EE 330 Quiz #10

Name: Score

Grader:

Briefly answer the following questions:

1. A diode has two states:
   * Off state: V\_D small or negative and I\_D = \_\_\_0\_\_\_\_\_\_\_
   * On state: V\_D ≈ 0.6V and I\_D = \_\_Isexp(VD/Vt)\_\_\_\_\_\_\_\_
2. Similar to the NMOS transistor, the NPN bipolar transistor has three states that we are interested in. The off state of the NPN is characterized by:
   * V\_BE <0.5V
   * I\_C = 0
3. The useful state is the forward active and is characterized by
   * V\_BE ≈ 0.6
   * I\_C = IB or JsAE\*exp(VBE/Vt)
   * V\_CE > 0.4V
4. The saturation state is characterized by
   * V\_BE ≈ 0.6V
   * I\_C < IB
   * V\_CE ≈ 0.2V