Nbtx10442\_week1\_sdf\_tutorial

Q1.Lift / Car (carry passengers)

-Moves up / down; Moves at different speed; Stops at floors

-Doors open/close at floors; emergency opening of doors

1. Hall Call Buttons (HCB) – Two Types: Up and Down.

GF Up; TF Down; Remaining Floors Both HCBs

2. Indicators – At each floor. Two types (Direction/Position)

Buttons for Elevator Request System (in Hall area)

Elevator Request System (ERS)

Buttons for Elevator Control System (inside the Lift)

1. Lift Buttons – Floor Buttons (GF to TF); Door open/close

buttons; Start/Stop buttons, etc.

2. Indicators – Two types (Direction/Position)

3. Emergency Buttons – Alarm, Calling buttons, etc.

Elevator Control System (ECS)

Elevator Logic Controller (ELC)

1. Receives requests from ERS / ECS and serve the request

2. Apply Emergency Break whenever requi

Elevator Control System

Flow of Events

Elevator Request

(1) Passenger / User in Hall area makes request (REQ1)

- presses Hall Call Button (Up or Down)

(2) ERS transfers the request (REQ1) to ELC

- detailing with floor number

(3) ELC adds the ERS request (REQ1) into the List of Floors

to Visit (LFV)

(4) Based on current LFV, ELC decides

- which direction (up or down) to move to serve the

next request (s)

- move towards the requested floor (s)

- to stop when the elevator is about to reach to a

floor in LFV and are along the route to REQ1

(5) ELC opens the elevator door when it stops at a floor

(6) ELC removes the served request from LFV

Q2.

* Traffic control system for 4 roads meeting each other.
* 4 traffic lights required on each road.
* There should be proper allotment of time for the traffic on each road to move.

For eg. When light of first road shows green signal the by keeping a gap of 25 sec for other traffic lights,we can arrange the traffic in a proper way.Each lane has waiting period of 100 seconds.

* We can make it more efficient by using camera of adavanced technologies which can detect the amount of traffic and accordingly adjust the time period of each lane.

Q3.sum of each row/column/diagnal will be 65 as it is 5\*5 magic square.

After solving we get,

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 17 | 24 | 1 | 8 | 15 |
| 23 | 5 | 7 | 14 | 16 |
| 4 | 6 | 13 | 20 | 22 |
| 10 | 12 | 19 | 21 | 3 |
| 11 | 18 | 25 | 2 | 9 |

Q4.

|  |  |  |
| --- | --- | --- |
| 14 | 7 | 12 |
| 9 | 11 | 13 |
| 10 | 15 | 8 |

We can find number of magic squares by rotating it 90º 180º 270º.But all of them will be identical.

Q5. Since the given numbers form no pattern, magic square is not possible.

Q6. C E \_ \_ \_ \_ \_ \_ =6!

C M \_ \_ \_ \_ \_ \_ =6!

C O E \_ \_ \_ \_ \_ =5!

C O M E \_ \_ \_ \_ =4!

C O M P E \_ \_ \_ =3!

C O M P R \_ \_ \_ =3!

C O M P T \_ \_ \_ = 3!

C O M P U E R T =1!

C O M P U E T R =1

C O M P U R E T =1

C O M P U R T E =1

C O M P U T E R =1

RANK OF COMPUTER IS = 720+720+120+24+6+6+6+1+1+1+1+1=1606th RANK.

Q7. Total number of lines in level 3=192

Length of each side in level 3=1 unit

Perimeter=192 units

Q8.Let the number of gold coins in the King’s treasury before he ordered be x

1st servant goes and triples the treasury and takes back 1 gold coin i.e. Treasury left after the first servant leaves=3x-12

2nd servant goes and triples the treasury and takes back 1 gold coin i.e. Treasury left after the second servant leaves=(3(3x-1)-1)=9x-43

3rd servant goes and triples the treasury and takes back 1 gold coin i.e. Treasury left after the third servant leaves=(3(9x-4)-1)= 27x-13

According to the problem, the king’s treasury was left with 500 gold coins

So, 27x-13=500

x= 19.

So the number of gold coins in the King’s treasury before he ordered were 19 coins.

Q9. D. Maintenance Phase

Q10. D. Requirement Analysis Phase