

UNIVERSITY OF CALIFORNIA, RIVERSIDE
Department of Computer Science and Engineering
CS61 – Machine Organization and Assembly Language
Lab Assignment 1
Given August 6, Due 3:00 pm August 8, 2001

15

Implement the following functions using AND, OR and NOT logic gates.

The inputs are A, B and the output is F.

1. F has the value 1 only if A has the value 0 and B has the value 1.
2. F has the value 1 only if A has the value 1 and B has the value 0.
3. Use your answers from (1) and (2) to implement a one-bit adder. The truth table for the one-bit adder is given below:

A	B	Sum
0	0	0
0	1	1
1	0	1
1	1	0

4. Is it possible to create a four-bit adder (a circuit that will correctly add two 4-bit quantities) using only four copies of the logic diagram from (3)? If not, what information is missing?