DAY 01 PUZZLES

Question 1

Four people A,B,C, D need to cross a bridge at night and they have only one torch. The bridge is too dangerous to cross without a torch and strong enough to support a maximum of two people at the time they take one, two, five and eight minutes respectively. What is the shortest time to offer all of them to cross the bridge ?

- A and B are the two fast the fastest person can cross the bridge in two minutes
    - (Total Time - 2 Minutes, Other Side - B)
- They can cross the bridge, B stays on the other end and a get back in one minute this makes
    - (Total Time - 2 + 1 = 3 Minutes , Other Side - B)
- Now C and D can cross the bridge who takes five and eight minutes respectively total time taken to cross the bridge is eight minutes
    - (Total Time - 3 + 8 = 11 Minutes , Other Side - B,C,D)
- B comebacks in two minutes to take A
    - (Total Time - 11 + 2= 13 Minutes , Other Side - C,D)
- A and B cross the Bridge
    - (Total Time - 13 + 2= 15 Minutes , Other Side - A,B,C,D)
- 15 minutes is the minimum time taken to cross the bridge

Question 2

There are 100 black socks and 100 white socks mixed up in a drawer. If I have to pick socks blindly from the drawer, how many socks do you need to take out to be sure that you have a matching pair of socks?

- It is important to note that it is asking for a matching pair of socks and not a specific colour
- If you think truly, three are the minimum number of socks that need to be pulled out for it to be matching pair
- If we take three songs from the drawer will blindly the combination that comes out to be
    - WBB
    - WWB
    - WWW
    - BWW
    - BWW
    - BBB
- B and W are black and white colours respectively there for picking three socks from the drug must get either black or white socks

Question 3

There are nine balls which weigh the same except for one, which is heavier than the others. What is the minimum number of ways that should be performed to find the ball with higher weight?

- If you carefully analyse the answer is to wait
- Let us know in the wall numerical 123456789
- Now wait 123 versus 456
- Scenario one
    - In these if balls balances out then heavier ball is in 789
    - In that case check 7 vs 8
        - it if this balance out the heavier ball is 9 if you’re not either seven or eight is a bear

        - If not, we know the higher weight in 7 or 8
- Scenario two
    - If they do not balance out, the heavier side has the ball.
    - Assume the 123 way heavier than 456 then weigh
        - 1 versus 2 if they balance out three is heavier
        - if not one or two balls
- Therefore we need to take minimum two ways to get the right answer

Question 4

At a party, everyone shook hands with everybody else. There are 66 handshakes. How many people were at the party?

- If there are N+1 people
- Number of handshakes =N
- N * (N+1) / 2 = 66
- N = 12
- So there are 12 people in the party

Question 5

There are two ropes and a lighter. Each rope takes exactly 60 minutes to burn completely. But the ropes do not burn at the constant rate, so you do not know that half of the ropes were burn in 30 minutes. For instance if one end of the rope is lit, it may take 5 minutes to burn the first half of it and 55 minutes to burn the second half. How can you measure exactly 45 minutes by burning the rope?

- Take one room and burn it at both ends
- At the same time when only one end of the other
- The rock which has both ends burning will won two times the speed of second one and hence will burn in 30 minutes
- At this point, the second rope has 30 minutes to burn
- At this point burning the other end of the rope and rope will burn at the double the speed
- So that remaining rope will burn in 15 minutes
- So adding 30 minutes and 15 minutes will give us 45 minutes