

Physics 112 Laboratory Report

The Oscilloscope

Name _____

Date _____

Lab Partner _____

Triggering

Describe the effects of the LEVEL and SLOPE controls on a displayed sine wave.

Function generator characteristics

Sketch the sine wave output of the function generator, noting deviations, if any, from a true sine wave. Your sketch should indicate the horizontal and vertical scales, and the zero-voltage level.

Sketch the triangle and square waves, noting any deviations from ideal.

Square wave rise time with BW switch in _____

Square wave rise time with BW switch out _____

Sketch one of the waveforms you used for the rise time measurement. Be sure to show scales and specify whether the BW switch was in or out.

X-Y mode

Sketch the scope pattern when the function generators have the same frequency and when the frequencies are in a small integer ratio that gives an interesting pattern. Be sure to specify the frequencies used for each pattern.

RC circuit

Sketch V_R and V_S , showing the time relation between them. Include voltage and time scales. Do your sketches agree with expectations?

Power supply

Without capacitor: Show the time relation between the function generator output and the voltage across the resistor. Be sure to indicate the zero-voltage level for each trace.

Explain why your results are consistent with the explanation of diode operation. What happens if the connections to the diode are reversed?

With capacitor: Sketch the voltage across the resistor for a driving frequency of about 60 Hz and again for about 6 kHz. Be sure to note the zero-voltage level in each plot.

Does the output voltage have a relatively small variation about a positive or negative value?