup 2 is 4, the minimum possible rating for the tea in Cup 5 will be 5 and from that, the rating of the tea in Cup 3 will be 10. But 10 is the highest rating and it is not given to the tea in Cup 3 (from (2)).
Therefore, the tea in Cup 2 has a rating of 2.
The only rating that can be given to the tea in Cup 5 is 3. (Since it cannot be an even number and it has to be less than 5).
Therefore, the rank of the tea in Cup 5 will be 5 with a rating of 3. Hence, the rating of the tea in Cup 3 will be 6.
Between the ratings 3 and 6, only one rating is possible i.e. 5, because there are only two even ratings that are given to the tea in Cup 3 and Cup 2. Also, the tea in Cup 1 has a less rating than the tea in Cup 3. So the only possibility is that the tea in Cup 1 has a rating of 5 and is ranked fourth and the tea in Cup 3 has a rating of 6 and is ranked third.
From (1), only the tea which has got the second highest rating can belong to Himachal and it is the tea in Cup 6. Therefore, the tea from Himachal is in Cup 6 and it has the second highest rating. The rating has to be an odd number greater than 6 and less than 10. The only number possible is 7. If it were 9, then the tea from Ooty has to be given a rating of 10 but there are only two even ratings. Hence, the tea from Himachal has got a rating of 7.
The tea from Ooty will be in Cup 4. The rating of the tea from Ooty should be an odd number greater than 7 and less than 10. The only possible value is 9.
The final table will be as follows:

Ranking	Place	Cup No	Rating
1	Ooty	Cup 4	9
2	Himachal	Cup 6	7
3		Cup 3	6
4		Cup 1	5
5		Cup 5	3
6		Cup 2	2

The number of the cup that contained tea from Ooty is Cup 4. Ans: 4

QNo:- 53 ***,Correct Answer:-*** *B*

Explanation:- *Let the ratings be such that the tea with the highest rating is ranked 1 and the tea with the lowest rating is ranked 6. From (2) and (5), we get the following:*

Ranking	Place	Cup No	Rating
1	Ooty		
2			
3			
4			
5			
6		Cup 2	

From (4), only two cups have been given even numbered ratings and one of them is given to the tea in Cup 2 (from (5))
From (3), it can be inferred that the rating of the tea in Cup 3, is an even number.
Hence, the rating of the tea in Cup 5 is an odd number.
Besides, the tea in Cup 3 has a higher rating than those in Cup 5, Cup 2 and Cup 1 (from (6))
Therefore, the ranking of Cup 3 is either 2 or 3. It cannot be 1 since the tea from Ooty is not in Cup 6.
From (5), the rating of the tea in Cup 2 can either be 2 or 4. Any other even number below 10 cannot be assigned to it since there are five other cups in which the tea has been rated from 1 to 10 and all the ratings are distinct numbers.
If the rating of the tea in Cup 2 is 4, the minimum possible rating for the tea in Cup 5 will be 5 and from that, the rating of the tea in Cup 3 will be 10. But 10 is the highest rating and it is not given to the tea in Cup 3 (from (2)).
Therefore, the tea in Cup 2 has a rating of 2.
The only rating that can be given to the tea in Cup 5 is 3. (Since it cannot be an even number and it has to be less than 5).
Therefore, the rank of the tea in Cup 5 will be 5 with a rating of 3. Hence, the rating of the tea in Cup 3 will be 6.
Between the ratings 3 and 6, only one rating is possible i.e. 5, because there are only two even ratings that are given to the tea in Cup 3 and Cup 2. Also, the tea in Cup 1 has a less rating than the tea in Cup 3. So the only possibility is that the tea in Cup 1 has a rating of 5 and is ranked fourth and the tea in Cup 3 has a rating of 6 and is ranked third.
From (1), only the tea which has got the second highest rating can belong to Himachal and it is the tea in Cup 6. Therefore, the tea from Himachal is in Cup 6 and it has the second highest rating. The rating has to be an odd number greater than 6 and less than 10. The only number possible is 7. If it were 9, then the tea from Ooty has to be given a rating of 10 but there are only two even ratings. Hence, the tea from Himachal has got a rating of 7.
The tea from Ooty will be in Cup 4. The rating of the tea from Ooty should be an odd number greater than 7 and less than 10. The only possible value is 9.
The final table will be as follows:

Ranking	Place	Cup No	Rating
1	Ooty	Cup 4	9
2	Himachal	Cup 6	7
3		Cup 3	6
4		Cup 1	5
5		Cup 5	3
6		Cup 2	2

It is given that the rating of the tea from Munnar is less than that of the teas from Wayanad and Assam. So it can be ranked either fifth or sixth. If the tea from Munnar did not get the minimum rating, it will be ranked fifth with a rating of 3. Therefore, the teas from Assam and Wayanad will be ranked third and fourth respectively. Hence, the rating of the tea from Wayanad will be 5.
Choice (2)

QNo:- 54 ***,Correct Answer:-*** *B*

Explanation:- *Let the ratings be such that the tea with the highest rating is ranked 1 and the tea with the lowest rating is ranked 6. From (2) and (5), we get the following:*

Ranking	Place	Cup No	Rating
1	Ooty		
2			
3			
4			
5			
6		Cup 2	

From (4), only two cups have been given even numbered ratings and one of them is given to the tea in Cup 2 (from (5))
From (3), it can be inferred that the rating of the tea in Cup 3, is an even number.
Hence, the rating of the tea in Cup 5 is an odd number.
Besides, the tea in Cup 3 has a higher rating than those in Cup 5, Cup 2 and Cup 1 (from (6))
Therefore, the ranking of Cup 3 is either 2 or 3. It cannot be 1 since the tea from Ooty is not in Cup 6.
From (5), the rating of the tea in Cup 2 can either be 2 or 4. Any other even number below 10 cannot be assigned to it since there are five other cups in which the tea has been rated from 1 to 10 and all the ratings are distinct numbers.
If the rating of the tea in Cup 2 is 4, the minimum possible rating for the tea in Cup 5 will be 5 and from that, the rating of the tea in Cup 3 will be 10. But 10 is the highest rating and it is not given to the tea in Cup 3 (from (2)).
Therefore, the tea in Cup 2 has a rating of 2.
The only rating that can be given to the tea in Cup 5 is 3. (Since it cannot be an even number and it has to be less than 5).
Therefore, the rank of the tea in Cup 5 will be 5 with a rating of 3. Hence, the rating of the tea in Cup 3 will be 6.
Between the ratings 3 and 6, only one rating is possible i.e. 5, because there are only two even ratings that are given to the tea in Cup 3 and Cup 2. Also, the tea in Cup 1 has a less rating than the tea in Cup 3. So the only possibility is that the tea in Cup 1 has a rating of 5 and is ranked fourth and the tea in Cup 3 has a rating of 6 and is ranked third.
From (1), only the tea which has got the second highest rating can belong to Himachal and it is the tea in Cup 6. Therefore, the tea from Himachal is in Cup 6 and it has the second highest rating. The rating has to be an odd number greater than 6 and less than 10. The only number possible is 7. If it were 9, then the tea from Ooty has to be given a rating of 10 but there are only two even ratings. Hence, the tea from Himachal has got a rating of 7.
The tea from Ooty will be in Cup 4. The rating of the tea from Ooty should be an odd number greater than 7 and less than 10. The only possible value is 9.
The final table will be as follows:

Ranking	Place	Cup No	Rating
1	Ooty	Cup 4	9
2	Himachal	Cup 6	7
3		Cup 3	6
4		Cup 1	5
5		Cup 5	3
6		Cup 2	2

If the cups containing teas from Wayanad and Ooty have consecutive numbers, then the Cup containing tea from Wayanad can either be Cup 5 or Cup 3. But the tea from Wayanad cannot be in Cup 3 because the tea from Assam got a higher rating than the tea from Wayanad. Therefore, the tea from Wayanad should be in Cup 5. In this case, the tea from Munnar will be in Cup 2 and the tea from Darjeeling can either be in Cup 1 or Cup 3. Choice (2)

QNo:- 55 ***,Correct Answer:-*** *C*

Explanation:- *Following is a chess board for 8 X 8.*
Queen is at C5 (as shown below). Pieces which are under attack are A3, C2, G1, G5. So, a total of 4 pieces are under attack.

		QUEEN				(G5) Piece	
(A3) Piece						(G3) Piece	
		(C2) Piece					
A	B	C	D	E	F	(G1) Piece	H

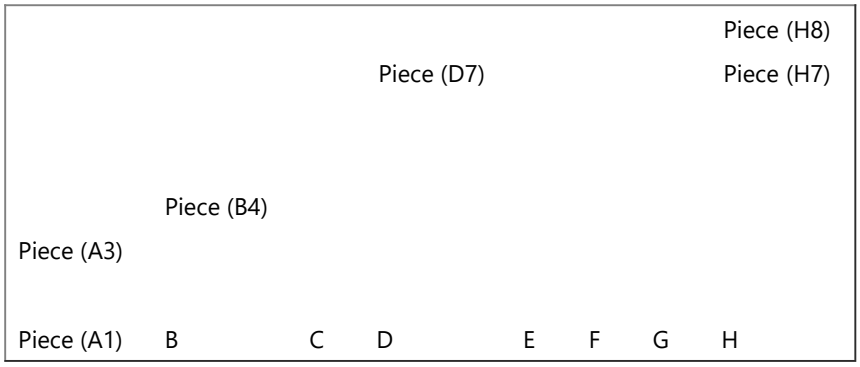
QNo:- 56 ,Correct Answer:- *D*

Explanation:- *Pieces are at A1, A3, B4, D7, H7 and H8 (These are as indicated below)*
Option (1): If Queen is at F8, it will attack H8 and B4. A total of 2 pieces.
Option (2): If Queen is at A7, it will attack A3 and D7. A total of 2 pieces.
Option (3): If Queen is at C1, it will attack A1 and A3. A total of 2 pieces.
Option (4): If Queen is at D3, it will attack A3, D7 and H7, a total of 3 pieces.
So, Queen at D3 implies 3 pieces will be under attack (which is the maximum).

							Piece (H8)
			Piece (D7)				Piece (H7)
	Piece (B4)						
Piece (A3)							
Piece (A1)	B	C	D	E	F	G	H

QNo:- 57 ,Correct Answer:- *C*

Explanation:- *Queen cannot be placed in Columns -A, B, D, and H.*
From the remaining columns, it has to be assessed.
For e.g.
COLUMN C:-> If Queen is placed in C2, it will attack H7. Further, other positions in the column C can be ruled out. Similarly, analyzing other squares, the result is as follows:->
Queen can be placed in E2, F2, G2, G5 (such that the pieces on board are NOT under attack).So,
there are a total of 4 such squares for the Queen.



QNo:- 58 ,Correct Answer:- *C*

Explanation:- *Given that Queen is at d5. The squares which will be under attack are as indicated below (by the term under Attack). These squares are either lying in the diagonal, or in the row or in the column. The remaining squares are marked safe. A total of 36 such squares are safe (by counting).*

Under Attack			Under Attack			Under Attack	
	Under Attack		Under Attack		Under Attack		
		Under Attack	Under Attack	Under Attack			
Under Attack	Under Attack	Under Attack	**QUEEN**	Under Attack	Under Attack	Under Attack	Under Attack
		Under Attack	Under Attack	Under Attack			
	Under Attack		Under Attack		Under Attack		
Under Attack			Under Attack			Under Attack	
			Under Attack				Under Attack

QNo:- 59 ,Correct Answer:- *A*

Explanation:- *For discussion we take the initial letter of each friend.*
From the given data, one can observe that Row number 1 to 20 have extra charges except for middle seat.
J, A, B must be in Aisle seats to get the sum as 4600; and we know that J, A, B paid different amount. Therefore,

Row/No	A	B	C	D	E	F	Remarks
10			J	M			500 × 2 = 1000
11			A				400 × 1 = 400
12			B				1000 × 1 = 1000
13					G	K	1000 × 2 = 2000 (6 persons = 4400)
20						P	200 × 1 = 200 (7 persons = 4600)
21						T	No extra charge

Note: G, K and K, G can be interchanged. Moreover they can be placed in row 1 to 0. So also the right window positions and aisle seats can be interchanged.

Row number (10) Choice (1)

QNo:- 60 ,Correct Answer:- *C*

Explanation:- *For discussion we take the initial letter of each friend.*
From the given data, one can observe that Row number 1 to 20 have extra charges except for middle seat.
J, A, B must be in Aisle seats to get the sum as 4600; and we know that J, A, B paid different amount. Therefore,

Row/No	A	B	C	D	E	F	Remarks
10			J	M			500 × 2 = 1000
11			A				400 × 1 = 400
12			B				1000 × 1 = 1000
13					G	K	1000 × 2 = 2000 (6 persons = 4400)
20						P	200 × 1 = 200 (7 person = 4600)
21						T	No extra charge

Note: G, K and K G can be interchanged. Moreover they can be placed in row 1 to 0. So also the right window positions and aisle seats can be interchanged.

He paid (500) Choice (3)

QNo:- 61 ,Correct Answer:- *D*

Explanation:- *For discussion we take the initial letter of each friend.*
From the given data, one can observe that Row number 1 to 20 have extra charges except for middle seat.
J, A, B must be in Aisle seats to get the sum as 4600; and we know that J, A, B paid different amount. Therefore,

Row/No	A	B	C	D	E	F	Remarks
10			J	M			500 × 2 = 1000
11			A				400 × 1 = 400
12			B				1000 × 1 = 1000
13					G	K	1000 × 2 = 2000 (6 persons = 4400)
20						P	200 × 1 = 200 (7 person = 4600)
21						T	No extra charge

Note: G, K and K G can be interchanged. Moreover they can be placed in row 1 to 0. So also the right window positions and aisle seats can be interchanged.

He paid Rs. (1000) Choice (4)

QNo:- 62 ,Correct Answer:- *D*

Explanation:- *For discussion we take the initial letter of each friend.*
From the given data, one can observe that Row number 1 to 20 have extra charges except for middle seat.
J, A, B must be in Aisle seats to get the sum as 4600; and we know that J, A, B paid different amount. Therefore,

Row/No	A	B	C	D	E	F	Remarks
10			J	M			500 × 2 = 1000
11			A				400 × 1 = 400
12			B				1000 × 1 = 1000
13					G	K	1000 × 2 = 2000 (6 persons = 4400)
20						P	200 × 1 = 200 (7 person = 4600)
21						T	No extra charge

Note: G, K and K G can be interchanged. Moreover they can be placed in row 1 to 0. So also the right window positions and aisle seats can be interchanged.

Tapesh (option 4)

QNo:- 63 ,Correct Answer:- *11*

Explanation:- *Since the order of exactly one out of the five scans can't be changed, either all the scans are in the correct order or one pair of scans can be varied, i.e. their positions can be interchanged.*
Case (1): when all the scans are in the correct order = 1 way
Case (2): when exactly two are interchanged:
We can choose any two of the five scans that can be interchanged in 5C2 ways, viz. 10
Both case (1) and case (2) together = 11. Ans: (11)

QNo:- 64 ,Correct Answer:- *C*

Explanation:- *Let the original scan be: TIMRL*
(1) All sequence as original = 1 way
(2) Interchange of TI = 1 way
(TI) + (RL) = 1 way
→ 2 way
(3) Interchange of IM = 1 way
(IM) + (RL) = 1 way
→2 way
(4) Interchange of MR = 1 way
(MR) + (TI) = 1 way
→2 way
(5) Interchange of RL = 1 way

Total = 1 + 2 + 2 + 2 + 1 = 8 ways.
Choice (3)

QNo:- 65 ,Correct Answer:- *15*

Explanation:- *Let us say original input: TIMTRL.*
Case (1): None of them misplaced : 1.
Case (2): When exactly two are misplaced.
T can be misplaced →4 ways.
I can be misplaced →4 ways.
M can be misplaced →3 ways.
T can be misplaced →2 ways.
R can be misplaced →1 way.
Total ways in case (2) = 4 + 4 + 3 + 2 + 1
= 14 ways.
Both case (1) and case (2) = 14 + 1 = 15 ways

QNo:- 66 ,Correct Answer:- *C*

Explanation:- *Given LRLTIM*
The distinct possibilities are:
1. No shift = 1 way
2. (a) LR = 1 way
(b) LR + LT = 1 way
(c) LR + LT + IM = 1 way
(d) LR + IM = 1 way
(e) LR + IT = 1 way (Total 5 ways)
3. (a) RL = 1 way
(b) RL + TI = 1 way
(c) RL + IM = 1 way (Total 3 ways)
4. (a) LT = 1 way
(b) LT + IM = 1 way (Total 2 way)
5. TI = 1 way
6. IM = 1 way
Total ways = 1 + 5 + 3 +2 +1 + 1 = 13 ways.
Choice (3)