Tutorial – CA

1. A bulb in a staircase has two switch beginning at the ground floor and the other one at the first floor. The bulb can be turned ON and be turned OFF by and one of the switch inresipective of the state of the other switch .
2. Draw the truth table for above situation.
3. Draw trhe most sutable logic gate for this.
4. The Boolean function Y=AB+CD is to be realized using only 2 input NAND gates.
5. Extract the Boolean function for NANO gates using the above formula.
6. Draw the logic gate for the extracted Boolean function.
7. What is the Boolean expression for the give logic gate below.

A

A+B

B

X

B+C

C (A+B).(B+C).C = X

1. Complete the following k map according to the values found in the given table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | B | C | D | Out |
| 0 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Answer

1. A= Switch 01

B=Switch 02

2x=4

|  |  |  |
| --- | --- | --- |
| A | B | Out |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

A

F

B

1. A)

De Mogans Low

(X+Y). X Y

X Y =(X +Y)

1. Y= AB + CD

AB + CD

AB . CD

b)

A AB

B

AB.CD

C

CD

D

03). X=(A+B).(B+C).C