ENEE2360 CH5 Homework Problems

12. For the network of Fig. 5.152, determine V_{CC} for a voltage gain of $A_v = -160$.

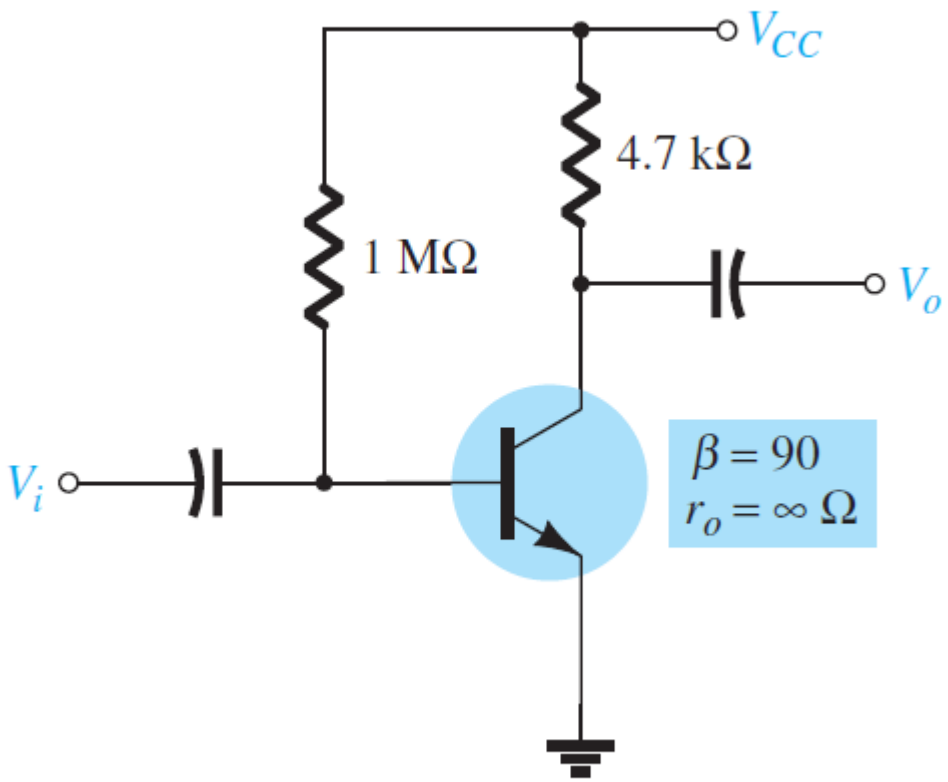

FIG. 5.152

Note that $\dfrac{1}{hoe} = \infty$

*25. For the network of Fig. 5.163:
   a. Determine Z_i and Z_o.
   b. Find A_v.
   c. Calculate V_o if $V_i = 1$ mV.

*26. For the network of Fig. 5.164:
   a. Calculate I_B and I_C.
   b. Determine r_e.
   c. Determine Z_i and Z_o.
   d. Find A_v.

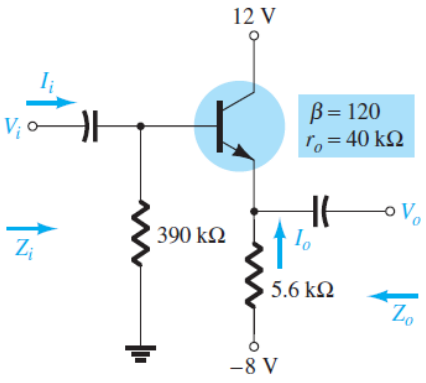

FIG. 5.163

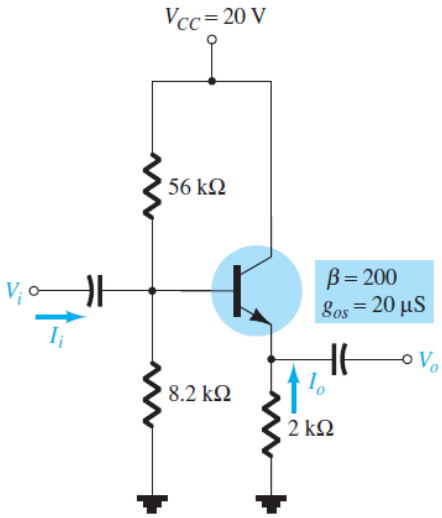

FIG. 5.164

$$\frac{1}{hoe} = 40K \quad \text{for FIG5.163}$$

$$\frac{1}{hoe} = 50K \quad \text{for FIG5.164}$$

40. For the emitter-stabilized network of Fig. 5.174:

a. Determine $A_{v_{NL}}$, Z_i, and Z_o.

b. Sketch the two-port model of Fig. 5.63 with the values determined in part (a).

c. Determine A_{v_L} and A_{v_s}.

d. Change R_s to 1 kΩ. What is the effect on $A_{v_{NL}}$, Z_i, and Z_o?

e. Change R_s to 1 kΩ and determine A_{v_L} and A_{v_s}. What is the effect of increasing levels of R_s on A_{v_L} and A_{v_s}?

f. Determine $A_i = I_o/I_i$.

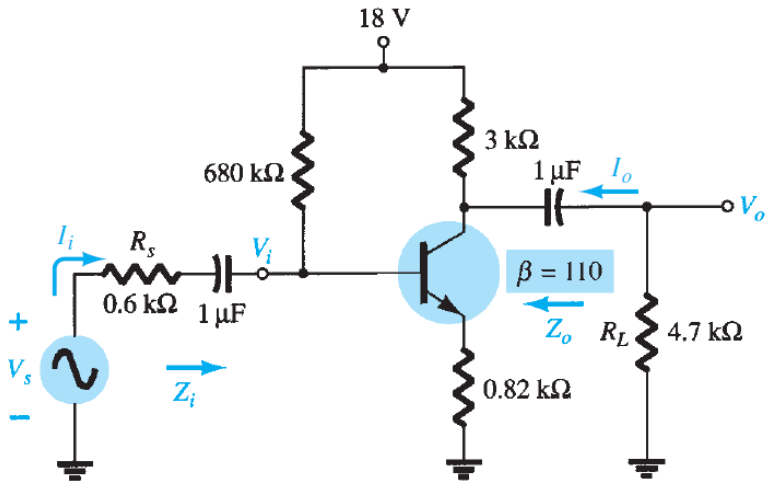

FIG. 5.174