Puzzle – 10

Q- 2014 Bulbs Logical Puzzle

On a circle there are 2014 light bulbs, 2 are ON, and remaining 2012 are in OFF state. You can choose any bulb and change the neighbour's state from ON to OFF or from OFF to ON. remember if you select any bulb, you can change the state of the neighbouring bulbs only. Doing so, can we get all 2014 light bulbs on ? If yes, How?

My Approach and Solution –

Here, in this puzzle I would assume the bulbs which are in ON state are adjacent. Then, I would name the bulbs as B1, B2,…, B2014 where B1 and B2 are the bulbs in ON state.

Now, take a group of 4 adjacent bulbs i.e., B3, B4, B5 and B6. What we will do is select B4 and turn ON B3 and B5 and then select B5 and turn ON B4 and B6. In this way, all 4 of the selected bulbs are switched on.

We repeat this pattern for a number of times as the number of bulbs given to us switched OFF were = 2014 – 2 = 2012 which is divisible by 4.

2012 / 4 = 503.

Therefore, we would repeat the above mentioned steps 503 times to get all the 2014 light bulbs ON.