Department
of
Electrical and Computer Engineering, UC.
EE - 352
ELECTRONICS II
SUMMER QUARTER 2010

HOMEWORK ASSIGNMENT #4
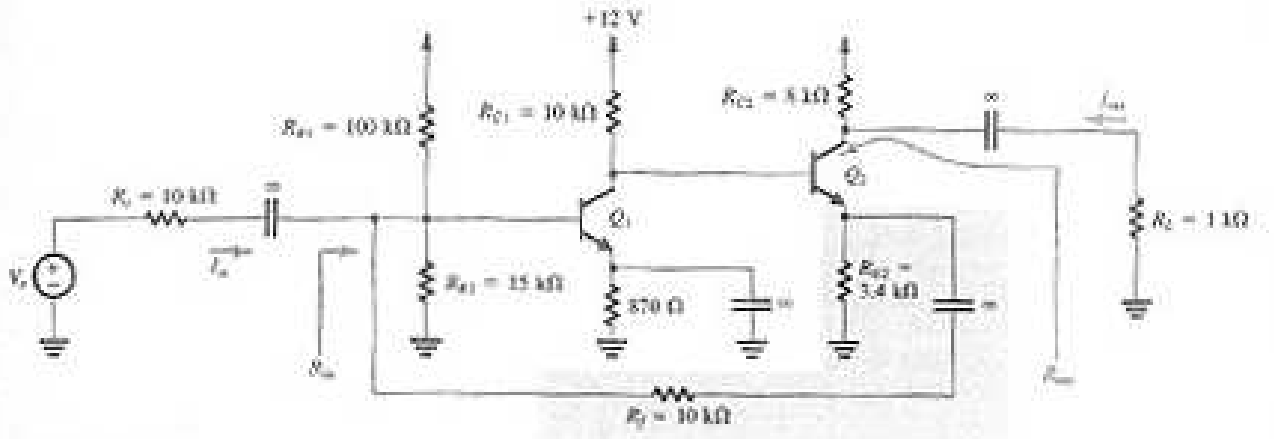**Due April 30, 2010**

Problem P10.71
.

Figure P10.71

Figure P10.71 shows a feedback amplifier utilizing the shunt-series topology. All transistors have $\beta=100$ and $V_{BE}=0.7V$.

(a) Perform a dc analysis to find the emitter currents in Q_1 and Q_2 and hence determine their small signal parameters.

(b) Replacing the BJTs with their hybrid π models, give the equivalent circuit of the feedback amplifier circuit

c) Give the A circuit and determine A, R_i and R_o. Note that R_o is the resistance determined by breaking the emitter loop of Q_2 and measuring the resistance between the terminals thus created.

(b) Find β circuit and determine the value of β.

e) Find $A\beta$, $1+A\beta$, A_f, R_{of}, R_{if}. Note that R_{of} represents the resistance that in effect appears in the center of Q_2 as a result of feedback.