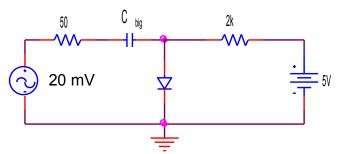
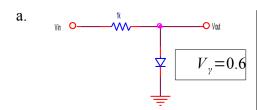
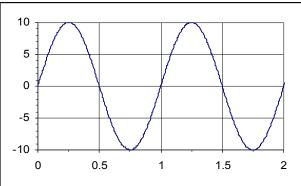
ELEC 306 Test #1 Sample Problems

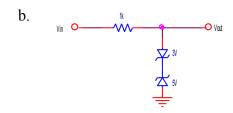
1. For the circuit shown assume the capacitor is large enough to appear as a short circuit to any AC signals and as an open circuit to any DC signals.

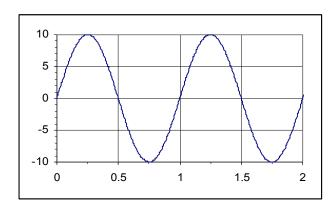


- a. Using the diode equation, determine I_{DQ} and V_{DQ} if $I_S = 10^{-12}$ Amps
- b. Determine the AC voltage across the diode.
- c. Repeat part a for $V_v = 0.5 v \wedge r_f = 100 \Omega$
 - 2. If a $10V_{pk}$ 1kHz sinusoid is applied as Vin, sketch Vout for each of the circuits below









3. Design a full wave rectifier circuit to convert 60Hz, $120V_{RMS}$ AC into $12V_{DC}$ with < 0.5V ripple. Assume a load resistance of $10k\Box$.