

King Saud University
College of Computer and Information Sciences
Department of Computer Sciences

CSC220 : Computer Organization
1st Semester

Lab Project

Section #	NAME	ID
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Test Cases

Input				Operation	Input		Expected Output				
S_3	S_2	S_1	S_0		X	Y	G	C	V	N	Z
0	0	0	0	$G = x*2$	0000 0011	x	0000 0110	0	0	0	0
0	0	0	1	$G = X*2+1$	0000 0011	x	0000 0111	0	0	0	0
0	0	1	0	$G = X+Y'$	0000 0011	0000 0001	0000 0001	1	0	0	0
0	0	1	1	$G = X-Y$	0000 0011	0000 0001	0000 0010	1	0	0	0
0	1	0	0	$G = X$	0000 0011	x	0000 0011	0	0	0	0
0	1	0	1	$G = X+1$	0000 0011	x	0000 0100	0	0	0	0
0	1	1	0	$G = X+2$	0000 0011	x	0000 0101	0	0	0	0
0	1	1	1	$G = X+3$	0000 0011	x	0000 0110	0	0	0	0
1	0	0	0	$G = X \text{ XOR } Y$	0000 0011	0000 0001	0000 0010	x	x	x	0
1	0	0	1	$G = X \text{ AND } Y'$	0000 0011	0000 0001	0000 0010	x	x	x	0
1	0	1	0	$G = X \text{ NAND } Y$	0000 0011	0000 0001	1111 1110	x	x	x	0
1	0	1	1	$G = X$	0000 0011	x	0000 0011	x	x	x	0
1	1	0	0	$G = Y$	x	0000 0001	0000 0001	x	x	x	0
1	1	0	1	$G = \text{logic shift right } Y$	x	0000 0001	0000 0000	x	x	x	1
1	1	1	0	$G = \text{Circular shift left } Y$	x	0000 0001	0000 0010	x	x	x	0
1	1	1	1	$G = \text{Arithmetic shift right } Y$	x	0000 0001	0000 0000	x	x	x	1

The Circuit

