



Sheet #7

- [1] A common-emitter amplifier shown in Fig.1 operating between a  $100\Omega$  source and a  $10k\Omega$  capacitor –coupled load, with  $\pm 10V$  supplies, employs  $R_E = R_C = 10k\Omega$ . For  $V_A = 200V$  and  $\beta = 150$ , find  $v_o/v_s$ .

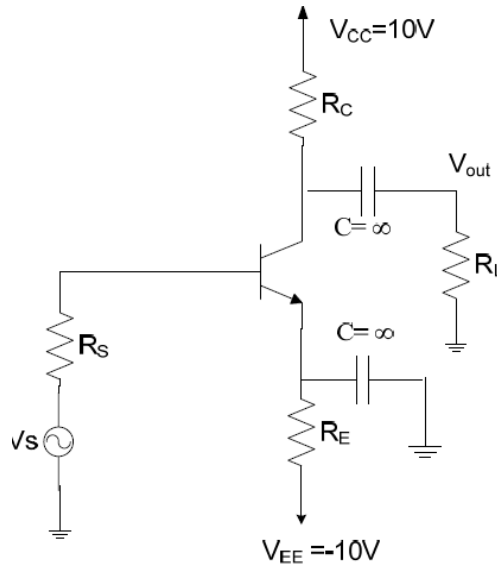


Figure 1

- [2] An alternative to the CE amplifier is considered in which a  $100\Omega$  part of  $R_E$  is left un-bypassed. Find  $v_o/v_s$  neglecting the Early effect.
- [3] A common-base amplifier shown in Fig. 2, biased at an emitter current  $3\text{ mA}$ , employs an un-bypassed base resistor  $R_B = 2k\Omega$ , with  $R_C = 3k\Omega$ ,  $R_E = 3k\Omega$  and  $R_L = 1k\Omega$ . For  $\beta = 150$ , what range of the input resistances result? What range of  $v_o/v_s$  results from a  $100\Omega$  source?

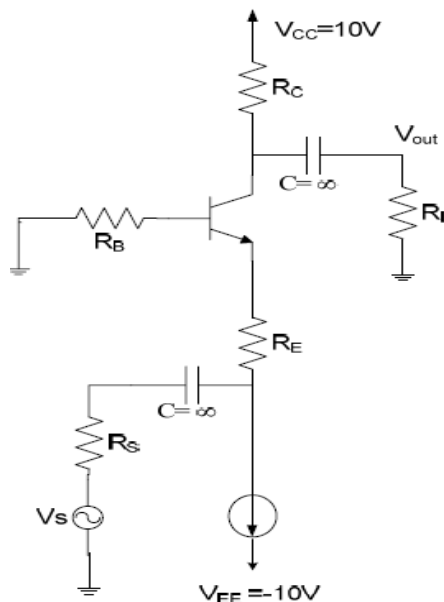


Figure 2

[4] An emitter follower shown in Fig. 3 is biased at 0.1 mA. The BJT has  $\beta = 50$ . When driven by a capacitor – coupled  $20\text{k}\Omega$  source and driving a  $2\text{k}\Omega$  capacitor – coupled load, what is  $v_o/v_s$  that results?

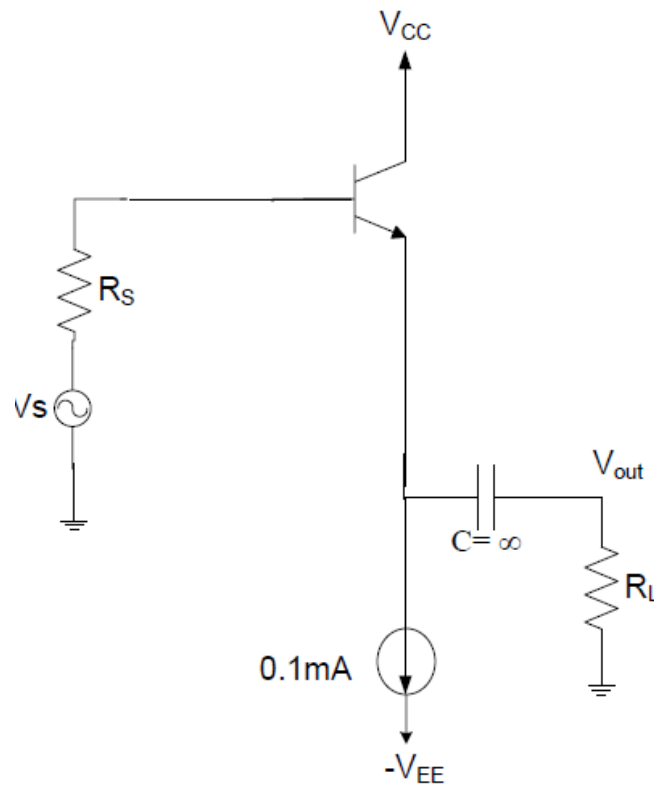


Figure 3