ENEE236
Questions on BJT AC Analysis (2014)

22. For the network of Fig. 8.81:
(a) Determine Z_i and Z_o.
(b) Calculate A_v and A_i.

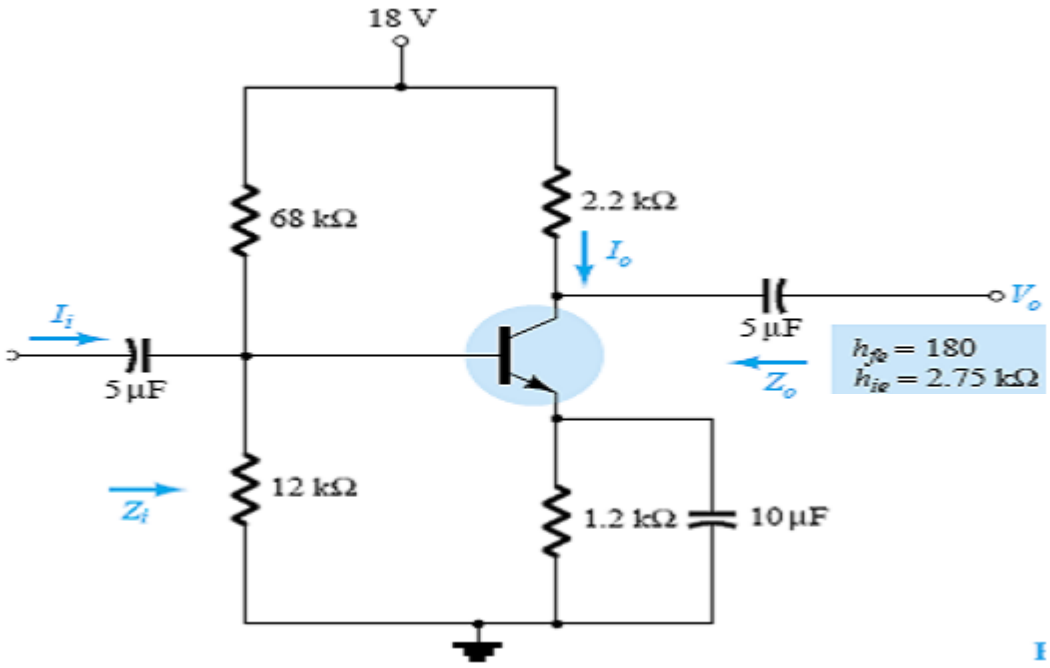
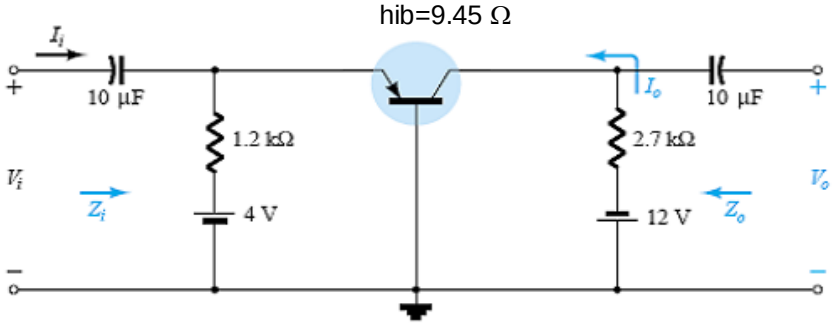


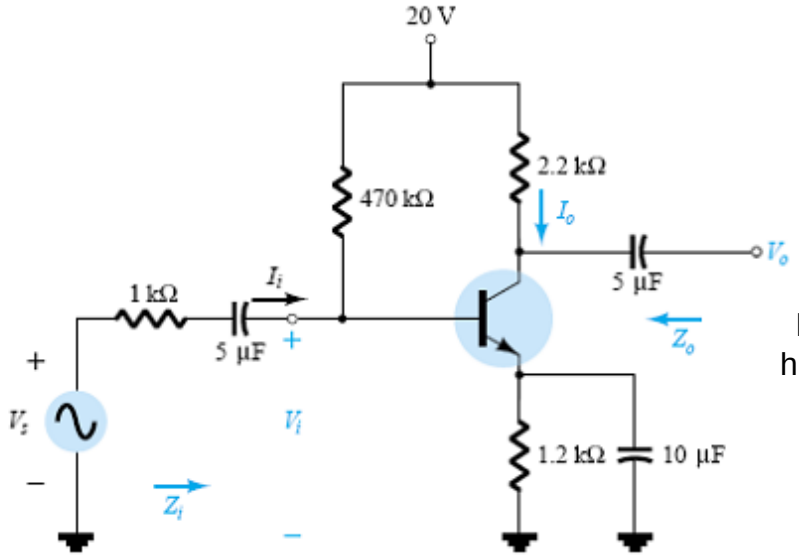
Fig. 8.81

* **23.** For the common-base network of Fig. 8.82:
(a) Determine Z_i and Z_o.
(b) Calculate A_v and A_i.

hfb=0.992
hib=9.45 Ω



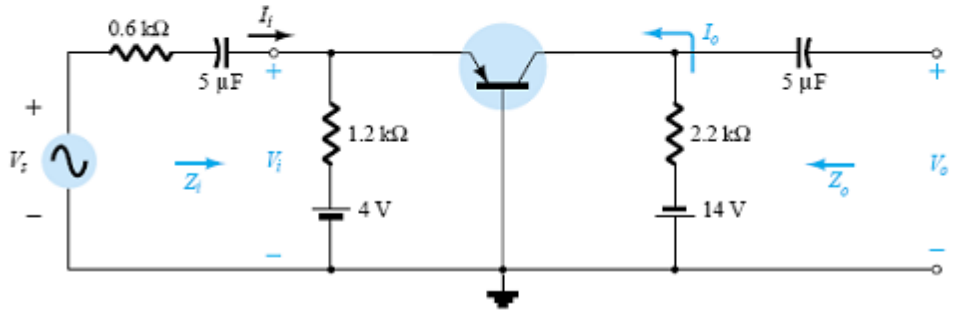
* **25.** For the network of Fig. 8.83, determine:
(a) Z_i.
(b) A_v.
(c) $A_i = I_o/I_i$.
(d) Z_o.



hfe=140
hie=860 Ω

* **26.** For the common-base amplifier of Fig. 8.84, determine:
(a) Z_i.
(b) A_i.
(c) A_v.
(d) Z_o.

hfb=0.997
hib=9.45 Ω



Q10. Find the following parameters for the given circuit of the common collector amplifier
- DC analysis to find value of hie
- AC analysis to find Av, Zi and Zo
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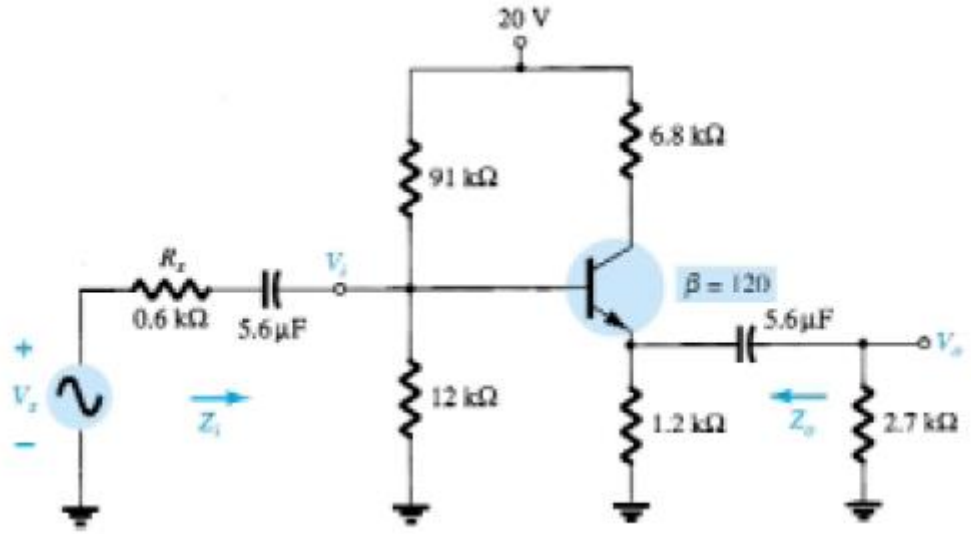
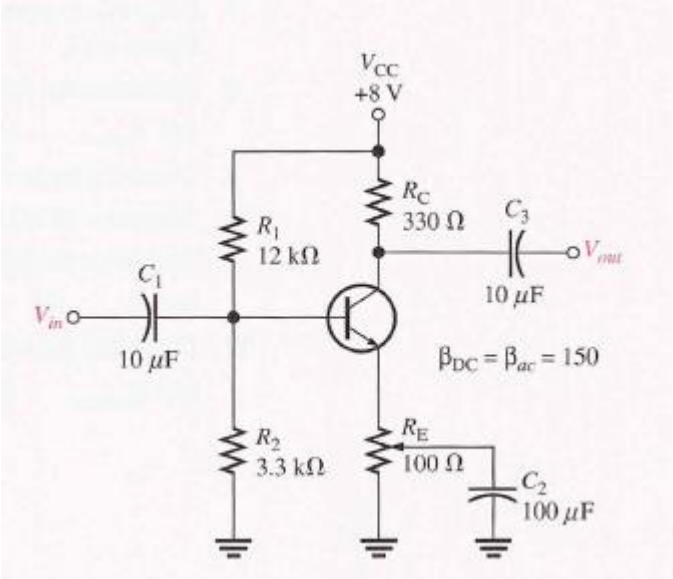


From Floyd

14. The amplifier in Figure 6–53 has a variable gain control, using a 100 Ω potentiometer for R_E with the wiper ac-grounded. As the potentiometer is adjusted, more or less of R_E is bypassed to ground, thus varying the gain. The total R_E remains constant to dc, keeping the bias fixed. Determine the maximum and minimum gains for this unloaded amplifier.

Note that RE can vary from 0 to 100 ohms



▶ FIGURE 6–53

30. If the multistage amplifier in Figure 6–57 is driven by a 75 Ω, 50 μV source and the secor stage is loaded with an $R_L = 18\ \text{k}\Omega$, determine

(a) voltage gain of each stage

(b) overall voltage gain