EE113 Tutorial 9 Topic 4

1. Briefly describe how a depletion layer is formed in a PN junction.
2. What happens when there are differing amounts of dopants in the P and N materials? Sketch one of these junctions.
3. What is the contact potential, V0, of a PN junctions? Sketch this effect.
4. Why can we consider a depletion region to be a capacitor? What is the main driver of this capacitance? Defend your answer.
5. Describe what happens when a PN junction is submitted to a forward bias.
6. Sketch the characteristic curve for a diode under both forward and reverse bias conditions.
7. Using a suitable equation calculate the amount of current flowing in an IN7001 diode with an applied voltage of 0.5V. Compare this current flow to when a bias of 3V is applied. Take I0 to1x10-12A.cm-2 at 300K
8. What are the 2 reverse breakdown methods for a diode called?