

Cal Poly Pomona

ECE Dept.

Lab # 7

ECE 2300L

Dr. Rafi

Prelab

Design each of the the following using an 8-to-1 multiplexer:(a) $F(A,B,C,D)=ABC+\bar{A}BD+\bar{A}\bar{B}\bar{C}+AC\bar{D}$

(b) $F(W, X, Y, Z) = \sum m(2, 3, 6, 7, 8, 9, 12, 13, 15)$

LAB

Parts List: Determine the required parts.

Implement (a) and (b) in the above using 74LS151 multiplexer.

Demonstrate the operation of each using LEDs.

Postlab

Design a 4-bit, 8-function arithmetic unit that will meet the following specifications:

S2	S1	S0	F
0	0	0	2A
0	0	1	A plus \bar{B}
0	1	0	A plus B
0	1	1	A minus 1
1	0	0	2A plus 1
1	0	1	A plus \bar{B} plus 1
1	1	0	A plus B plus 1
1	1	1	A