Name: Student ID:

Lab Section: Date:

# **Prelab**

Complete the truth table for the following Boolean function: $f=\overline{s}x\_{1}+sx\_{2}$

| $s$ | $x\_{1}$ | $x\_{2}$ | $\overline{s}x\_{1}$ | $sx\_{2}$ | $f$ |
| --- | --- | --- | --- | --- | --- |
| 0 | 0 | 0 |  |  |  |
| 0 | 0 | 1 |  |  |  |
| 0 | 1 | 0 |  |  |  |
| 0 | 1 | 1 |  |  |  |
| 1 | 0 | 0 |  |  |  |
| 1 | 0 | 1 |  |  |  |
| 1 | 1 | 0 |  |  |  |
| 1 | 1 | 1 |  |  |  |

 TA Initials:

# **Lab**

**4.1** Verify that you placed your chips, switches, power and ground wires correctly. Show your progress on the breadboard implementation to the TA before you proceed. (20 pts)

 TA Initials:

**4.2** Verify that you connected the inputs to the 7408 (AND) and 7404 (NOT) chips correctly. Show your progress to the TA before you proceed. (20 pts)

 TA Initials:

**4.3** Verify that the outputs from the 7408 (AND) chip are connected correctly to the inputs of the 7432 (OR) chip. Also, verify that the output of the MUX is connected to the LED and that the cathode of the LED (the shorter end) is connected to ground. Show your completed breadboard implementation to the TA before you proceed. DO NOT TURN ON THE POWER YET. (20 pts)

 TA Initials:

**5.0** Verify that your circuit correctly implements the truth table for the 2-to-1 MUX. Make sure that your circuit accurately replicates the $f$ column of the truth table. In other words, use the switches to enumerate all eight possible input combinations and verify that the LED is off when $f$ is 0 and on when $f$ is 1. Demonstrate your 2-to-1 MUX implementation to the TA. (20 pts)

 TA Initials:

**6.0** Use a multimeter to measure the voltage at the specified test site (see the lab description). Record your results below. (20 pts)

Test 1: First Measurement Volts Second Measurement Volts

Test 2: First Measurement Volts Second Measurement Volts

Test 3: First Measurement Volts Second Measurement Volts

 TA Initials: