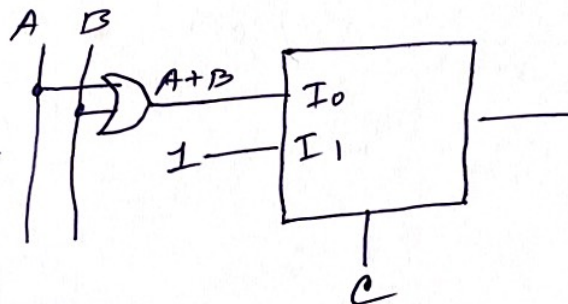Name: _Solution_   ID:

Note: You must mention MSB, LSB in case of all the input and outputs.

1. CO3	Build a 3 input OR gate using a 2x1 MUX. (Consider A,B,C as inputs where A is MSB and C is LSB)	[8]
2. CO3	**Build** Excess-4 to BCD converter using parallel adder.	[7]

A	B	C	A+B+C
0	0	0	0	0
1	0	0	1	1
2	0	1	0	1
3	0	1	1	1
4	1	0	0	1
5	1	0	1	1
6	1	1	0	1
7	1	1	1	1

$$F(A,B,C) = \Sigma(1,2,3,4,5,6,7)$$

	I_0	I_1
$A'B'$	0	(1)
$A'B$	(2)	(3)
AB'	(4)	(5)
AB	(6)	(7)
	↓ $A+B$	1

$$A'B + AB' + AB$$

$$\Rightarrow A'B + A(B+B')$$

$$\Rightarrow A'B + A \Rightarrow (A+A')(A+B) = A+B$$

2

$$BCD = 0-9$$

$$9 + 4 = 13$$

$$1001 \atop \underbrace{\quad}_{4\ bit} \qquad 1101 \atop \underbrace{\quad}_{4\ bit}$$

$$13\ \textcircled{-4} = 9$$

$$13 + (-4)$$

$$4 = 0100$$
$$+4 = 0100$$
$$1011$$
$$+ 1$$

En-4

M
1 0 1 1²

A_4	A_3	A_2	A_1
M			
	4 bit	P. A	
M			
C_4	S_4	S_3	S_2	S_1

$C_{in} = 1$

A⊕ BCD