Solution DLD MID - II

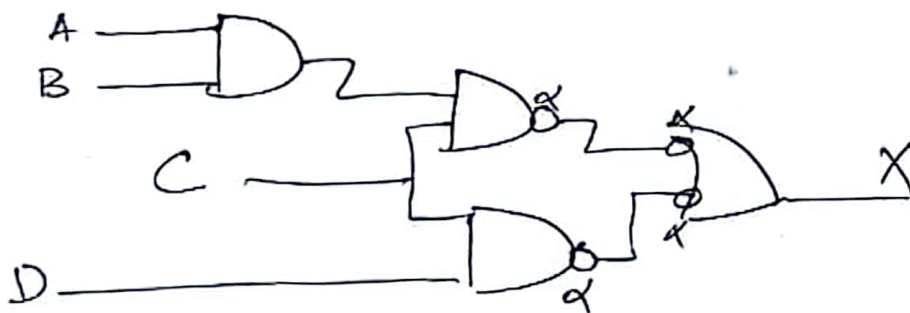## Q NO: 1

	X_3	X_2	X_1	X_0	Output
0	0	0	0	0	0
1	0	0	0	1	0
2	0	0	1	0	0
3	0	0	1	1	1
4	0	1	0	0	1
5	0	1	0	1	1
6	0	1	1	0	1
7	0	1	1	1	1
8	1	0	0	0	1
9	1	0	0	1	1
10	1	0	1	0	0

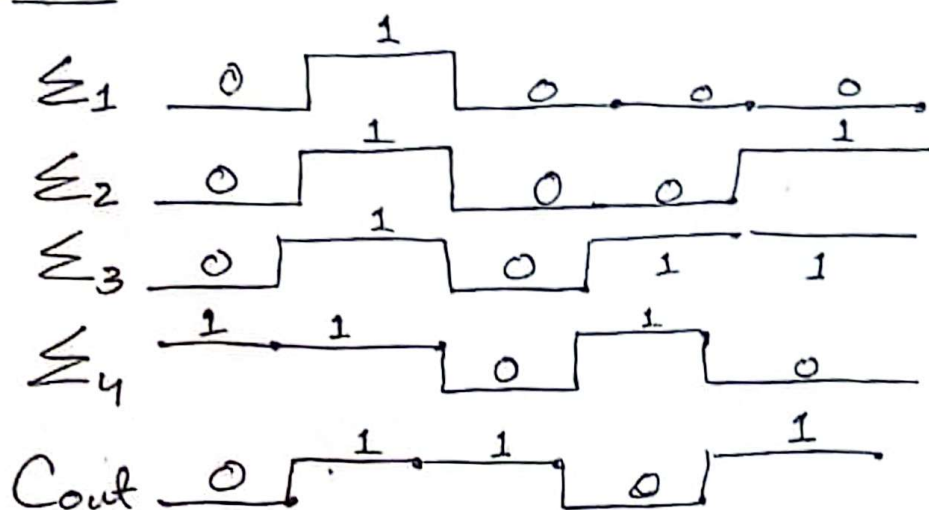| X_3X_2 \ X_1X_0	00	01	11	10
00	0	0	1	0
01	1	1	1	1
11	0	0	0	0
10	1	1	0	0

$$Output = \overline{X_3}X_2 + \overline{X_3}\overline{X_2}X_1 + X_3\overline{X_1}\overline{X_0}$$

Q NO: 02

IF A, B, C, D are high, output will be High.

Q3

Σ_1, Σ_2, Σ_3, Σ_4, Cout timing waveforms

Q4

Karnaugh map with AB rows (00, 01, 11, 10) and CD columns (00, 01, 11, 10)
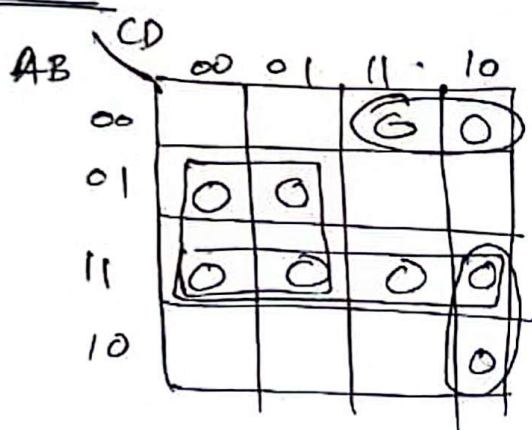
$$POS = (\bar{A}+\bar{B})(\bar{B}+C)(A+B+\bar{C})(A+\bar{C}+D)$$

$$SOP = \bar{B}\,\bar{C}\,\bar{D} + A\bar{B}D + \bar{A}BC$$

Q6

$\Sigma(1,2,4,7)$
$Cout(3,5,6,7)$

Q5

	A	B	C	D	X	
0	0	0	0	0	1	X=1
	0	0	0	1	1	
1	0	0	1	0	0	X=0
	0	0	1	1	0	
2	0	1	0	0	0	X=0
	0	1	0	1	0	
3	0	1	1	0	1	X=1
	0	1	1	1	1	
4	1	0	0	0	1	X=1
	1	0	0	1	1	
5	1	0	1	0	0	X=D
	1	0	1	1	1	
6	1	1	0	0	0	X=0
	1	1	0	1	0	
7	1	1	1	0	0	X=0
	1	1	1	1	0	