Lab 3 – Logic Gates

Names: ­­­­­­­­­­­­­­­­Austin Denney, Nathaniel Paulus

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The purpose of this lab is to:

Learn how to test AND and OR logic gates.

Select two 10kohm resistors.

Measure and record the resistance of each resistor.

Equipment needed:

1 – Digital Multimeter

2 – 10Kohm

1 – 4 position dip switch

1 – 74LS08

1 – 74LS32

Using Multisim simulate Figure 1 for each voltage level and record in Table 1. Then build, test and measure each voltage level and record in Table 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Simulated | | Test | |
|  | Open | Closed | Open | Closed |
| S1 |  |  |  |  |
| S2 |  |  |  |  |

Table 1 (Simulation vs Test)



Figure 1- Lab 3 Schematic

Using Multisim simulate Figure 2 for each voltage level and record in Table 2. Then build, test and measure each voltage level and record in Table 2



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Simulated | | Test | |
|  | Open | Closed | Open | Closed |
| S1 |  |  |  |  |
| S2 |  |  |  |  |

Table 2 (Simulation vs Test)

Figure 2 - Lab 3 Schematic

Observations: 10k resistors work for this experiment in MultiSIm, but in the lab they fail to pull the voltage high enough to register as logic level high. We had to use 1k resistors instead.