Quiz 02

Name : Monroor Mofiz Arman

ID : 1921079642

Course : CSE231

Section : 10

Date : 18-04-2021.

Ans to the QNO-1

X	Y	Z	C	S.
0	0	0	0	0
0	0	1	0	1
0	1	0	0	1
0	1	1	1	0
1	0	0	0	1
1	0	1	1	0
1	1	0	1	0
1	1	1	1	1

S

X \ YZ	00	01	11	10
0		1		1
1	1		1	

$$S = \overline{X}\,\overline{Y}Z + \overline{X}\,Y\overline{Z} + X\overline{Y}\,\overline{Z} + XYZ.$$

$$= \overline{X'(Y'Z + YZ')}$$

$$= \overline{X}(\overline{Y}Z + Y\overline{Z}) + X(\overline{Y}\,\overline{Z} + YZ)$$

$$= \overline{X}(Y \oplus Z) + X\overline{(Y \oplus Z)}$$

$$= X \oplus Y \oplus Z$$

C

X \ YZ	00	01	11	10
0			1	
1		1	1	1

$$C = XY + X\overline{Y}Z + \overline{X}YZ$$

$$= XY + Z(X\overline{Y} + \overline{X}Y)$$

$$= XY + Z(X \oplus Y)$$

$$S = X \oplus Y \oplus Z$$

$$C = XY + Z(X \oplus Y)$$
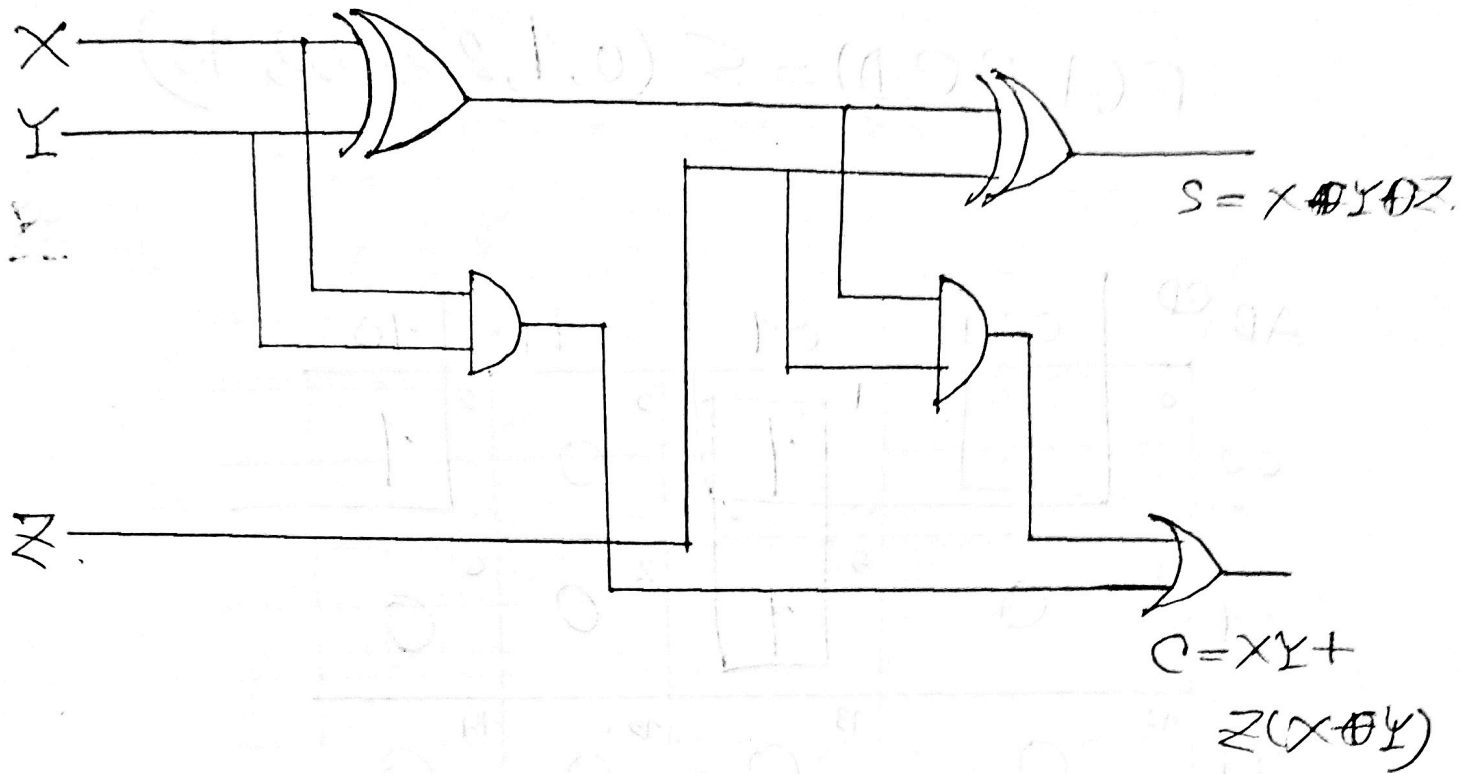
Fig : Full adder circuit.

Ans to the QNo: 02

$$F(A, B, C, D) = \Sigma (0, 1, 2, 5, 8, 9, 10)$$

AB\CD	00	01	11	10
00	1 [0]	1 [1]	0 [3]	1 [2]
01	0 [4]	1 [5]	0 [7]	0 [6]
11	0 [12]	0 [13]	0 [15]	0 [14]
10	1 [8]	1 [9]	0 [11]	1 [10]

$$F = \overline{B}\,\overline{D} + \overline{B}\,\overline{C} + \overline{A}\,\overline{C}\,D.$$
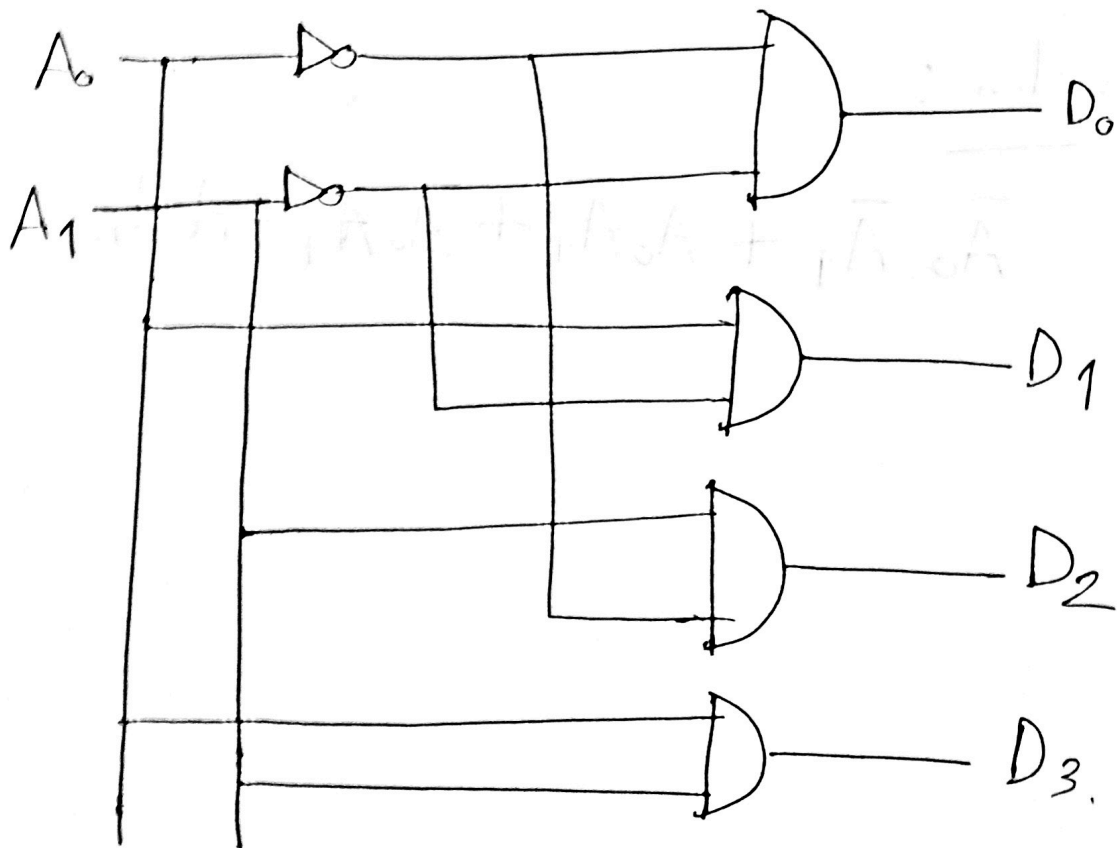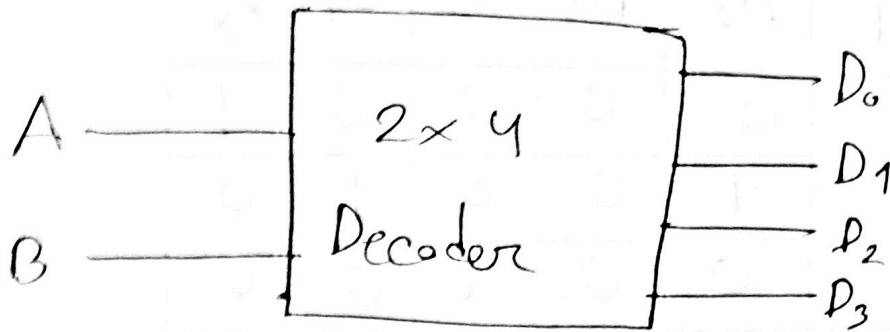
Fig : 2x4 Decoder circuit.

A_1	A_0	D_3	D_2	D_1	D_0
0	0	0	0	0	1
0	1	0	0	1	0
1	0	0	1	0	0
1	1	1	0	0	0

Equation :

$$\overline{A_0} . \overline{A_1} + A_0 \overline{A_1} + \overline{A_0} A_1 + A_0 A_1$$