

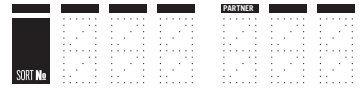
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USE TEMPLATE

|   |   |   |   |   |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 |

MISFILL -1 PT



Please print this sheet prior to coming to laboratory. Complete the pre-laboratory tasks in your lab notebook. Complete the lab tasks in **both** your lab notebook and this submission sheet.

## 1 Pre-laboratory Verification

Diagram showing five empty rectangular boxes representing data blocks. Above each box is a label: "4E .. 8", "4E .. 9", "4E .. 10", "4E .. 11", and "4E .. 12".

## 2 Laboratory Verification

4E -- 13

### 3 Deliverables

1. Copy the results table below (you may omit **0** values):

| Base 2      | Base 10 | Calculated<br>$V_{in}$<br>(V) | INPUT                    |                      | OUTPUT                    |                      |
|-------------|---------|-------------------------------|--------------------------|----------------------|---------------------------|----------------------|
|             |         |                               | Measured<br>$V_{in}$ (V) | Level<br>(low/high)* | Measured<br>$V_{out}$ (V) | Level<br>(low/high)* |
| <b>0000</b> | 0       | 0.000                         |                          |                      |                           |                      |
| <b>0001</b> | 1       | 0.220                         |                          |                      |                           |                      |
| <b>0010</b> | 2       | 0.440                         |                          |                      |                           |                      |
| <b>0011</b> | 3       | 0.660                         |                          |                      |                           |                      |
| <b>0100</b> | 4       | 0.880                         |                          |                      |                           |                      |
| <b>0101</b> | 5       | 1.100                         |                          |                      |                           |                      |
| <b>0110</b> | 6       | 1.320                         |                          |                      |                           |                      |
| <b>0111</b> | 7       | 1.540                         |                          |                      |                           |                      |
| <b>1000</b> | 8       | 1.760                         |                          |                      |                           |                      |
| <b>1001</b> | 9       | 1.980                         |                          |                      |                           |                      |
| <b>1010</b> | 10      | 2.200                         |                          |                      |                           |                      |
| <b>1011</b> | 11      | 2.420                         |                          |                      |                           |                      |
| <b>1100</b> | 12      | 2.640                         |                          |                      |                           |                      |
| <b>1101</b> | 13      | 2.860                         |                          |                      |                           |                      |
| <b>1110</b> | 14      | 3.080                         |                          |                      |                           |                      |
| <b>1111</b> | 15      | 3.300                         |                          |                      |                           |                      |

\* Based on IC datasheet values of  $V_{IH}$ ,  $V_{IL}$ ,  $V_{OH}$ , and  $V_{OL}$ .

2. Explain what the results table represents. Focus especially on the logic levels and why the readings make sense (or don't).

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3. What can you observe from the plot of the results?

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4. Staple a printout of the plot to this submission sheet.