

## Tutorial 6 Semiconductor diodes

**Question 1:** for the diode circuit as shown in Figure 1, sketch the output voltage  $v_o$  for a sinusoidal input signal  $v_i$ . Assume the capacitor is initially uncharged, and RC time constant is large.

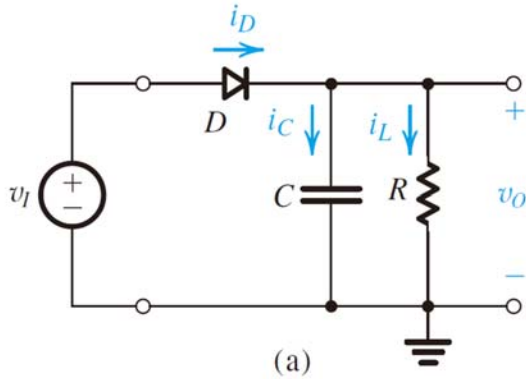


Figure 1

**Question 2.**

In the circuit shown in figure 2 find the diode current  $i_d$ , assuming the diode current voltage relationship can be approximated in this situation by  $i_d \sim 10^{-5}(e^{40v_d})$ . Note: don't take the diode as a simple switch with constant turn-on voltage in this question.

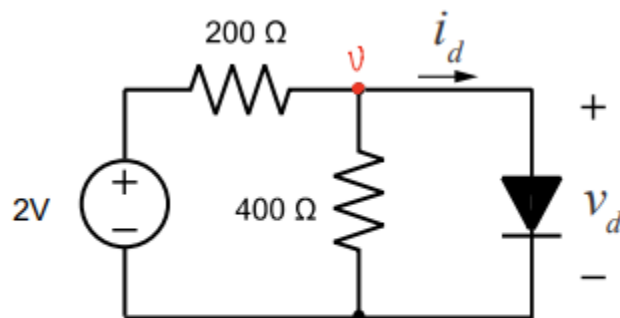


Figure 2.