

## Homework 2

3. If neither input is electrical connected to ground or  $V_{CC}$  then they are invalid charge inputs and there would be no output.

4.

A	B	C	out
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

5.

A	B	out
0	0	0
0	1	Path to $V_{DD}$ and GND
1	0	Path to $V_{DD}$ and GND
1	1	1

The major flaw of the circuit is that the p-type and n-type transistors for both inputs are in parallel, which causes a short circuit when both inputs aren't the same as each other.

6.

K	L	M	N
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

a	b	c	d	s
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	0
1	1	1	0	1
1	1	1	1	1

7. yes you can the boolean of this is:

$ab + cd$  - this is the same as:

$\overline{ab + cd}$  - same as:

$\overline{ab} \cdot \overline{cd}$

can be made with only nands

