ECE 320: Final - Part 1. Name _____

Semiconductors & Diodes - October 24, 2016

1a) Define the following terms:

p-type semiconductor

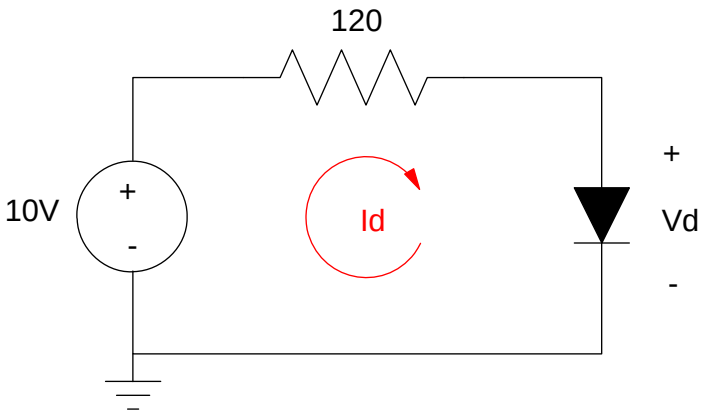
n-type semiconductor

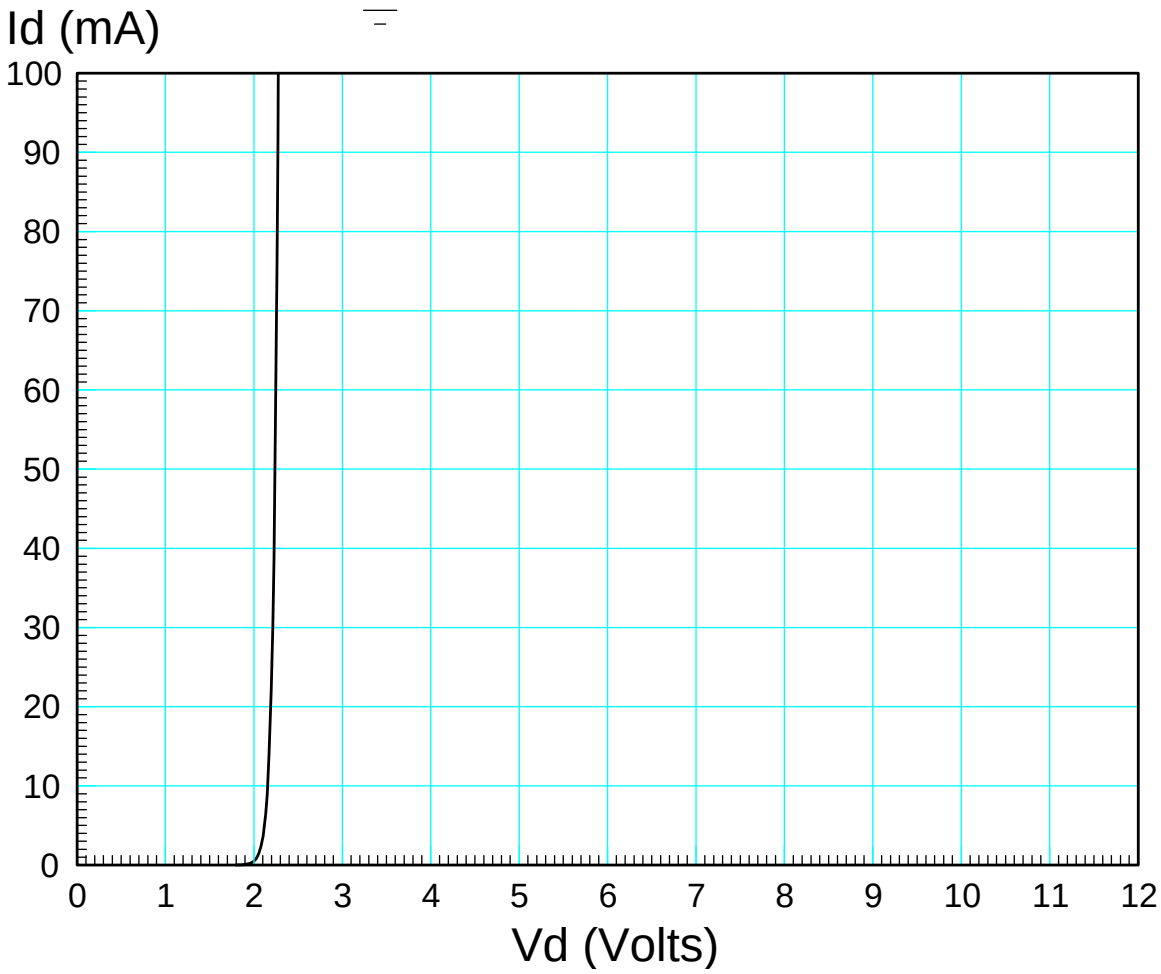
intrinsic silicon

1b) Why does the resistance of silicon decrease as temperature increases?

2) The VI characteristics for an LED is shown below. Draw the load line for the following circuit and determine the operating point.

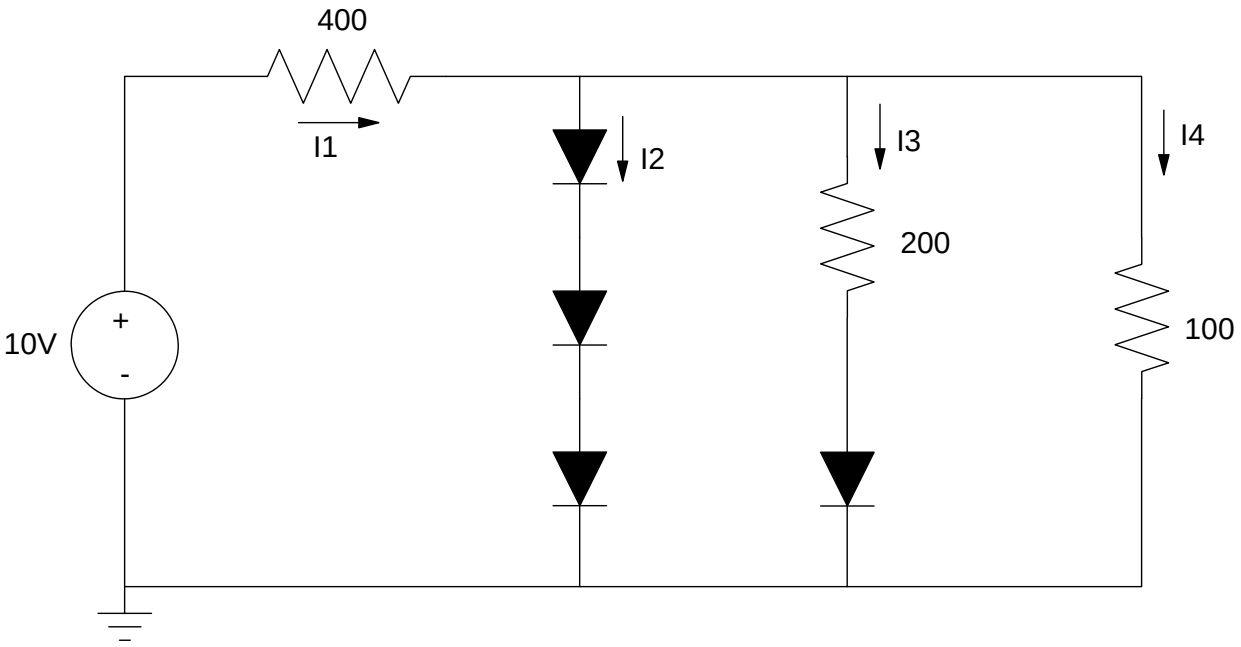
Load Line	Vd	Id
show on graph		





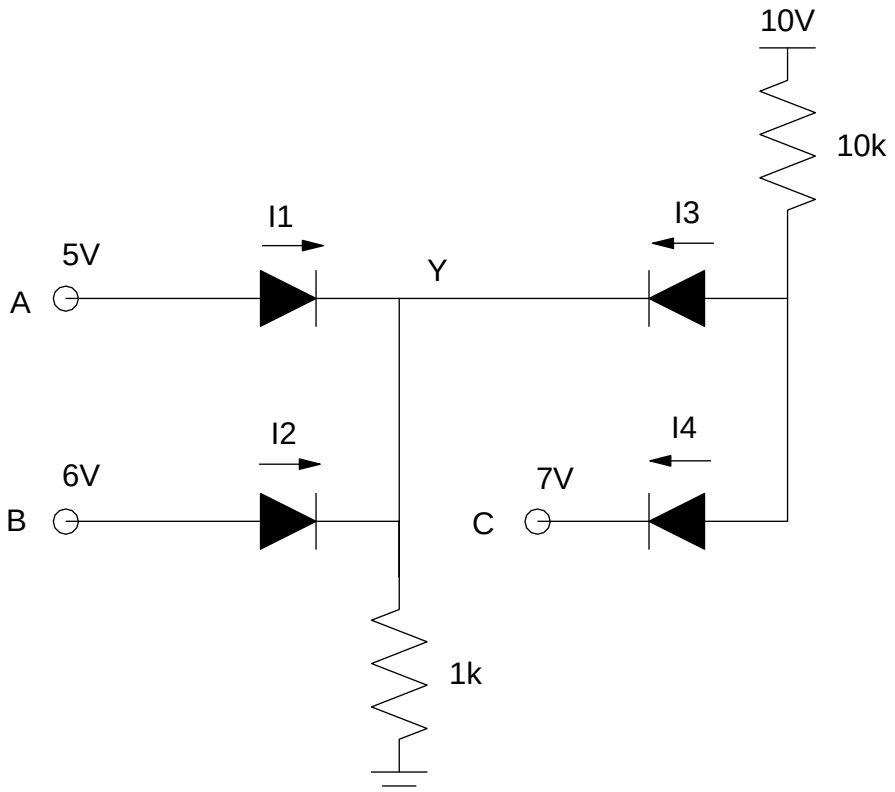
3) Assume ideal silicon diodes (Vf = 0.7V). Determine the currents, I1 - I4

I1	I2	I3	I4



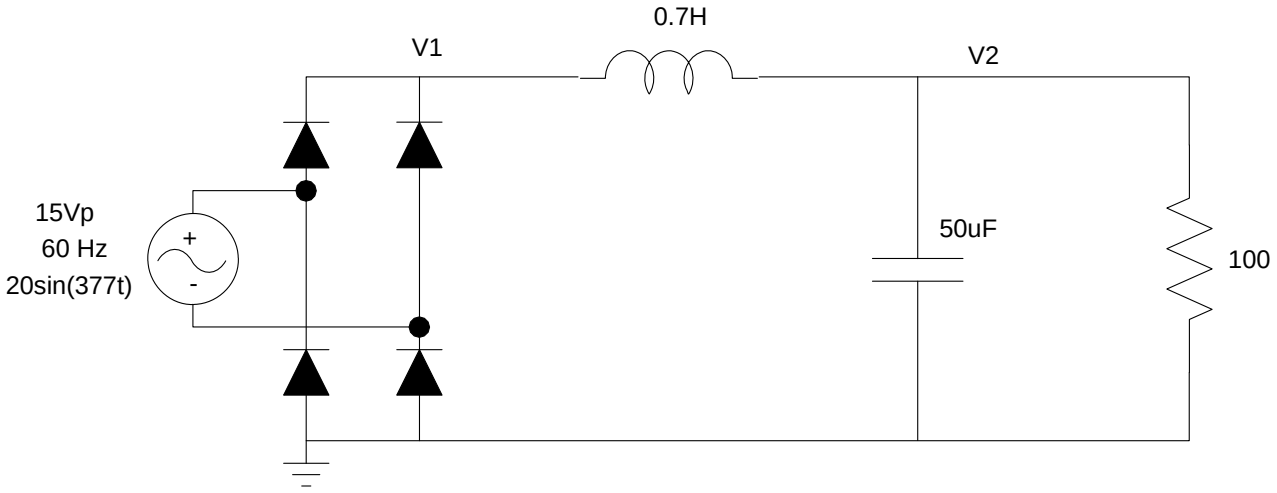
4) Assume ideal silicon diodes (Vf = 0.7V). Determine the currents, I1 - I4

I1	I2	I3	I4



5) For the following AC to DC converter, determine the following

The DC voltage at V_1 $\frac{1}{\pi}\int_0^{\pi} 13.6\sin(t)\cdot dt$	V_{1pp} The peak-to-peak ripple at V_1:	V_{2pp} if C = 0	V_{2pp} if C = 50uF



Bonus (Part 1): How many people voted in the 2012 Presidential Election in North Dakota?