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# UNIVERSITY OF CALIFORNIA, BERKELEY
# EE40: Introduction to Microelectronic Circuits

# Diodes Report

## *Half Wave Rectifier*

2a) Measure $V_T$ when the input is Frequency = 1KHz, $V_{pp}$ = 5V, Offset = 0.

2b) What happens when you lower $V_{pp}$?

2c) What happens if you use a negative offset?

2d) What happens to the output if you make the input Vpp = 0.5V and you increase the offset = 0.5V.

2e) What happens if you lower the frequency of the function generator?

2f) What happens as you vary the resistance on the rheostat?

2g) Do different color LED's have different threshold voltages?

3) Replace the LED with a 1N914 diode and measure the new threshold voltage. Is it different?

## *Diode Logic*

2) $R_s$ =

3) OR Gate

| A (V) | B (V) | C (V) |
|---|---|---|
| 0 | 0 | |
| 0 | 5 | |
| 5 | 0 | |
| 5 | 5 | |

4) AND Gate

| A (V) | B (V) | C (V) |
|---|---|---|
| 0 | 0 | |
| 0 | 5 | |
| 5 | 0 | |
| 5 | 5 | |

5) Chained

| $A_{OR}$ (V) | $B_{OR}$ (V) | $B_{AND}$ (V) | C (V) |
|---|---|---|---|
| 0 | 0 | 0 | |
| 0 | 0 | 5 | |
| 0 | 5 | 0 | |
| 0 | 5 | 5 | |
| 5 | 0 | 0 | |
| 5 | 0 | 5 | |
| 5 | 5 | 0 | |
| 5 | 5 | 5 | |

6) Does it still perform normally? Why or why not?