

**BRAC UNIVERSITY**  
**Department of Computer Science and Engineering**  
**CSE 260: Digital Logic Design**

Examination: Quiz 3  
 Duration: 25 Minutes

Semester: Spring 202  
 Full Marks: 15

Name:

*Solution*

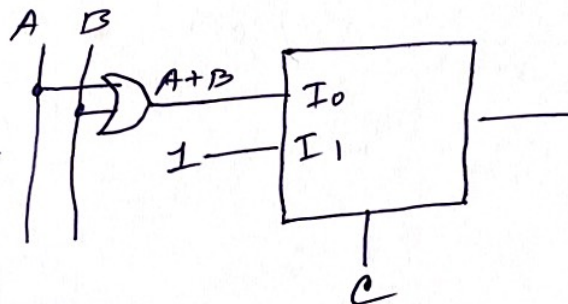
ID:

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

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



	I <sub>0</sub>	I <sub>1</sub>
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

$\downarrow$   
 $0 + 4 = 13$   
 $\downarrow$   
 $\underbrace{1001}_{4 \text{ bit}}$        $\underbrace{1101}_{4 \text{ bit}}$

$13 - 4 = 9$

$13 + (-4)$

$\downarrow$

$4 = 0100$

$+4 = 0100$

$1011$

$+ 1$

