CAT 2017 Question Paper Slot 2

DILR

Instructions [35 - 38]

Funky Pizzeria was required to supply pizzas to three different parties. The total number of pizzas it had to deliver was 800, 70% of which were to be delivered to Party 3 and the rest equally divided between Party 1 and Party 2.

Pizzas could be of Thin Crust (T) or Deep Dish (D) variety and come in either Normal Cheese (NC) or Extra Cheese (EC) versions. Hence, there are four types of pizzas: T-NC, T-EC, D-NC and D-EC. Partial information about proportions of T and NC pizzas ordered by the three parties is given below:

	Thin crust (T)	Normal cheese (NC)
Party 1	0.6	
Party 2	0.55	0.3
Party 3		0.65
Total	0.375	0.52

35. How many Thin Crust pizzas were to be delivered to Party 3?

A 398

B 162

C 96

D 364

36. How many Normal Cheese pizzas were required to be delivered to Party 1?

A 104

B 84

C 16

D 196

37. For Party 2, if 50% of the Normal Cheese pizzas were of Thin Crust variety, what was the difference between the numbers of T-EC and D-EC pizzas to be delivered to Party 2?

A 18

B 12

C 30

D 24

38. Suppose that a T-NC pizza cost as much as a D-NC pizza, but 3/5th of the price of a D-EC pizza.A D-EC pizza costs Rs. 50 more than a T-EC pizza, and the latter costs Rs. 500.
If 25% of the Normal Cheese pizzas delivered to Party 1 were of Deep Dish variety, what was the total bill for Party 1?

A Rs. 59480

B Rs. 59840

C Rs. 42520

D Rs. 45240

Instructions [39 - 42]

There were seven elective courses - E1 to E7 - running in a specific term in a college. Each of the 300 students enrolled had chosen just one elective from among these seven. However, before the start of the term, E7 was withdrawn as the instructor concerned had left the college. The students who had opted for E7 were allowed to join any of the remaining electives. Also, the students who had chosen other electives were given one chance to change their choice. The table below captures the movement of the students from one elective to another during this process. Movement from one elective to the same elective simply means no movement. Some numbers in the table got accidentally erased; however, it is known that these were either 0 or 1.

		To Elective					
		E1	E2	E3	E4	E5	E6
From Elective	E1	9	5	10	1	4	2
	E2		34	8		2	2
	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

Further, the following are known:
1. Before the change process there were 6 more students in E1 than in E4, but after the reshuffle, the number of students in E4 was 3 more than that in E1.
2. The number of students in E2 increased by 30 after the change process.
3. Before the change process, E4 had 2 more students than E6, while E2 had 10 more students than E3.

39. How many elective courses among E1 to E6 had a decrease in their enrollments after the change process?

A 4

B 1

C 2

D 3

40. After the change process, which of the following is the correct sequence of number of students in the six electives E 1 to E6?

A 19, 76, 79, 21, 45, 60

B 19, 76, 78, 22, 45, 60

C 18, 76, 79, 23, 43, 61

D 18, 76, 79, 21, 45, 61

41. After the change process, which course among E1 to E6 had the largest change in its enrollment as a percentage of its original enrollment?

A E1

B E2

C E3

D E6

42. Later, the college imposed a condition that if after the change of electives, the enrollment in any elective (other than E7) dropped to less than 20 students, all the students who had left that course will be required to re-enroll for that elective.
Which of the following is a correct sequence of electives in decreasing order of their final enrollments?

A E2, E3, E6, E5, E1, E4

B E3, E2, E6, E5, E4, E1

C E2, E5, E3, E1, E4, E6

D E2, E3, E5, E6, E1, E3

Instructions [43 - 46]

An old woman had the following assets:
(a) Rs. 70 lakh in bank deposits
(b) 1 house worth Rs. 50 lakh
(c) 3 flats, each worth Rs. 30 lakh
(d) Certain number of gold coins, each worth Rs. 1 lakh
She wanted to distribute her assets among her three children; Neeta, Seeta and Geeta.
The house, any of theflats or any of the coins were not to be split. That is, the house went entirely to one child; a flat went to one child and similarly, a gold coin went to one child.

43. Among the three, Neeta received the least amount in bank deposits, while Geeta received the highest. The value of the assets was distributed equally among the children, as were the gold coins.
How much did Seeta receive in bank deposits (in lakhs of rupees)?

A 30

B 40

C 20

D 10

44. Among the three, Neeta received the least amount in bank deposits, while Geeta received the highest. The value of the assets was distributed equally among the children, as were the gold coins.

How many flats did Neeta receive?

45. The value of the assets distributed among Neeta, Seeta and Geeta was in the ratio of 1:2:3, while the gold coins were distributed among them in the ratio of 2:3:4. One child got all three cats and she did not get the house. One child, other than Geeta, got Rs. 30 lakh in bank deposits.
How many gold coins did the old woman have?

A 72

B 90

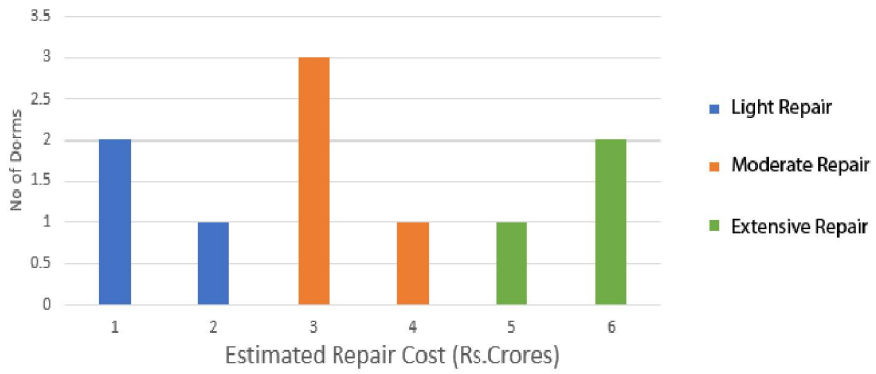
C 180

D 216

46. The value of the assets distributed among Neeta, Seeta and Geeta was in the ratio of 1:2:3, while the gold coins were distributed among them in the ratio of 2:3:4. One child got all three cats and she did not get the house. One child, other than Geeta, got Rs. 30 lakh in. bank deposits.
How much did Geeta get in bank deposits (in lakhs of rupees)?

Instructions [47 - 50]

At a management school, the oldest M dorms, numbered 1 to 10, need to be repaired urgently. This following diagram represents the estimated repair costs (in Rs. Crores for, the 10 dorms. For any dorm, the estimated repair cost (in Rs. Crores) is an integer. Repairs with estimated cost Rs. 1 or 2 Crores are considered light repairs, repairs with estimated cost Rs. 3 or 4 are considered moderate repairs and repairs with estimated cost Rs. 5 or 6 Crores are considered extensive repairs.



Further, the following information is known.
1. Odd-numbered dorms do not need light repair; even-numbered dorms do not need moderate repair and dorms, whose numbers are divisible by 3, do not need extensive repair.
2. Dorms 4 to 9 all need different repair costs, with Dorm 7 needing the maximum and Dorm 8 needing the minimum.

47. Which of the following is NOT necessarily true?

A Dorm 1 needs a moderate repair

B Dorm 5 repair will cost no more than Rs. 4 Crores

C Dorm 7 needs an extensive repair

D Dorm 10 repair will cost no more than Rs. 4 Crores

48. What is the total cost of repairing the odd-numbered dorms (in Rs. Crores)?

49. Suppose further that:
1. 4 of the 10 dorms needing repair are women's dorms and need a total of Rs. 20 Crores for repair.
2. Only one of Dorms 1 to 5 is a women's dorm.
What is the cost for repairing Dorm 9 (in Rs. Crores)?

50. Suppose further that:
1. 4 of the 10 dorms needing repair are women's dorms and need a total of Rs. 20 Crores for repair.
2. Only one of Dorms 1 to 5 is a women's dorm.
Which of the following is a women's dorm?

A Dorm 2

B Dorm 5

C Dorm 8

D Dorm 10

Instructions [51 - 54]

A tea taster was assigned to rate teas from six different locations — Munnar, Wayanad, Ooty, Darjeeling, Assam and Himachal: These teas were placed in six cups, numbered 1 to 6, not necessarily in the same order. The tea taster was asked to rate these teas on the strength of theiflavour on a scale of 1 to 10. He gave a unique integer rating to each tea. Some other information is given below:
a: Cup 6 contained tea from Himachal.
2. Tea from Ooty got the highest rating, but it was not in Cup 3.
3. The rating of tea in Cup 3 was double the rating of the tea in Cup 5.
4. Only two cups got ratings in even numbers.
5. Cup 2 got the minimum rating and this rating was an even number.
6. Tea in Cup 3 got a higher rating than that in Cup 1.
7. The rating of tea from Wayanad was more than the rating of tea from Munnar, but less than that from Assam.

51. What was the second highest rating given?

52. What was the number of the cup that contained tea from Ooty?

53. If the tea from Munnar did not get the minimum rating, what was the rating of the tea from Wayanad?

A 3

B 5

C 1

D 6

54. If cups containing teas from Wayanad and Ooty had consecutive numbers, which of the following statements may be true?

A Cup 5 contains tea from Assam

B Cup 1 contains tea from Darjeeling

C Tea from Wayanad has got a rating of 6

D Tea from Darjeeling got the minimum rating

Instructions [55 - 58]

In an 8 X 8 chess board a queen placed any where can attack another piece if the piece is present in the same row, or in the same column or in any diagonal position in any possible 4 directions, provided there is no other piece in between in the path from the queen to that piece.

The columns are labelled a to h (left to right) and the rows are numbered 1 to 8 (bottom to top). The position of a piece is given by the combination of column and row labels. For example, position c5 means that the piece is in c^{th} column and 5^{th} row.

55. If the queen is at c5, and the other pieces at positions c2, g1, g3, g5 and a3, how many are under attack by the queen? There are no other pieces on the board.

A 2

B 3

C 4

D 5

56. If the other pieces are only at positions a1, a3, b4, d7, h7 and h8, then which of the following positions of the queen results in the maximum number of pieces being under attack?

A f8

B a7

C c1

D d3

57. If the other pieces are only at positions a1, a3, b4, d7, h7 and h8, then from how many positions the queen cannot attack any of the pieces?

A 0

B 3

C 4

D 6

58. Suppose the queen is the only piece on the board and it is at position d5. In how many positions can another piece be placed on the board such that it is safe from attack from the queen?

A 32

B 35

C 36

D 37

Instructions [59 - 62]

Eight friends: Ajit, Byomkesh, Gargi, Jayanta, Kikira, Manik, Prodosh and Tapesh are going to Delhi from Kolkata by a flight operated by Cheap Air. In the flight, sitting is arranged in 30 rows, numbered 1 to 30, each consisting of 6 seats, marked by letters A to F from left to right, respectively. Seats A to C are to the left of the aisle (the passage running from the front of the aircraft to the back), and seats D to F are to the right of the aisle. Seats A and F are by the windows and referred to as Window seats, C and D are by the aisle and are referred to as Aisle seats while B and E are referred to as Middle seats. Seats marked by consecutive letters are called consecutive seats (or seats next to each other). A seat number is a combination of the row number, followed by the letter indicating the position in the row; e.g., 1A is the left window seat in the first row, while 12E is the right middle seat in the 12th row.

Cheap Air charges Rs. 1000 extra for any seats in Rows 1, 12 and 13 as those have extra legroom. For Rows 2-10, it charges Rs. 300 extra for Window seats and Rs. 500 extra for Aisle seats. For Rows 11 and 14 to 20, it charges Rs. 200 extra for Window seats and Rs. 400 extra for Aisle seats. All other seats are available at no extra charge.

The following are known:

1. The eight friends were seated in six different rows.
2. They occupied 3 Window seats, 4 Aisle seats and 1 Middle seat.
3. Seven of them had to pay extra amounts, totaling to Rs. 4600, for their choices of seat. One of them did not pay any additional amount for his/her choice of seat.
4. Jayanta, Ajit and Byomkesh were sitting in seats marked by the same letter, in consecutive rows in increasing order of row numbers; but all of them paid different amounts for their choices of seat. One of these amounts may be zero.
5. Gargi was sitting next to Kikira, and Manik was sitting next to Jayanta.
6. Prodosh and Tapesh were sitting in seats marked by the same letter, in consecutive rows in increasing order of row numbers; but they paid different amounts for their choices of seat. One of these amounts may be zero.

59. In which row was Manik sitting?

A 10

B 11

C 12

D 13

60. How much extra did Jayanta pay for his choice of seat?

A Rs. 300

B Rs. 400

C Rs. 500

D Rs. 1000

61. How much extra did Gargi pay for her choice of seat?

A 0

B Rs. 300

C Rs. 400

D Rs. 1000

62. Who among the following did not pay any extra amount for his his/her choice of seat?

A Kikira

B Manik

C Gargi

D Tapesh

Instructions [63 - 66]

A high security research lab requires the researchers to set a pass key sequence based on the scan of their five fingers of their left hands. When an employee first joins the lab, her fingers are scanned in an order of her choice, and then when she wants to re-enter the facility, she has to scan the five fingers in the same sequence. The lab authorities are considering some relaxations of the scan order requirements, since it is observed that some employees often get locked-out because they forget the sequence.

63. The lab has decided to allow a variation in the sequence of scans of the five fingers so that at most two scans (out of five) are out of place. For example, if the original sequence is Thumb (T), index finger (I), middle finger (M), ring finger (R) and little finger (L) then TLMRI is also allowed, but TMRLI is not.
How many different sequences of scans are allowed for any given person's original scan?

64. The lab has decided to allow variations of the original sequence so that input of the scanned sequence of five fingers is allowed to vary from the original sequence by one place for any of the fingers. Thus, for example, if TIMRL is the original sequence, then ITRML is also allowed, but LIMRT is not.
How many different sequences are allowed for any given person's original scan?

A 7

B 5

C 8

D 13

65. The lab has now decided to require six scans in the pass key sequence, where exactly one finger is scanned twice, and the other fingers are scanned exactly once, which can be done in any order. For example, a possible sequence is TIMTRL.
Suppose the lab allows a variation of the original sequence (of six inputs) where at most two scans (out of six) are out of place, as long as the finger originally scanned twice is scanned twice and other fingers are scanned once.
How many different sequences of scans are allowed for any given person's original scan?

66. The lab has now decided to require six scans in the pass key sequence, where exactly one finger is scanned twice, and the other fingers are scanned exactly once, which can be done in any order. For example, a possible sequence is TIMTRL.
Suppose the lab allows a variation of the original sequence (of six inputs) so that input in the form of scanned sequence of six fingers is allowed to vary from the original sequence by one place for any of the fingers, as long as the finger originally scanned twice is scanned twice and other fingers are scanned once.
How many different sequences of scans are allowed if the original scan sequence is LRLTIM?

A 8

B 11

C 13

D 14

Answers

DILR

35.**B**	36.**C**	37.**B**	38.**A**	39.**C**	40.**D**	41.**D**	42.**A**
43.**C**	44.**2**	45.**B**	46.**20**	47.**D**	48.**19**	49.**3**	50.**D**
51.**7**	52.**4**	53.**B**	54.**B**	55.**C**	56.**D**	57.**C**	58.**C**
59.**A**	60.**C**	61.**D**	62.**D**	63.**11**	64.**C**	65.**15**	66.**C**

Explanations

DILR

Explanation [35 - 38]:

We are given that Party 3 received 70% of total pizzas,therefore, number of pizzas received by Party 3 $\frac{70}{100} \times 800 = 560$

Remaining 240 pizzas are equally divided among party 1 and party 2 hence we can say that each of Party 1 and Party 2 received 120 pizzas.

We know that all of the pizza can be classified into a total of 4 types. Hence, on drawing a table which can accommodate all of the cases:

35.**B**

	Thin Crust (T)			Deep Dish (D)		
	T - NC	**T - EC**	**Total**	**D - NC**	**D - EC**	**Total**
Party 1 **(120)**						
Party 2 **(120)**						
Party 3 **(560)**						
Total **(800)**						

Total number of Thin Crust pizzas = 0.375*800 = 300. Therefore, total number of Deep Dish pizzas = 800 - 300 = 500.

Out of 120 pizzas that Party 1 received, 60% were of Thin Crust type hence, total number of Thin Crust pizza received by Party 1 = 0.6*120 = 72. Consequently Party 1, must have received 48 Deep Dish type pizzas.

Out of 120 pizzas that Party 2 received, 55% were of Thin Crust type hence, total number of Thin Crust pizza received by Party 2 = 0.55*120 = 66. Consequently Party 1, must have received 54 Deep Dish type pizzas.

Therefore, total number of Thin Crust pizzas ordered by Party 3 = Total Thin Crust pizzas ordered - Thin Crust pizzas ordered by Party 1 - Thin Crust pizzas ordered by Party 2

$\Rightarrow$ 300 - 72 - 66 = 162

Hence, option B is the correct answer.

36. **C**

	Thin Crust (T)			Deep Dish (D)		
	T - NC	**T - EC**	**Total**	**D - NC**	**D - EC**	**Total**
Party 1 **(120)**						
Party 2 **(120)**						
Party 3 **(560)**						
Total **(600)**						

Total number of Thin Crust pizzas = 0.375*800 = 300. Therefore, total number of Deep Dish pizzas = 800 - 300 = 500.

Out of 120 pizzas that Party 1 received, 60% were of Thin Crust type hence, total number of Thin Crust pizza received by Party 1 = 0.6*120 = 72. Consequently Party 1, must have received 42 Deep Dish type pizzas.

Out of 120 pizzas that Party 2 received, 55% were of Thin Crust type hence, total number of Thin Crust pizza received by Party 2 = 0.55*120 = 66. Consequently Party 1, must have received 54 Deep Dish type pizzas.

Therefore, total number of Thin Crust pizzas ordered by Party 3 = Total Thin Crust pizzas ordered - Thin Crust pizzas ordered by Party 1 - Thin Crust pizzas ordered by Party 2

$\Rightarrow$ 300 - 72 - 66 = 162

Hence number of Deep Dish type of pizzas order by Party 3 = 560 - 162 = 398

	Thin Crust (T)			Deep Dish (D)		
	T - NC	**T - EC**	**Total**	**D - NC**	**D - EC**	**Total**
Party 1 **(120)**			**72**			**48**
Party 2 **(120)**			**66**			**54**
Party 3 **(560)**			**162**			**398**
Total **(800)**			**300**			**500**

Total number of Normal Cheese pizzas require to be delivered = 0.52*800 = 416
Number of Normal Cheese pizzas require to be delivered to Party 2 = 0.3*120 = 36
Number of Normal Cheese pizzas require to be delivered to Party 3 = 0.65*560 = 364

Therefore, total number of Normal Cheese pizzas require to be delivered to Party 1 = Total Normal Cheese pizzas to be delivered - Normal Cheese pizzas require to be delivered to Party 2 - Normal Cheese pizzas require to be delivered to Party 3

$\Rightarrow$ 416 - 36 - 364 = 16

Hence, option C is the correct answer.

37. **B**

	Thin Crust (T)			Deep Dish (D)		
	T - NC	**T - EC**	**Total**	**D - NC**	**D - EC**	**Total**
Party 1 **(120)**						
Party 2 **(120)**						
Party 3 **(560)**						
Total **(600)**						

Total number of Thin Crust pizzas = 0.375*800 = 300. Therefore, total number of Deep Dish pizzas = 800 - 300 = 500.

Out of 120 pizzas that Party 1 received, 60% were of Thin Crust type hence, total number of Thin Crust pizza received by Party 1 = 0.6*120 = 72. Consequently Party 1, must have received 42 Deep Dish type pizzas.

Out of 120 pizzas that Party 2 received, 55% were of Thin Crust type hence, total number of Thin Crust pizza received by Party 2 = 0.55*120 = 66. Consequently Party 1, must have received 54 Deep Dish type pizzas.

Therefore, total number of Thin Crust pizzas ordered by Party 3 = Total Thin Crust pizzas ordered - Thin Crust pizzas ordered by Party 1 - Thin Crust pizzas ordered by Party 2

$\Rightarrow$ 300 - 72 - 66 = 162

Hence number of Deep Dish type of pizzas order by Party 3 = 560 - 162 = 398

	Thin Crust (T)			Deep Dish (D)		
	T - NC	T - EC	Total	D - NC	D - EC	Total
Party 1 **(120)**			**72**			**48**
Party 2 **(120)**			**66**			**54**
Party 3 **(560)**			**162**			**398**
Total **(800)**			**300**			**500**

Number of Normal Cheese pizzas require to be delivered to Party 2 = 0.3*120 = 36
It is given that 50% of these Normal Cheese pizzas were of Thin Crust variety, then We can say that remaining 50% were of Deep Dish variety. We can find out each of 4 types of pizzas require to be delivered to Party 2.

	Thin Crust (T)			Deep Dish (D)		
	T - NC	T - EC	Total	D - NC	D - EC	Total
Party 1 **(120)**			**72**			**48**
Party 2 **(120)**	**18**	**48**	**66**	**18**	**36**	**54**
Party 3 **(560)**			**162**			**398**
Total **(800)**			**300**			**500**

Hence, the difference between the numbers of T-EC and D-EC pizzas to be delivered to Party 2 = 48 - 36 = 12

Therefore, option B is the correct answer.

38. **A**

	Thin Crust (T)			Deep Dish (D)		
	T - NC	T - EC	Total	D - NC	D - EC	Total
Party 1 **(120)**						
Party 2 **(120)**						
Party 3 **(560)**						
Total **(600)**						

Total number of Thin Crust pizzas = 0.375*800 = 300. Therefore, total number of Deep Dish pizzas = 800 - 300 = 500.

Out of 120 pizzas that Party 1 received, 60% were of Thin Crust type hence, total number of Thin Crust pizza received by Party 1 = 0.6*120 = 72. Consequently Party 1, must have received 42 Deep Dish type pizzas.

Out of 120 pizzas that Party 2 received, 55% were of Thin Crust type hence, total number of Thin Crust pizza received by Party 2 = 0.55*120 = 66. Consequently Party 1, must have received 54 Deep Dish type pizzas.

Therefore, total number of Thin Crust pizzas ordered by Party 3 = Total Thin Crust pizzas ordered - Thin Crust pizzas ordered by Party 1 - Thin Crust pizzas ordered by Party 2

$\Rightarrow$ 300 - 72 - 66 = 162

Hence number of Deep Dish type of pizzas order by Party 3 = 560 - 162 = 398

	Thin Crust (T)			Deep Dish (D)		
	T - NC	T - EC	Total	D - NC	D - EC	Total
Party 1 **(120)**			**72**			**48**
Party 2 **(120)**			**66**			**54**
Party 3 **(560)**			**162**			**398**
Total **(800)**			**300**			**500**

Total number of Normal Cheese pizzas require to be delivered = 0.52*800 = 416
Number of Normal Cheese pizzas require to be delivered to Party 2 = 0.3*120 = 36
Number of Normal Cheese pizzas require to be delivered to Party 3 = 0.65*560 = 364
Therefore, total number of Normal Cheese pizzas require to be delivered to Party 1 = Total Normal Cheese pizzas to be delivered - Normal Cheese pizzas require to be delivered to Party 2 - Normal Cheese pizzas require to be delivered to Party 3

$\Rightarrow$ 416 - 36 - 364 = 16

It is given that 25% of these 16 Normal Cheese pizzas were of Deep Dish type, hence the number of D- NC type pizza require to be delivered to Party 1 = 0.25*16 = 4

Consequently, the number of T- NC type pizza require to be delivered to Party 1 = 16 - 4 = 12

We can find out each type of pizza that is required to be delivered to Party 1.

	Thin Crust (T)			Deep Dish (D)		
	T - NC	**T - EC**	**Total**	**D - NC**	**D - EC**	**Total**
Party 1 **(120)**	**12**	**60**	**72**	**4**	**44**	**48**
Party 2 **(120)**			**66**			**54**
Party 3 **(560)**			**162**			**398**
Total **(800)**			**300**			**500**

Cost Price of a T-EC pizza = Rs. 500

Cost Price of a D-EC pizza = Rs. 550

Cost Price of a T-NC pizza =$\frac{3}{5} \times 550$ = Rs. 330

Cost Price of a D-NC pizza =$\frac{3}{5} \times 550$ = Rs. 330

Therefore the total bill amount for Party 1 = 12*330 + 60*500 + 4*330 + 44*550 = Rs. 59480

Therefore, option A is the correct answer.

Explanation [39 - 42]:
From the table we can say that number of students who opted for E2 after reshuffle = 5 + 34 + 6 + 3 + 5 + 7 + 16 = 76.

It is given us that the number of students in E2 increased by 30 after the change process. Hence, we can say that the number of students who were enrolled in E2 before reshuffle = 76 - 30 = 46.

39. **C**
It is given that before the change process there were 10 more students in E2 than in E3. Therefore, the number of students who were enrolled in E3 before reshuffle = 46 - 10 = 36.

Number of students who moved from E1 to all other electives are known. Therefore, the number of students who were enrolled in E1 before reshuffle = 9 + 5 + 10 + 1 + 4 + 2 = 31.

It is given that before the change process there were 6 more students in E1 than in E4. Therefore, the number of students who were enrolled in E4 before reshuffle = 31 - 6 = 25.

Also, it is given that E4 had 2 more students than E6 before reshuffle. Therefore, the number of students who were enrolled in E6 before reshuffle = 25 - 2 = 23.

All the students from E7 moved to one of electives among E1 to E6.
Therefore, the number of students who were enrolled in E7 before reshuffle = 4 + 16 + 30 + 5 + 5 + 41 = 101.

Except E5 we know the number of students who were enrolled in all electives. We also know that there were total 300 students who opted for exactly 1 elective.

Hence, the the number of students who were enrolled in E7 before reshuffle = 300 - (46+36+31+25+23+101) = 38.

For each elective, the number of students who were enrolled before reshuffle will be same as sum of the number of students who moved from that elective to another elective including no movement cases.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2		34	8		2	2	46
	E3	2	6	25			2	36
	E4		3	2	14		4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E2,

Number of students who moved to E1 + 34 + 8 + Number of students who moved to E4 + 2 + 2 = 46

i.e. Number of students who moved from to E1 = Number of students who moved from to E4 = 0

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4		3	2	14		4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E4,

Number of students who moved to E1 + 3 + 2 + 14 + Number of students who moved to E5 + 4 = 25

i.e. Number of students who moved from to E1 = Number of students who moved from to E5 = 1 {As the remaining blanks can befilled by either 0 or 1}

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4	1	3	2	14	1	4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E6,

Number of students who moved to E1 + 7 + 3 + Number of students who moved to E4 + 2 + 9 = 23

i.e. Number of students who moved from to E1 = Number of students who moved from to E4 = 1 {As the remaining blanks can befilled by either 0 or 1}

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4	1	3	2	14	1	4	25
	E5		5			30		38
	E6	1	7	3	1	2	9	23
	E7	4	16	30	5	5	41	101

It is given that after the reshuffle, the number of students in E4 was 3 more than that in E1.
As of now the number of students enrolled in E4 after reshuffle = 1 + 0 + E3 to E4 + 14 + E5 to E4 + 1 + 5 = 21 + {E3 to E4} + {E5 to E4}

Also, the number of students enrolled in E1 after reshuffle = 9 + 0 + 2 + 1 + E5 to E1 + 1 + 4 = 17 + E5 to E1.

Hence, it is possible only when E5 to E1 = 1 and E3 to E4 = E5 to E4 = 0.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25	0		2	36
	E4	1	3	2	14	1	4	25
	E5	1	5		0	30		38
	E6	1	7	3	1	2	9	23
	E7	4	16	30	5	5	41	101

Remaining blank places can be filled easily as we know the total sum of each row.

Therefore, the number of students who moved from E3 to E5 = the number of students who moved from E5 to E3 = the number of students who moved from E5 to E6 = 1.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	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

Form the table we can see that the number of students who enrolled for E1 and E4 decreased from 31 and 25 to 18 and 21 respectively.

Therefore, option C is the correct answer.

40. **D**

It is given that before the change process there were 10 more students in E2 than in E3. Therefore, the number of students who were enrolled in E3 before reshuffle = 46 - 10 = 36.

Number of students who moved from E1 to all other electives are known. Therefore, the number of students who were enrolled in E1 before reshuffle = 9 + 5 + 10 + 1 + 4 + 2 = 31.

It is given that before the change process there were 6 more students in E1 than in E4. Therefore, the number of students who were enrolled in E4 before reshuffle = 31 - 6 = 25.

Also, it is given that E4 had 2 more students than E6 before reshuffle. Therefore, the number of students who were enrolled in E6 before reshuffle = 25 - 2 = 23.

All the students from E7 moved to one of electives among E1 to E6. Therefore, the number of students who were enrolled in E7 before reshuffle = 4 + 16 + 30 + 5 + 5 + 41 = 101.

Except E5 we know the number of students who were enrolled in all electives. We also know that there were total 300 students who opted for exactly 1 elective.

Hence, the the number of students who were enrolled in E7 before reshuffle = 300 - (46+36+31+25+23+101) = 38.

For each elective, the number of students who were enrolled before reshuffle will be same as sum of the number of students who moved from that elective to another elective including no movement cases.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2		34	8		2	2	46
	E3	2	6	25			2	36
	E4		3	2	14		4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E2,

Number of students who moved to E1 + 34 + 8 + Number of students who moved to E4 + 2 + 2 = 46

i.e. Number of students who moved from to E1 = Number of students who moved from to E4 = 0

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4		3	2	14		4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E4,

Number of students who moved to E1 + 3 + 2 + 14 + Number of students who moved to E5 + 4 = 25

i.e. Number of students who moved from to E1 = Number of students who moved from to E5 = 1 {As the remaining blanks can befilled by either 0 or 1}

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4	1	3	2	14	1	4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E6,

Number of students who moved to E1 + 7 + 3 + Number of students who moved to E4 + 2 + 9 = 23

i.e. Number of students who moved from to E1 = Number of students who moved from to E4 = 1 {As the remaining blanks can befilled by either 0 or 1}

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4	1	3	2	14	1	4	25
	E5		5			30		38
	E6	1	7	3	1	2	9	23
	E7	4	16	30	5	5	41	101

It is given that after the reshuffle, the number of students in E4 was 3 more than that in E1. As of now the number of students enrolled in E4 after reshuffle = 1 + 0 + E3 to E4 + 14 + E5 to E4 + 1 + 5 = 21 + {E3 to E4} + {E5 to E4}

Also, the number of students enrolled in E1 after reshuffle = 9 + 0 + 2 + 1 + E5 to E1 + 1 + 4 = 17 + E5 to E1.

Hence, it is possible only when E5 to E1 = 1 and E3 to E4 = E5 to E4 = 0.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25	0		2	36
	E4	1	3	2	14	1	4	25
	E5	1	5		0	30		38
	E6	1	7	3	1	2	9	23
	E7	4	16	30	5	5	41	101

Remaining blank places can befilled easily as we know the total sum of each row.

Therefore, the number of students who moved from E3 to E5 = the number of students who moved from E5 to E3 = the number of students who moved from E5 to E6 = 1.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	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

Form the table, we can see that after the reshuffle the number of students in electives E1 to E6 are 18, 76, 79, 21, 45 and 61 in that order.

Therefore, option D is the correct answer.

41. **D**

It is given that before the change process there were 10 more students in E2 than in E3. Therefore, the number of students who were enrolled in E3 before reshuffle = 46 - 10 = 36.

Number of students who moved from E1 to all other electives are known. Therefore, the number of students who were enrolled in E1 before reshuffle = 9 + 5 + 10 + 1 + 4 + 2 = 31.

It is given that before the change process there were 6 more students in E1 than in E4. Therefore, the number of students who were enrolled in E4 before reshuffle = 31 - 6 = 25.

Also, it is given that E4 had 2 more students than E6 before reshuffle. Therefore, the number of students who were enrolled in E6 before reshuffle = 25 - 2 = 23.

All the students from E7 moved to one of electives among E1 to E6. Therefore, the number of students who were enrolled in E7 before reshuffle = 4 + 16 + 30 + 5 + 5 + 41 = 101.

Except E5 we know the number of students who were enrolled in all electives. We also know that there were total 300 students who opted for exactly 1 elective.

Hence, the the number of students who were enrolled in E7 before reshuffle = 300 - (46+36+31+25+23+101) = 38.

For each elective, the number of students who were enrolled before reshuffle will be same as sum of the number of students who moved from that elective to another elective including no movement cases.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2		34	8		2	2	46
	E3	2	6	25			2	36
	E4		3	2	14		4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E2,

Number of students who moved to E1 + 34 + 8 + Number of students who moved to E4 + 2 + 2 = 46

i.e. Number of students who moved from to E1 = Number of students who moved from to E4 = 0

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4		3	2	14		4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E4,

Number of students who moved to E1 + 3 + 2 + 14 + Number of students who moved to E5 + 4 = 25

i.e. Number of students who moved from to E1 = Number of students who moved from to E5 = 1 {As the remaining blanks can befilled by either 0 or 1}

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4	1	3	2	14	1	4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E6,

Number of students who moved to E1 + 7 + 3 + Number of students who moved to E4 + 2 + 9 = 23

i.e. Number of students who moved from to E1 = Number of students who moved from to E4 = 1 {As the remaining blanks can befilled by either 0 or 1}

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4	1	3	2	14	1	4	25
	E5		5			30		38
	E6	1	7	3	1	2	9	23
	E7	4	16	30	5	5	41	101

It is given that after the reshuffle, the number of students in E4 was 3 more than that in E1. As of now the number of students enrolled in E4 after reshuffle = 1 + 0 + E3 to E4 + 14 + E5 to E4 + 1 + 5 = 21 + {E3 to E4} + {E5 to E4}

Also, the number of students enrolled in E1 after reshuffle = 9 + 0 + 2 + 1 + E5 to E1 + 1 + 4 = 17 + E5 to E1.

Hence, it is possible only when E5 to E1 = 1 and E3 to E4 = E5 to E4 = 0.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25	0		2	36
	E4	1	3	2	14	1	4	25
	E5	1	5		0	30		38
	E6	1	7	3	1	2	9	23
	E7	4	16	30	5	5	41	101

Remaining blank places can befilled easily as we know the total sum of each row.

Therefore, the number of students who moved from E3 to E5 = the number of students who moved from E5 to E3 = the number of students who moved from E5 to E6 = 1.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	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

We are asked the largest change in its enrollment as a percentage of its original enrollment for all 6 electives but as we can see there are only 4 electives. Hence, we will check only for E1, E2, E3 and E6.

The percentage change in the number of students for E1 $= \frac{18 - 31}{31} \times 100 \approx 42\ \%$

The percentage change in the number of students for E2 $= \frac{76 - 46}{46} \times 100 \approx 65\ \%$

The percentage change in the number of students for E3 $= \frac{79 - 36}{36} \times 100 \approx 119\ \%$

The percentage change in the number of students for E6 $= \frac{61 - 23}{23} \times 100 \approx 165\ \%$

We can see that the percent change in the number of student for E6 is the largest. Therefore, option D is the correct answer.

42. **A**

It is given that before the change process there were 10 more students in E2 than in E3. Therefore, the number of students who were enrolled in E3 before reshuffle = 46 - 10 = 36.

Number of students who moved from E1 to all other electives are known. Therefore, the number of students who were enrolled in E1 before reshuffle = 9 + 5 + 10 + 1 + 4 + 2 = 31.

It is given that before the change process there were 6 more students in E1 than in E4. Therefore, the number of students who were enrolled in E4 before reshuffle = 31 - 6 = 25.

Also, it is given that E4 had 2 more students than E6 before reshuffle. Therefore, the number of students who were enrolled in E6 before reshuffle = 25 - 2 = 23.

All the students from E7 moved to one of electives among E1 to E6. Therefore, the number of students who were enrolled in E7 before reshuffle = 4 + 16 + 30 + 5 + 5 + 41 = 101.

Except E5 we know the number of students who were enrolled in all electives. We also know that there were total 300 students who opted for exactly 1 elective.

Hence, the the number of students who were enrolled in E7 before reshuffle = 300 - (46+36+31+25+23+101) = 38.

For each elective, the number of students who were enrolled before reshuffle will be same as sum of the number of students who moved from that elective to another elective including no movement cases.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2		34	8		2	2	46
	E3	2	6	25			2	36
	E4		3	2	14		4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E2,

Number of students who moved to E1 + 34 + 8 + Number of students who moved to E4 + 2 + 2 = 46

i.e. Number of students who moved from to E1 = Number of students who moved from to E4 = 0

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4		3	2	14		4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E4,

Number of students who moved to E1 + 3 + 2 + 14 + Number of students who moved to E5 + 4 = 25

i.e. Number of students who moved from to E1 = Number of students who moved from to E5 = 1 {As the remaining blanks can befilled by either 0 or 1}

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4	1	3	2	14	1	4	25
	E5		5			30		38
	E6		7	3		2	9	23
	E7	4	16	30	5	5	41	101

For elective E6,

Number of students who moved to E1 + 7 + 3 + Number of students who moved to E4 + 2 + 9 = 23

i.e. Number of students who moved from to E1 = Number of students who moved from to E4 = 1 {As the remaining blanks can befilled by either 0 or 1}

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25			2	36
	E4	1	3	2	14	1	4	25
	E5		5			30		38
	E6	1	7	3	1	2	9	23
	E7	4	16	30	5	5	41	101

It is given that after the reshuffle, the number of students in E4 was 3 more than that in E1. As of now the number of students enrolled in E4 after reshuffle = 1 + 0 + E3 to E4 + 14 + E5 to E4 + 1 + 5 = 21 + {E3 to E4} + {E5 to E4}

Also, the number of students enrolled in E1 after reshuffle = 9 + 0 + 2 + 1 + E5 to E1 + 1 + 4 = 17 + E5 to E1.

Hence, it is possible only when E5 to E1 = 1 and E3 to E4 = E5 to E4 = 0.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	E1	9	5	10	1	4	2	31
	E2	0	34	8	0	2	2	46
	E3	2	6	25	0		2	36
	E4	1	3	2	14	1	4	25
	E5	1	5		0	30		38
	E6	1	7	3	1	2	9	23
	E7	4	16	30	5	5	41	101

Remaining blank places can be filled easily as we know the total sum of each row.

Therefore, the number of students who moved from E3 to E5 = the number of students who moved from E5 to E3 = the number of students who moved from E5 to E6 = 1.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	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

We can see from the table that number of students enrolled in E1 dropped to 18. Hence, all the students who moved from E1 to any other elective will have to re-enroll in E1.

We can see that the number of students who enrolled for E1 prior to reshuffle = 31. Out of these 31 students, 9 students didn't move to any other elective whereas remaining 22 students moved to other electives. Hence, all these 22 students have to re-enroll in E1.

Therefore, the total number of students in E1 post re-enrollment = 18 + 22 = 40 which is shown in the table.

		To Elective						
		E1	E2	E3	E4	E5	E6	Total
From Elective	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	69	20	41	59	300

Therefore, the sequence of electives in decreasing order of their final enrollments = E2, E3, E6, E5, E1, E4.

Hence, option A is the correct answer.

43. **C**

Neeta received least amount in bank deposits implies she received highest amount in property and the vice-versa for Geeta. The assets are 3 flats worth 90 lakh, a house worth 50 lakh, and a deposit worth 70 lakh. The total value of assets is 210 lakhs. They are divided equally, so each will receive assets worth 70 lakh.

No one daughter can get 3 flats as the total value of asset will be 90 lakhs which is greater than actual share.

All three daughters can't get 1-1 flat each as well. In that case, the daughter who owns 1 flat and the house will have assets worth 30+50 = 80 lakhs which is more than the actual share. Hence, we can conclude the one of the three daughter gets 2 flats and 10 lakhs bank deposit.

Out of the remaining two daughters, one will get the house and bank deposit worth 20 lakhs and the other one must have 1 flat and 40 lakhs in bank deposit. On the basis of bank distribution we can easily determine that property and bank deposits for each Neera, Seeta and Geeta.

	Neeta	Seeta	Geeta
Property	2 flats worth 60 lakhs	house worth 50 lakhs	1 flat worth 30 lakhs
Bank deposits	10 lakhs	20 lakhs	40 lakhs

From the table, we can see that Seeta must have received Rs. 20 lakh in bank deposits. Hence, option C is the correct answer.

44. **2**

Neeta received least amount in bank deposits implies she received highest amount in property and the vice-versa for Geeta. The assets are 3 flats worth 90 lakh, a house worth 50 lakh, and a deposit worth 70 lakh. The total value of assets is 210 lakhs. They are divided equally, so each will receive assets worth 70 lakh.

No one daughter can get 3 flats as the total value of asset will be 90 lakhs which is greater than actual share.

All three daughters can't get 1-1 flat each as well. In that case, the daughter who owns 1 flat and the house will have assets worth 30+50 = 80 lakhs which is more than the actual share. Hence, we can conclude the one of the three daughter gets 2 flats and 10 lakhs bank deposit.

Out of the remaining two daughters, one will get the house and bank deposit worth 20 lakhs and the other one must have 1 flat and 40 lakhs in bank deposit. On the basis of bank distribution we can easily determine that property and bank deposits for each Neera, Seeta and Geeta.

	Neeta	Seeta	Geeta
Property	2 flats worth 60 lakhs	house worth 50 lakhs	1 flat worth 30 lakhs
Bank deposits	10 lakhs	20 lakhs	40 lakhs

From the table, we can see that Neeta received 2 flats.

45. **B**
Let the total number of gold coins with the old woman be '9n'.
Total value of the assets with the old woman = 50 + 3*30 + 70 + 9n = 210+9n.
We know that the assets have been distributed in the ratio 1:2:3.
Therefore, Neeta must have received 35+1.5n (by value), Seeta must have received 70+3n and Geeta must have received 105+4.5n.
Further, it has been given that the gold coins distributed were in the ratio 2:3:4.
Therefore, the number of gold coins with Neeta must be '2n', Seeta must be '3n' and Geeta must be '4n'.
Seeta has '3n' gold coins. Therefore, the total value of the assets with her must be 70. Seeta could not have inherited all the flats. Therefore, Seeta must have received the house (worth 50 lakh) and 20 lakh from bank deposits.

We know that Geeta did not receive Rs. 30 lakh from the bank deposits. Therefore, Neeta must have received Rs. 30 lakh.
The remaining 5 lakh must be contributed by the gold coins (Since there is no other asset worth 5 lakh).
=> 5 + 1.5n = 2n
=> 0.5n = 5
=> n = 10
The old-woman must have had 10*9 = 90 gold coins. Therefore, option B is the right answer.

46. **20**
Let the total number of gold coins with the old woman be '9n'.
Total value of the assets with the old woman = 50 + 3*30 + 70 + 9n = 210+9n.
We know that the assets have been distributed in the ratio 1:2:3.
Therefore, Neeta must have received 35+1.5n (by value), Seeta must have received 70+3n and Geeta must have received 105+4.5n.
Further, it has been given that the gold coins distributed were in the ratio 2:3:4.
Therefore, the number of gold coins with Neeta must be '2n', Seeta must be '3n' and Geeta must be '4n'.
Seeta has 3n gold coins. Therefore, the total value of the assets with her must be 70. Seeta could not have inherited all the flats. Therefore, Seeta must have received the house (worth 50 lakh) and 20 lakh from bank deposits.

We know that Geeta did not receive Rs. 30 lakh from the bank deposits. Therefore, Neeta must have received Rs. 30 lakh.
The remaining 5 lakh must be contributed by the gold coins (Since there is no other asset worth 5 lakh).
=> 5 + 1.5n = 2n
=> 0.5n = 5
=> n = 10
The oldwoman must have had 10*9 = 90 gold coins.
Total assets = 210 + 90*1 = 300 lakh
Neeta has received 50 lakh in total, Seeta has received 100 lakh and Geeta has received 150 lakh.
Geeta must have received 90 lakh from 3 flats. Out of the remaining 60 lakh, 4*10 = 40 lakh has been contributed by the gold coins. Geeta must have received 150 - 90 - 40 = 20 lakh from bank deposits. Therefore, 20 is the right answer.

Explanation [47 - 50]:
Odd numbered dorms need either moderate or extensive repair.

Even numbered dorms need either light or extensive repair.

Type of repair	Light	Moderate	Extensive
(Possible dorms)	2, 4, 6, 8, 10	1, 3, 5, 7, 9	1, 2, 4, 5, 7, 8, 10
Distribution	2 (1 crore) 1 (2 crore)	3 (3 crore) 1 (4 crore)	1 (5 crore) 2 (6 crore)
Dorm numbers (Definite)			

It has been given that dorms 4 to 9 all require different repairing costs. The dorms 3 and 9 should require moderate repair (going by the table). Dorm 7 costs the highest. Therefore, dorm 7 should require 6 crores to repair. Dorm 8 requires the least cost to repair. Therefore, dorm 8 should cost 1 crore to repair. We can eliminate these dorm numbers from other 2 lists.

Type of repair	Light	Moderate	Extensive
(Possible dorms)	2, 4, 6, 10		2, 4, 10
Distribution	2 (1 crore) 1 (2 crore)	3 (3 crore) 1 (4 crore)	1 (5 crore) 2 (6 crore)
Dorm numbers (Definite)	8	1, 3, 5, 9	7

Dorms 4 to 9 cost different costs to repair. => Both dorms 5 and 9 cannot require the same cost of repair.
Dorms 1 and 3 should require 3 crores to repair.

Dorm 6 should require light repair (2 crores) since dorm 8 requires 1 crore to repair.
=> Dorm 4 requires 5 crore to repair.

Dorm	1	2	3	4	5	6	7	8	9	10
Cost	3	1 or 6	3	5	3 or 4	2	6	1	3 or 4	1 or 6

47. **D**
We can see that all options except option D are definitely true. Option D cannot be ascertained to be true. Dorm 10 can cost Rs. 1 crore or Rs. 6 crores to repair. Therefore, option D is the right answer.

48. **19**
Cost = 3 + 3 + 6 + 3 + 4 = Rs.19 crores. Therefore, 19 is the correct answer.

49. **3**
Odd numbered dorms need either moderate or extensive repair.

Even numbered dorms need either light or extensive repair.

Type of repair	Light	Moderate	Extensive
(Possible dorms)	2, 4, 6, 8, 10	1, 3, 5, 7, 9	1, 2, 4, 5, 7, 8, 10
Distribution	2 (1 crore) 1 (2 crore)	3 (3 crore) 1 (4 crore)	1 (5 crore) 2 (6 crore)
Dorm numbers (Definite)			

It has been given that dorms 4 to 9 all require different repairing costs. The dorms 3 and 9 should require moderate repair (going by the table). Dorm 7 costs the highest. Therefore, dorm 7 should require 6 crores to repair. Dorm 8 requires the least cost to repair. Therefore, dorm 8 should cost 1 crore to repair. We can eliminate these dorm numbers from other 2 lists.

Type of repair	Light	Moderate	Extensive
(Possible dorms)	2, 4, 6, 10		2, 4, 10
Distribution	2 (1 crore) 1 (2 crore)	3 (3 crore) 1 (4 crore)	1 (5 crore) 2 (6 crore)
Dorm numbers (Definite)	8	1, 3, 5, 9	7

Dorms 4 to 9 cost different costs to repair. => Both dorms 5 and 9 cannot require the same cost of repair.
Dorms 1 and 3 should require 3 crores to repair.

Dorm 6 should require light repair (2 crores) since dorm 8 requires 1 crore to repair.
=> Dorm 4 requires 5 crore to repair.

Dorm	1	2	3	4	5	6	7	8	9	10
Cost	3	1 or 6	3	5	3 or 4	2	6	1	3 or 4	1 or 6

There are 3 dorms from 6 to 10 which are women's dorms.

It has been given that the cost of repairing the woman dorms add up to 20. Therefore, the distribution of the costs should be 6+6+5+3.
Dorm 4 is the dorm whose number is below 5 but is a woman's dorm. Therefore, dorm 9 should cost Rs.3 crores to repair. Dorm 8 cannot be a woman's dorm. Therefore, dorm 10 should be a woman's dorm and should cost Rs. 6 crore to repair.

Dorm 9 will cost Rs.3 crore to repair and hence, 3 is the correct answer.

50. **D**

It has been given that the cost of repairing the woman dorms add up to 20. Therefore, the distribution of the costs should be 6+6+5+3.
Dorm 4 is the dorm whose number is below 5 but is a woman's dorm. Therefore, dorm 9 should cost Rs.3 crores to repair. Dorm 8 cannot be a woman's dorm. Therefore, dorm 10 should be a woman's dorm and should cost Rs. 6 crore to repair.

Hence, Option D is the right answer.

Explanation [51 - 54]:
Now we are given that the lowest rating is an even number and only 2 cups got an even number rating.
Let's take cases:-
1. The lowest rating is 4
If the lowest rating in 4 then the other ratings will be in the range 5-10.
From this we need 4 odd and 1 even numbers.
This is not possible as there are only 3 odd numbers from 5-10.
Thus, the lowest rating is not 4.
2. The lowest rating is 2.
If the lowest rating in 4 then the other ratings will be in the range 5-10.
From this we need 4 odd and 1 even numbers.
This is possible when the odd ratings are 3,5,7 and 9.
We are given that the highest rating is not even. Thus, 10 rating is not possible.
We are also given that the rating of tea in Cup 3 was double the rating of the tea in Cup 5.
Thus, the rating of the tea in cup 3 is an even number.
Thus, the rating of the tea in cup 5 must be an odd number.
Only 1 such pair is possible of 3 and 6.
Thus, the tea in cup 2 got the rating of 2.
The tea in cup 3 got a rating of 6 and the tea in cup 5 got a rating of 3.
We are given that:-
Tea in Cup 3 got a higher rating than that in Cup 1.
Thus, the tea in cup 1 got a rating of 5.
Cup 6 contained tea from Himachal and the Tea from Ooty got the highest rating.
Thus, cup 6 got a rating of 7 and cup 4 got a rating of 9.
The table is as shown below:-

Cup no.	1	2	3	4	5	6
Rating	5	2	6	9	3	7
Place				Ooty		Himachal

51. **7**
Hence, 7 is the 2nd highest rating given.

52. **4**
Thus, 4 was the number of the cup that contained tea from Ooty.

53. **B**
If the tea from Munnar did not get the minimum rating then it must have got the 2nd lowest rating as we know, Assam>Wyanand>Munnar.
Thus, Wyanand must have got a rating of 5.

54. **B**
The table is as shown below:-

Cup no.	1	2	3	4	5	6
Rating	5	2	6	9	3	7
Place				Ooty		Himachal

It is given that the rating of Assam>Wayanad>Munnar

Hence, since Wayanad and Ooty are in consecutive cups, Wayanad can be either in cup number 3 or 5.

So Wayanad can only be in cup number 5, then Munnar will be in cup number 2. So Darjeeling and Assam can be in cup 1 and 3 in any order.

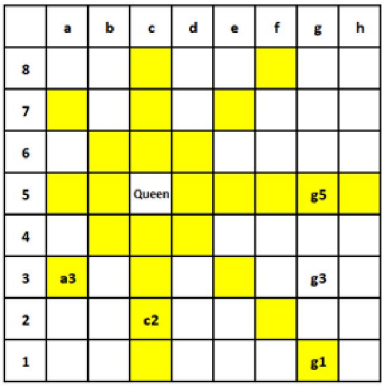
Hence B is a possibility.

55. **C**

Let us draw the diagram and mark position of various pieces as given in the question.

	a	b	c	d	e	f	g	h
8								
7								
6								
5			Queen				g5	
4								
3	a3						g3	
2			c2					
1							g1	

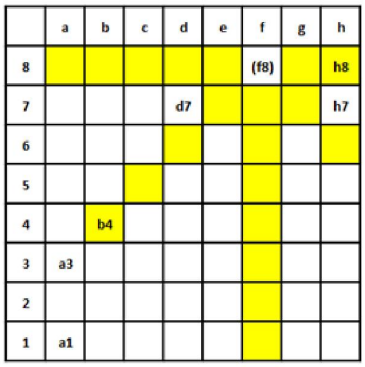
Attack line is shown by the yellow color. All the pieces on this line will be under attack.



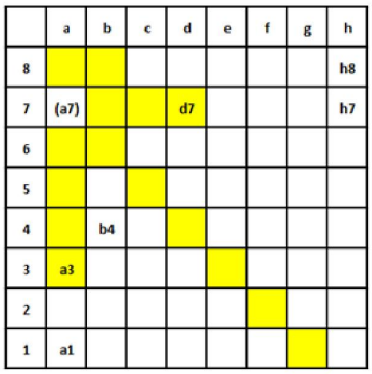
From the diagram we can see that a3, g1, c2 and g5 are under attack. Hence, option C is the correct answer.

56. **D**

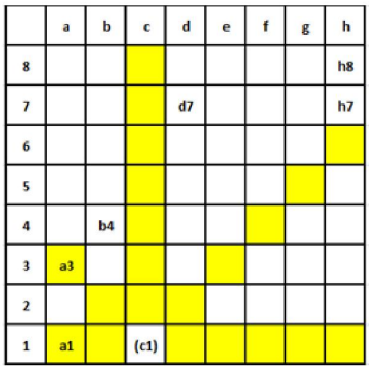
Option (a): When queen is at f8. In this case h8 and b4 will be under attack.



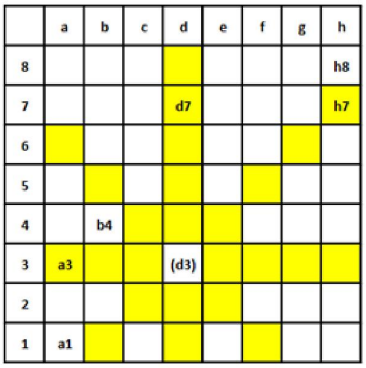
Option (b): When queen is at a7. In this case a3 and d7 will be under attack.



Option (c): When queen is at c1. In this case a1 and a3 will be under attack.



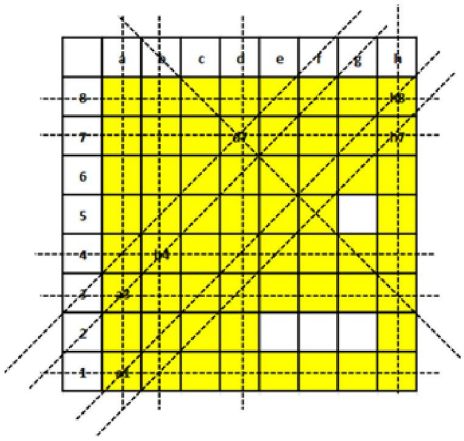
Option (d): When queen is at d3. In this case a3, d7 and h3 will be under attack.



Therefore, we can say that option D is the correct answer.

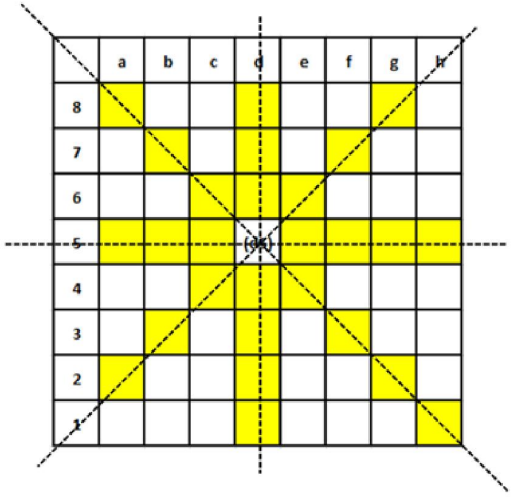
57. **C**

From the diagram we can see that except positions e2, f2, g2 and g5 queen can attack at least one among the given pieces.



Hence, we can say that there are exactly for position from where queen can't attack any of the given pieces. Therefore, option C is the correct answer.

58. **C**



From the diagram we can see that the number of positions those are safe from queen's attack = 6 + 5 + 5 + 5 + 5 + 5 + 5 = 36. Therefore, option C is the correct answer.

Explanation [59 - 62]:

We are given that Jayanta, Ajit and Byomkesh were sitting in seats marked by the same letter, in consecutive rows in increasing order of row numbers; but all of them paid different amounts for their choices of seat.
Let us see how the friends are supposed to pay for the seats they choose:-
In row 1-1000
In row 2-10 - 300 for window and 500 for aisle
In row 11 - 200 for window and 400 for aisle
In row 12,13 - 1000
In row 14-20 - 200 for window and 400 for aisle
In row 21-30 - 0
Thus, As we can see 10, 11 and 12 are the only consecutive seats in which the amounts is different.
Thus, Jayanth, Ajit and Byomkesh sat in row 10, row 11 and row 12.
Manik sat beside Jayantha and thus Manik is also sitting in row 10.
Now we are given that 7 of the 8 friends paid a total of 4600 Rs.
Let's start with the cases:-
It is obvious that 5 friends cannot pay 1000 Rs for their seat because the amount will exceed 4600
Case 1:- 4 friends pay 1000 Rs each. Thus, the remaining friends will pay 600 Rs.

This is possible only when each of them pay 200 Rs.
So the case is- 1000*4 , 200*3
Case 2 :- 3 friends pay 1000 Rs each. Thus, the remaining friends will pay 1600 Rs.
There are 2 cases where this is possible:-
1000*3, 500*2, 400, 200
1000*3, 400*4
Case 3:- 2 friends pay 1000 Rs each. Thus, the remaining 5 friends will pay 2600 Rs.
This is not possible as each friend can pay a maximum of 500 Rs.
Thus, the possible cases are
1000*4 , 200*3
1000*3, 500*2, 400, 200
1000*3, 400*4
As there is no case in which a friend has to pay 300 Rs thus, Jayantha must be sitting in row 10 aisle seat.
Thus, Jayantha paid 500 Rs.
Thus, the case is:-
1000*3, 500*2, 400, 200
Thus, Manik must have also paid 500 sitting in row 10 aisle seat
Ajit must be sitting in row 11 aisle seat paying 400 Rs.
Byomyesh must be sitting row 12 aisle seat paying 1000 Rs.
Thus, among Gargi, Kikira, Pradosh and Tapesh 2 must have paid 1000, 1 must have paid 200 and the remaining person must have paid nothing.
Now we know Gargi and Kikira are sitting adjacent to each other and thus, either both or none of them must have paid 1000 Rs.
Among Pradosh and Tapesh a maximum of 1 person could have paid 1000 Rs.
Thus, the only possible case here is :-
Gargi and Kikira paid 1000 each.
Pradosh is sitting ahead of Tapesh and one of them paid 200 Rs.
Since, both of them were sitting in seats marked by the same letter, in consecutive rows thus, the only possibility is Pradosh sitting in row 20 window seat and paying 200 and Tapesh sitting in row 21 paying nothing.
59. **A**
Thus, the amount paid by each friend is as shown below:

	Amount paid	Row-seat
Gargi	1000	1 or 13
Kikira	1000	1 or 13
Pradosh	200	20-W
Tapesh	0	21
Manik	500	10-A
Jayantha	500	10-A
Ajit	400	11-A
Byomyesh	1000	12-A

Manik is sitting in row 10.

60. **C**
Thus, the amount paid by each friend is as shown below:-

	Amount paid	Row-seat
Gargi	1000	1 or 13
Kikira	1000	1 or 13
Pradosh	200	20-W
Tapesh	0	21
Manik	500	10-A
Jayantha	500	10-A
Ajit	400	11-A
Byomyesh	1000	12-A

Jayanta paid 500 for her choice of seat.

61. **D**
Thus, the amount paid by each friend is as shown below:-

	Amount paid	Row-seat
Gargi	1000	1 or 13
Kikira	1000	1 or 13
Pradosh	200	20-W
Tapesh	0	21
Manik	500	10-A
Jayantha	500	10-A
Ajit	400	11-A
Byomyesh	1000	12-A

Gargi paid 1000 rs for her choice of seat

62. **D**
We are given that Jayanta, Ajit and Byomkesh were sitting in seats marked by the same letter, in consecutive rows in increasing order of row numbers; but all of them paid different amounts for their choices of seat.

Let us see how the friends are supposed to pay for the seats they choose:-
In row 1-1000
In row 2-10 - 300 for window and 500 for aisle
In row 11 - 200 for window and 400 for aisle
In row 12,13 - 1000
In row 14-20 - 200 for window and 400 for aisle

In row 21-30 - 0
Thus, As we can see 10, 11 and 12 are the only consecutive seats in which the amounts is different.
Thus, Jayanth, Ajit and Byomkesh sat in row 10, row 11 and row 12.
Manik sat beside Jayantha and thus Manik is also sitting in row 10.
Now we are given that 7 of the 8 friends paid a total of 4600 Rs.
Let's start with the cases:-
It is obvious that 5 friends cannot pay 1000 Rs for their seat because the amount will exceed 4600
Case 1:- 4 friends pay 1000 Rs each. Thus, the remaining friends will pay 600 Rs.
This is possible only when each of them pay 200 Rs.
So the case is- 1000*4 , 200*3
Case 2 :- 3 friends pay 1000 Rs each. Thus, the remaining friends will pay 1600 Rs.
There are 2 cases where this is possible:-
1000*3, 500*2, 400, 200
1000*3, 400*4
Case 3:- 2 friends pay 1000 Rs each. Thus, the remaining 5 friends will pay 2600 Rs.
This is not possible as each friend can pay a maximum of 500 Rs.
Thus, the possible cases are
1000*4 , 200*3
1000*3, 500*2, 400, 200
1000*3, 400*4
As there is no case in which a friend has to pay 300 Rs thus, Jayantha must be sitting in row 10 aisle seat.
Thus, Jayantha paid 500 Rs.
Thus, the case is:-
1000*3, 500*2, 400, 200
Thus, Manik must have also paid 500 sitting in row 10 aisle seat
Ajit must be sitting in row 11 aisle seat paying 400 Rs.
Byomyesh must be sitting row 12 aisle seat paying 1000 Rs.
Thus, among Gargi, Kikira, Pradosh and Tapesh 2 must have paid 1000, 1 must have paid 200 and the remaining person must have paid nothing.
Now we know Gargi and Kikira are sitting adjacent to each other and thus, either both or none of them must have paid 1000 Rs.
Among Pradosh and Tapesh a maximum of 1 person could have paid 1000 Rs.
Thus, the only possible case here is :-
Gargi and Kikira paid 1000 each.
Pradosh is sitting ahead of Tapesh and one of them paid 200 Rs.
Since, both of them were sitting in seats marked by the same letter, in consecutive rows thus, the only possibility is Pradosh sitting in row 20 window seat and paying 200 and Tapesh sitting in row 21 paying nothing.
Thus, the amount paid by each friend is as shown below:-

	Amount paid	Row-seat
Gargi	1000	1 or 13
Kikira	1000	1 or 13
Pradosh	200	20-W
Tapesh	0	21
Manik	500	10-A
Jayantha	500	10-A
Ajit	400	11-A
Byomyesh	1000	12-A

Tapesh did not paid any amount.

63. **11**
Let the original sequence be TIMRL

Two fingers can be out of place. This can be done if and only if two fingers interchange their position. These two can be selected in ${}^5C_2 = 10$ ways. In addition to these, the original sequence will also be accepted. Hence the total number of acceptable sequences = 10 + 1 = 11

64. **C**
Input of the scanned sequence of five fingers is allowed to vary from the original sequence by one place for any of the fingers. This can be achieved only when two consecutive fingers are interchanged. Let the original sequence be TIMRL
Case 1: Only a set of two consecutive numbers are interchanged.
They can be selected in 5-1 = 4 ways
Case 2: Two sets of two consecutive numbers are interchanged.
(i) TI are interchanged, => (MR, RL) => 2 ways
(ii) IM are interchanged => (RL) => 1 way
Total no of ways possible = 4 + 2 + 1 = 7

Including the original sequence, we get the total number of allowed combinations as 8

65. **15**
There can be two scans out of place.

TIMTRL is the original sequence.

If T is interchanged: There will be four ways: ITMTRL, MITTRL, RIMTTL, LIMTRT

If I is interchanged: There will be four ways

If M is interchanged: There will be three ways

If T is interchanged: There will be two ways

If R is interchanged: There will be one way

Total 14.

Another sequence allowed is original, So total 15 ways.

66. **C**
1. If original sequence is given.

2. If either of LR, RL, LT, TI, IM is interchanged => 5 ways.

3. If LR and LT and IM interchanged. The sequence will look like: RLTLMI

4. If LR and LT are interchanged.
5. If LR and TI are interchanged.

6. If LR and IM are interchanged.

7. If RL and TI are interchanged.

8. If RL and IM are interchanged.

9. If LT and IM are interchanged.

Total 13 ways possible.