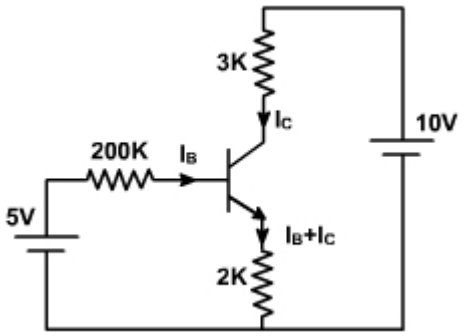
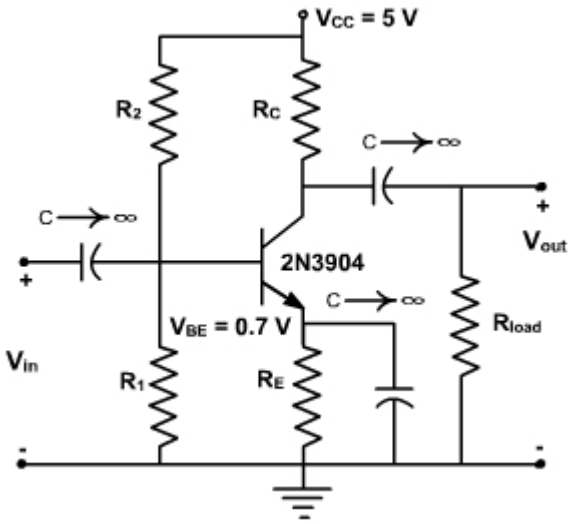
PH-218 Analog & Digital Electronics

Assignment-2 (Due date: 20th Jan 2011)

1. **Find the transistor current in the circuit shown below if I_{CO}= 20nA, β =100.**



2. **Determine the Q-point for the CE amplifier given in** figure**, if R_1 = 1.5K Ω and R_2 = 7K Ω . A 2N3904 transistor is used with β = 180, R_E = 100Ω and R_C = R_{load} = 1K Ω . Also determine the P_{out}(ac) and the dc power delivered to the circuit by the source.**



3. **In potential divider bias circuit, what will happen if –**
   - **(a) Resistance R2 is shorted**
   - **(b) Resistance R2 is open**
   - **(c) Resistance R1 is shorted**
   - **(d) Resistance R1 is shorted**

4. **Design a common emitter amplifier circuit that has a load resistance (R_c) of 1.2kohm and a supply voltage of 10V. Also find the value of the Emitter resistor, R_E with a voltage drop of 1V across it. Calculate the values of all the other circuit resistors assuming an NPN silicon transistor.**

5. **Calculate the value of stability factor for the above mentioned CE amplifier and give your feedback to further improve the stability, if needed.**

6. **Develop a program in any programming language (MATLAB or C or C++) to design a CE amplifier and to check the stability.**