

## ELE 338 Homework Week 6

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A bipolar junction transistor (BJT) is characterized by the following parameters:  
 $\beta=150$ ,  $V_A=60V$ .

- 1) Find the **4 h-parameters** if the device is used in the **common emitter** (CE) configuration with  $I_{CQ}=1mA$  (Assume  $nV_T=30mV$ ).
- 2) Repeat problem 1) for a bias current of  $I_{CQ}=10mA$ .
- 3) Find the 4 h-parameters if the device is used in the **common collector** (CC) or emitter follower configuration with  $I_{CQ}=10mA$ .
- 4) Find the 4 h-parameters if the device is used in the **common base** (CB) configuration with  $I_{CQ}=1mA$ .
- 5) Compare your results from 1) and 4). Can you draw any conclusion from this comparison?
- 6) Find the equivalent **admittance parameters** (y-parameters) for 1).