

Name: \_\_\_\_\_  
Student ID: \_\_\_\_\_  
Section: \_\_\_\_\_  
Date: \_\_\_\_\_

UNIVERSITY OF CALIFORNIA, BERKELEY  
EE40: Introduction to Microelectronic Circuits

MOSFET Prelab

1. Explain how the XY mode works on the oscilloscope. What signals control the horizontal and vertical position of the dot on the display?
2. What DUT current  $I_{DUT}$  would correspond to a measured voltage of 50 mV across  $R_M$ , the resistor in series with the DUT?
3. You want to use the curve tracer to verify that an electronic device is working properly. For a resistor  $R_{DUT}$  as the DUT, what is the relation between voltage measured on A2 and voltage measured on A1?
4. Sketch the I-V curve of a diode, noting the approximate turn-on voltage. Since the scope measures voltage, modify the Y-axis to represent A2 of the scope ( $R_M=1k$ ).
5. Find the relationship between sinusoidal applied voltage and resulting current for a capacitor. Assume  $V_C = V_{A1pk} \sin(\omega t)$ .