

Name : Sufyan Ahmad

ID : 13062

Programs: BC (CS), BS(SE), BS(TELC)

Subject: Digital Logic Design

Major Assignment Final-Term

Course Code: CSC-201

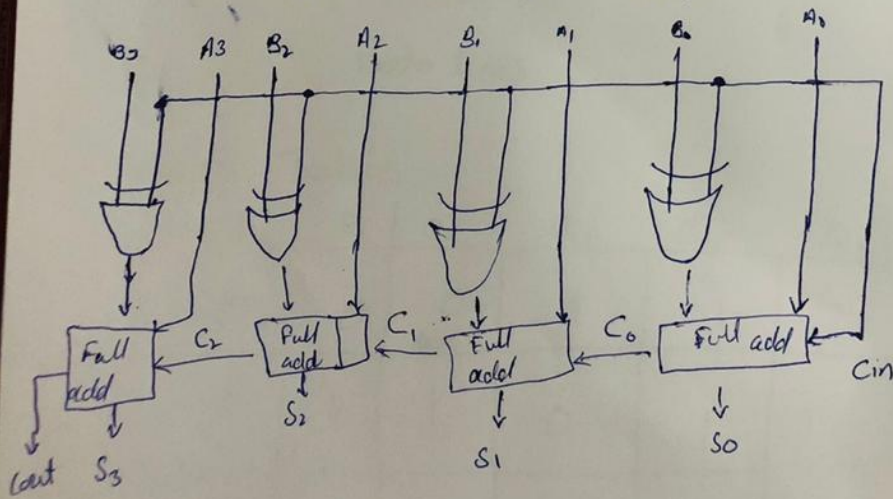
EDP Code: 102007016

Summer Semester 2020

Q No 1:- Draw and explain the logic diagram.

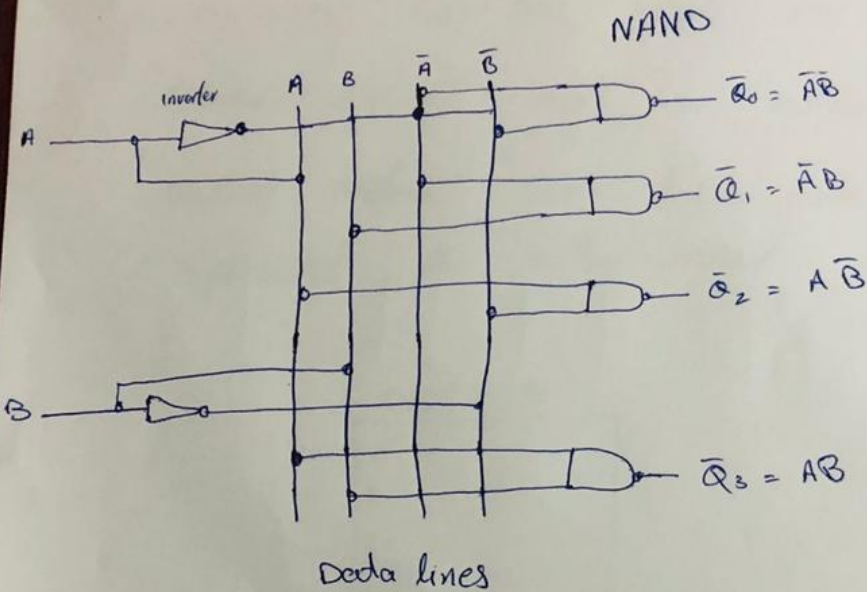
Part (a) A circuit for adding or subtracting two 4-bit numbers.

Ans: In digital circuit a binary adding subtractor is one which is capable of both numbers addition and subtraction of binary numbers. It is one circuit itself it is one of the components of ALU.



Qno1 Part B:

4 bit active low decoder.



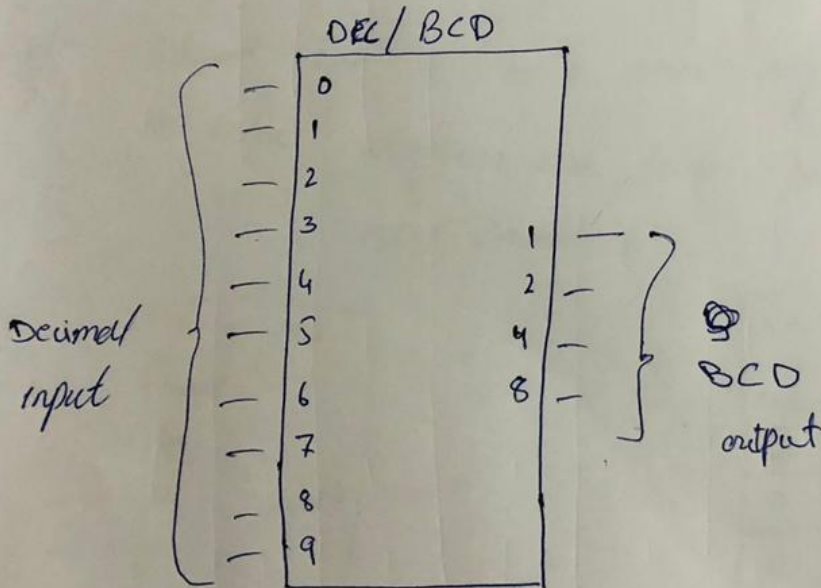
Truth Table

A	B	Q_0	Q_1	Q_2	Q_3
0	0	0	1	1	1
0	1	1	0	1	1
1	0	1	1	0	1
1	1	1	1	1	0

Part C Qno1 :-

Decimal To BCD encoder.

Ans :: encoder has ten inputs - one for each decimal digit and four outputs the outputs indicate the BCD code that represent the active input.



Qno 02

For the 4-input multiplexer ~~decoder~~

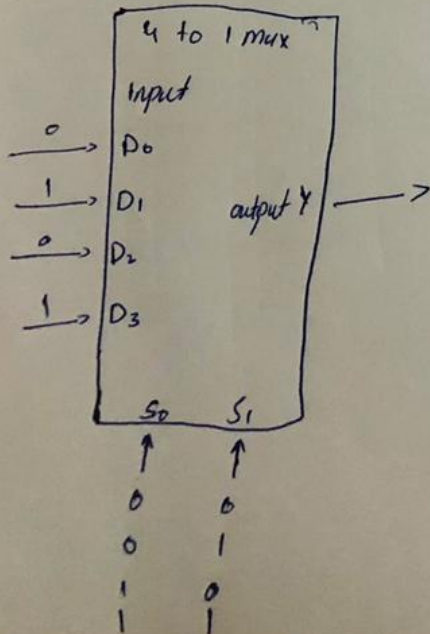
Given

$$D_0 = 0 \quad D_1 = 1 \quad D_2 = 0 \quad D_3 = 1$$

- Ⓐ $S_0 = 1, S_1 = 0$
- Ⓑ $S_0 = 0, S_1 = 1$
- Ⓒ $S_0 = 1, S_1 = 1$

Sol

IF ~~S~~. The 4-to 1 mux output are given in below diagram and table for different input conditions.



4 to 1 Mux output		
input		output Y
S ₀	S ₁	
0	0	$Y = D_0 = 0$
0	1	$Y = D_1 = 1$
1	0	$Y = D_2 = 0$
1	1	$Y = D_3 = 1$

Qno 5 Use the waveforms

