LRDI - 26th Jan,2018

https://www.facebook.com/events/1611646455578822/permalink/1611736882236446

Slot 1

SET 1

A square of side 5m has equal square platforms of different heights. The heights of individual platforms are given below:  
6 1 2 4 3   
9 5 3 2 8  
7 8 4 6 5   
3 9 5 1 2   
1 7 6 3 9

Individuals (all of same height) are seated on these platforms. We say an individual A can reach an individual B if all the three following conditions are met:

i)A and B are in the same row or column   
ii)if A is at a lower height than B  
(iii) if there is/are any individual(s) between A and B, such individual(s) must be at a height lower than that of A.

Thus in the table given above consider the individual seated at height 8 on 3rd row and 2nd column. It can be reached by four individuals. it can be reached by the individual on his left at height 7, by the two individuals on his right at heights of 4 and 6 and by the individual above at height 5,  
Rows in the layout are numbered from top to bottom and columns are numbered from left to right

Q1.How many individuals in this layout can be reached by just one individual?  
a.3  
b.5  
c.7  
d.8

Ans. c

Q2.We can find two individuals who cannot be reached by anyone in  
a. Last Row  
b.4th Row  
c.4th Column  
d. Middle Column

Ans. c

Q4.Which of the following is true about this layout?  
a. Each row has an individual who can be reached by 5 or more individuals.  
b. Each row has an individual who cannot be reached by anyone  
c. Each row has at least two individuals who can be reached by an equal no. of individuals.  
d. All individuals at the height of 9m can be reached by at least 5 individuals.

Ans. c

Q3. Which of the following is true for any individual at a platform of height 1 m in this layout?  
a. They can be reached by all the individuals in their own row and column.  
b. They can be reached by at least 4 individuals.  
c. They can be reached by at least one individual.  
d. They cannot be reached by anyone.

Q3. Which of the following is true for any individual at a platform of height 1 m in this layout?  
a. They can be reached by all the individuals in their own row and column.  
b. They can be reached by at least 4 individuals.  
c. They can be reached by at least one individual.  
d. They cannot be reached by anyone.

Ans. d

Solution explaination : https://www.youtube.com/watch?v=1sbl22HpzUg&feature=youtu.be

A new airlines company is planning to start operations in a country. The company has identified ten different cities which they plan to connect through their network to start with. The flight duration between any pair of cities will be less than one hour. To start operations, the company has to decide on a daily schedule.  
The underlying principle that they are working on is the following:  
Any person staying in any of these 10 cities should be able to make a trip to any other city in the morning and should be able to return by the evening of the same clay.

Q1. If the underlying principle is to be satisfied in such a way that the journey between any two cities can be performed using only direct (non-stop) flights, then the minimum number of direct flights to be scheduled is:  
a.45  
b.90  
c.180  
d.135

Q2.Suppose three of the ten cities are to be developed as hubs. A hub is a city which is connected with every other City by direct flights each way, both in the morning as well as in the evening. The only direct flights which will be scheduled are originating and/ or terminating in one of the hubs. Then the minimum number of direct flights that need to be scheduled so that the underlying principle of the airline to serve all the ten cities is met without visiting more than one hub during one trip is:  
a.54  
b.120  
c.96  
d.60

Q3.Suppose the 10 cities are divided into 4 distinct groups G1, G2, G3, G4 having 3, 3, 2 and 2 cities respectively and that G1 consists of cities named A, B and C. Further, suppose that direct flights are allowed only between two cities satisfying one of the following:  
Both cities are in G1  
Between A and any city in G2  
Between B and any city in G3  
Between C and any city in G4  
Then the minimum number of direct flights that satisfies the underlying principle of the airline is:

Q4.Suppose the 10 cities are divided into 4 distinct groups G1, G2, GB, G4 having 3, 3, 2 and 2 cities respectively and that G1 consists of cities named A, B and C. Further, suppose that direct flights are allowed only tietween two cities satisfying one of the following:  
Both cities are in G1  
Between A and any city in G2  
Between B and any city in G3  
Between C and any city in G4  
However, due to operational difficulties at A, it was later decided that the only flights that would operate at A would be those to and from B. Cities in G2 would have to be assigned to G3 or to G4.  
What would be the maximum reduction in the number of direct flights as compared to the situation before the operational difficulties arose?

Solution : https://www.youtube.com/watch?v=JcYdFIHQ-zU&feature=youtu.be

12-15 mins.

Four cars need to travel from Akala (A) to Bakala (B). Two routes are available, one via Mamur (M) and the other via Nanur (N). The roads from A to M, and from N to B, are both short and narrow. In each case, one car takes 6 minutes to cover the distance, and each additional car increases the travel time per car by 3 minutes because of congestion. (For example, if only two cars drive from A to M, each car takes 9 minutes.) On the road from A to N, one car takes 20 minutes, and each additional car increases the travel time per car by 1 minute. On the road from M to B, one car takes 20 minutes, and each additional car increases the travel time per car by 0.9 minute.  
The police department orders each car to take a particular route in such a manner that it is not possible for any car to reduce its travel time by not following the order, while the other cars are following the order.

Q1.How many cars would have been asked to travel by A-N-B ,by the police?

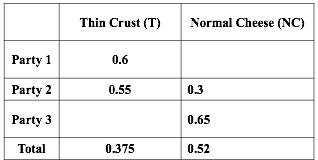
Q2.If all the cars follow the police order, what is the difference in travel time (in minutes) between a car which takes the route A-N-B and a car that takes the route A-M-B?  
a.1  
b.0.1  
c.0.2  
d.0.9

Q3.A new one-way road is built from M to N. Each car now has three possible routes to travel from A to B: A-M-B, A-N-B and A-M-N-B. On the road from M to N, one car takes 7 minutes and each additional car increases the travel time per car by 1 minute. Assume that any car taking the A-M-N-B route travels the A-M portion at the same time as other cars taking the A-M-B route, and the N-B portion at the same time as other cars taking the A-N-B route.  
How many cars would the police department order to take the A-M-N-B route so that it is not possible for any car to reduce its travel time by not following the order while the other cars follow the order? (Assume that the police department would never order all the cars to take the same route.)

Q4.A new one-way road is built from M to N. Each car now has three possible routes to travel from A to B: A-M-B, A-N-B and A-1,1-N-B. On the road from NI to N, one car takes 7 minutes and each additional car increases the travel time per car by 1 minute. Assume that any car taking the A-M-N-B route travels the A-PI portion at the same time as other cars taking the A-M-B route, and the N-B portion at the same time as other cars taking the A-N-B route.  
I f all the cars follow the police order, what is the minimum travel time (in minutes) from A to B? (Assume that the police department would never order all the cars to take the same route.)  
a.26  
b.32  
c.29.9  
4.30

Solution : https://www.youtube.com/watch?v=xk7qf\_gqU4Y&feature=youtu.be

ets solve an easy typical DI set from slot 2.  
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:

[[](https://www.facebook.com/photo.php?fbid=1751380278246947&set=gm.1611822895561178&type=3)](https://www.facebook.com/photo.php?fbid=1751380278246947&set=gm.1611822895561178&type=3)

Q1.How many Thin Crust pizzas were to be delivered to Party 3?  
a.398  
b.162  
c.196  
d.36

Q2. How many Normal Cheese pizzas were required to be delivered to Party 1?  
a.104  
b.84  
c.16  
d.196

Q3.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

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.59480  
b.59840  
c.42520  
d.45240

Solution : https://www.youtube.com/watch?v=8Dxn\_pqWr\_w&feature=youtu.be

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 their flavour on a scale of 1 to 10. He gave a unique integer rating to each tea. Some other information is given below:  
1.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.  
Cup 2 got the minimum rating and this rating was an even number.  
4.Tea in Cup 3 got a higher rating than that in Cup 1.  
5.The rating of tea from Wayanad was more than the rating of tea from Munnar, but less than that from Assam.

Q1.What was the second highest rating given?

Q2.What was the number of the cup that contained tea from Ooty?

Q3. If the tea from Munnar did not get the minimum rating, what was the rating of the tea from Wayanad?  
a.3  
b.4  
c.1  
d.5

 Q4. If cups containing teas from Wayanad and Qoty haci 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 got a rating of 6  
d.Tea from Darjeeling got the minimum rating.

sOLUTION : https://www.youtube.com/watch?v=1FkqkXs\_Mcg&feature=youtu.be