

College of Charleston
Computer Science Department

CSCI 350 Digital Logic and Computer Organization
G. Pothering
Digital Design Laboratory 1
Fall, 2001

1. Use a minimized SOP or POS (your choice) expression to implement the function $f(x, y, z) = \Sigma(0, 1, 3, 4, 5, 6)$.
Use logic switches 2,1, and 0 to generate values for x, y, and z respectively and use LED0 to show the function's value.
2. Redo problem 2, but this time use the 8-1 multiplexer of chip 74151.
3. Implement the function $f(x, y, z, w) = \Sigma(0, 1, 2, 7, 8, 9, 11, 13, 15)$ using the 8-1 multiplexer on chip 74151 and any inverters (7404) you may need, but no other gates. Use logic switches 3,2,1,0 to generate values for x, y, z, and w respectively.
4. Implement an 8-1 multiplexer using the two 4-1 multiplexers on the 74153 chip and a 2-1 multiplexer on the 74157 chip.
5. Implement the 1-bit alu from your notes.