

NAME : ABDULLAH TAJIB

Dept : BSCS

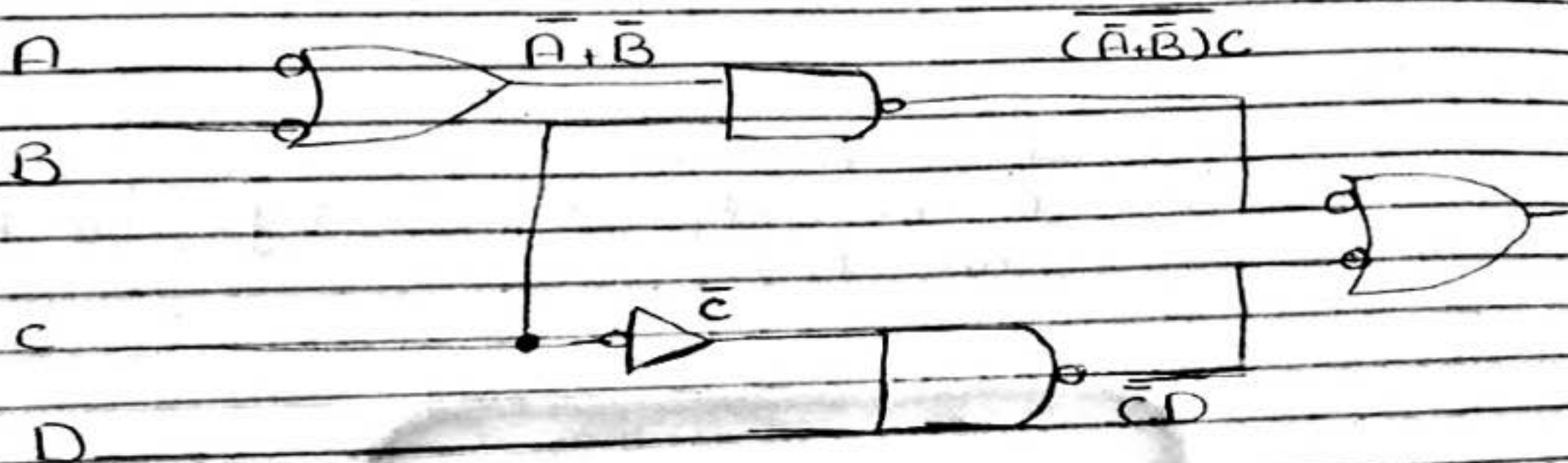
ID : 13789

Teacher : Sir Amin

Subject : DLD

Q1) Draw the logic circuit ?

Solution :-

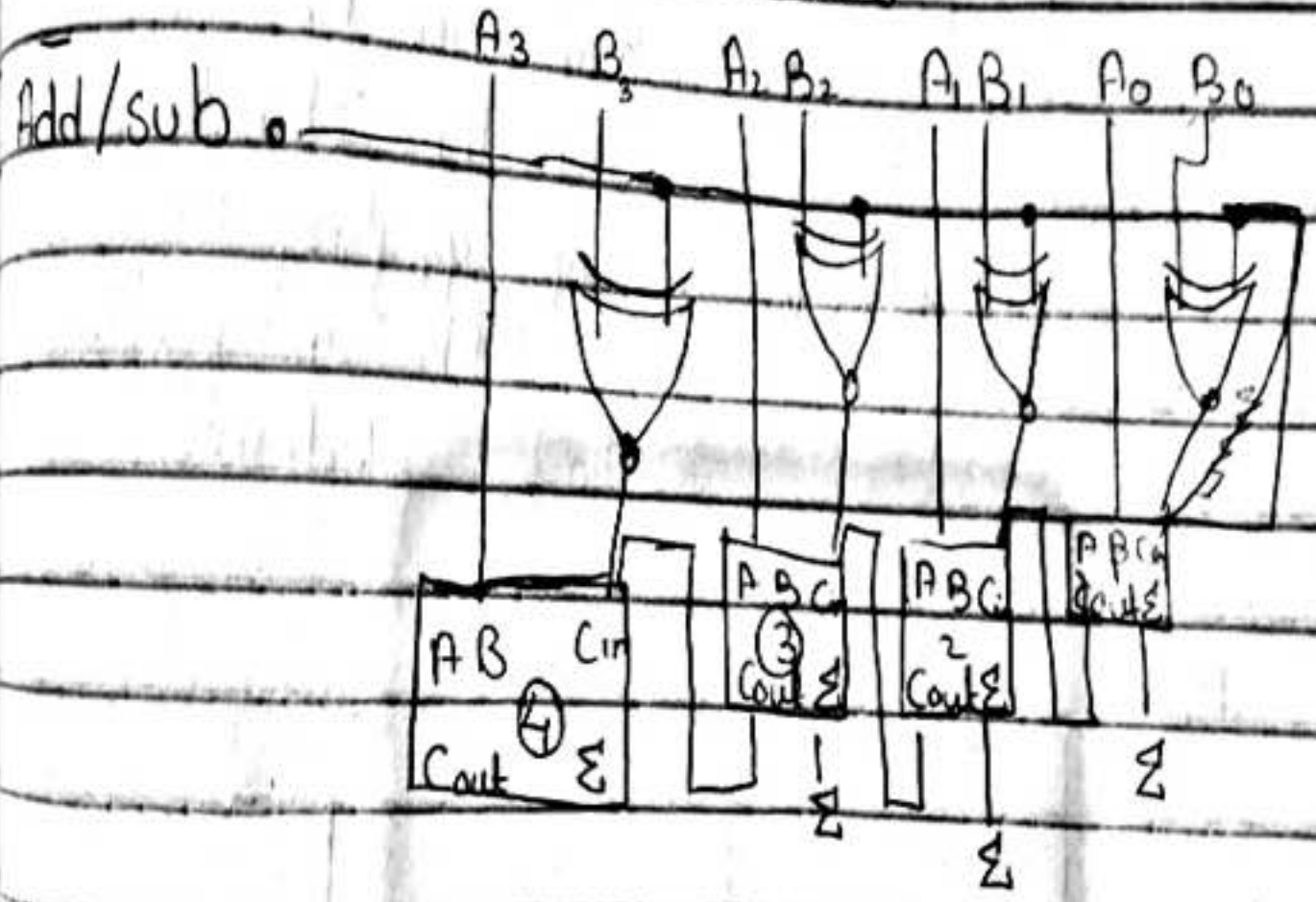


$$X = \overline{\overline{(A+B)C}} + \bar{C}D = (A+B)C + \bar{C}D + \bar{A}C + \bar{B}C + \bar{C}D$$

2) Assume the input \_\_\_\_\_?

Solution :-

Consider the 4 bit circuit that can add or subtract numbers



This circuit perform addition or subtraction with positive numbers in true form and negative numbers in complement form.

Q4) Determine the  $A > B$  output?

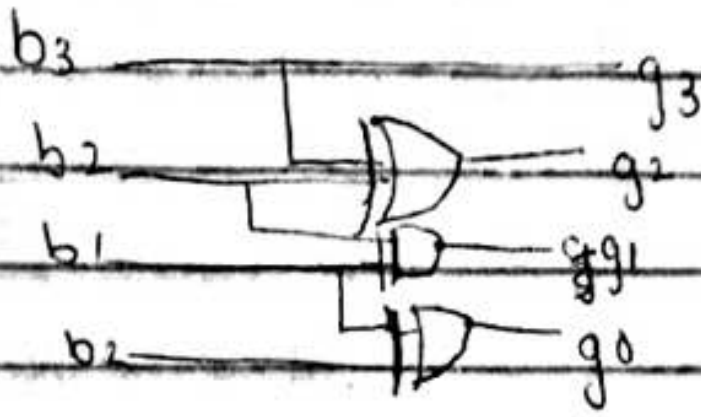
ANSWER

The number on A input is 0110 and the number on the B input is 0011, The  $A > B$  output is High and other output are Low.



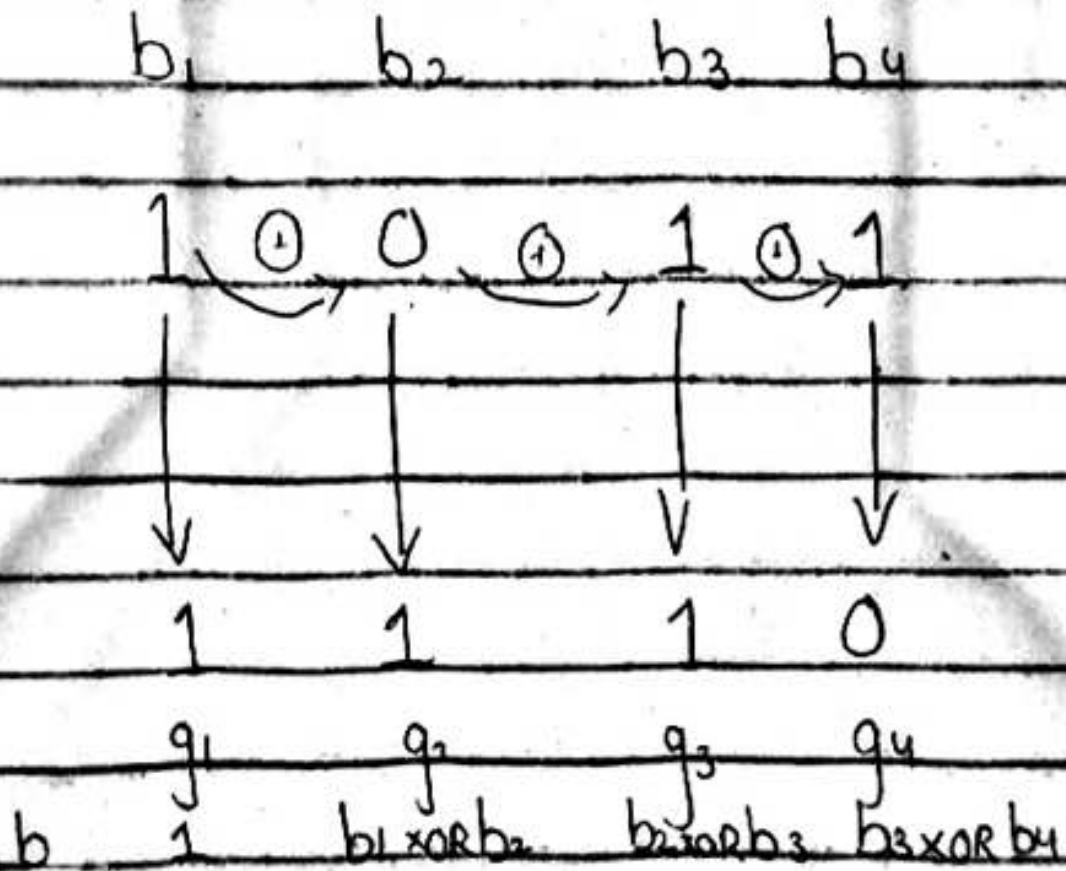
Q5) show the logic required - - ?

Ans) The conversion of binary to gray code can be done by using a logic circuit. The gray code is a non-weighted code because there is no particular weight is assigned for the position of bit.



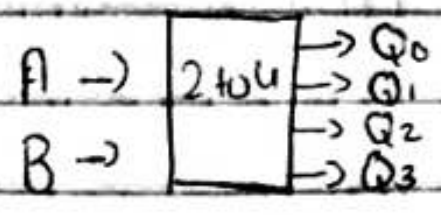
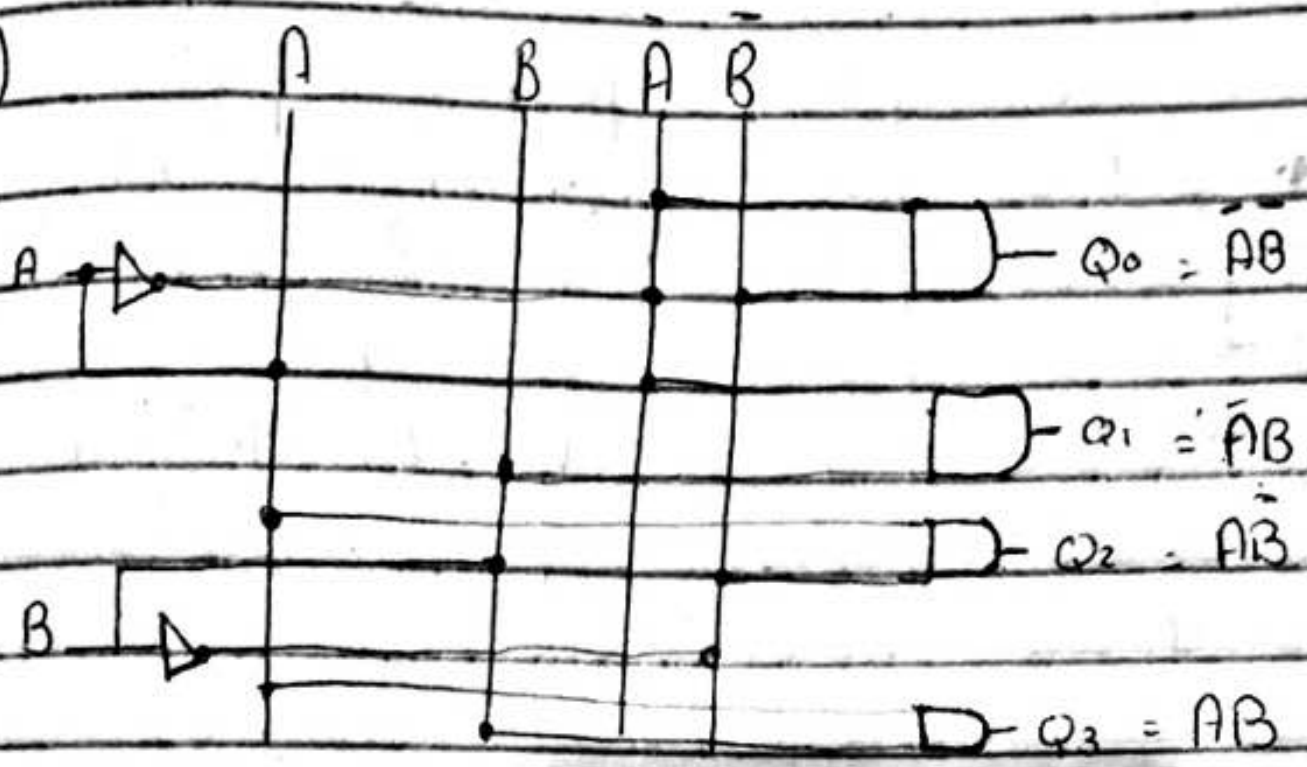
~~The~~ binary 1011

Now



Q 6 bit active low decoder?

Ans.)



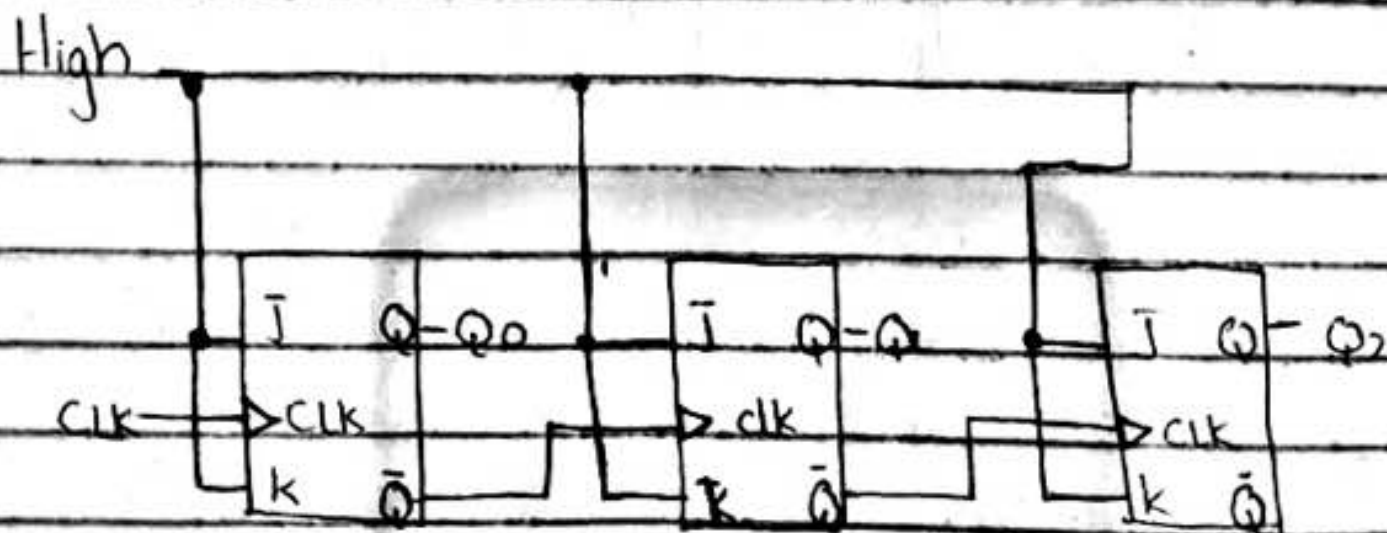
A	B	$Q_0$	$Q_1$	$Q_2$	$Q_3$
0	0	1	0	0	0
0	1	0	1	0	0
1	0	0	0	1	0
1	1	0	0	0	1

Q1) Draw and explain logic - - - ?

Solution

## Flip-Flop :-

A flip flop is an electronic circuit with two stable state that can be used to store binary data. The stored data can be changed by applying varying inputs. Flipflop and latch are fundamental building blocks of digital electronic system



3 bit ripple :- It contains three flipflops  
A 3-bit ripple counter can count  
upto 8 states. it counts from 0 to 7

3 bit ripple downcounter :-

It contain three flipflops. A 3 bit  
ripple can count upto 8 states.

Q8) Determine the Q waveform -----?

ANSWER :-

Input			Outputs		Comments
J	K	CLK	Q	$\bar{Q}$	
0	0	↑	$Q_0$	$\bar{Q}_0$	no change
0	1	↑	1	0	Reset
1	0	↑	0	1	Set
1	1	↑	$\bar{Q}_0$	$Q_0$	toggle
D	CLK	0			
1	↑	1	0		Set (stores a 1)
0	↑	0	1		Reset (stores a 0)



Q9) Draw the logic - - - clock pulse

Ans.)

