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ECE 2140
Experiments 5 \& 6 Prelab Sum-of-Products \& Product of Sums Realization

1. Read through Experiment 5.
2. Look up the data sheets for the AND, OR, and Inverter gate ICs.
a. Label all pins according to the data sheet:

b. Find the following specifications for each IC:

| Absolute Maximum Voltages |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | AND | OR | Inverter |  |
| V $_{\mathrm{cc}}$ |  |  |  |  |
| Input <br> voltage |  |  |  |  |

Name:
Lab Section:

| Recommended (Nominal) <br> Operating Voltages |  |  |  |
| :---: | :---: | :---: | :---: |
|  | AND | OR | Inverter |
| $\mathrm{V}_{\mathrm{CC}}$ |  |  |  |
| $\mathrm{V}_{\mathrm{IL}}$ |  |  |  |
| $\mathrm{V}_{\mathrm{IH}}$ |  |  |  |
| $\mathrm{V}_{\mathrm{OL}}$ |  |  |  |
| $\mathrm{V}_{\mathrm{OH}}$ |  |  |  |

3. Find the sum-of-product canonical expression from Part 2 of Experiment 5:

| $\mathbf{X}$ | $\mathbf{Y}$ | $\mathbf{f}$ (output) |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

4. Draw a schematic for Experiment 5. Make sure you show where the function generator, oscilloscope, and DMM are connected (if necessary).

Part 3:

Name:
Lab Section:
5. Find the product-of-sum canonical expression from Part 2 of Experiment 6:

| $\mathbf{X}$ | $\mathbf{Y}$ | $\mathbf{f}$ (output) |
| :---: | :---: | :---: |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

6. Draw a schematic for Experiment 6. Make sure you show where the function generator, oscilloscope, and DMM are connected (if necessary).

## Part 3:

