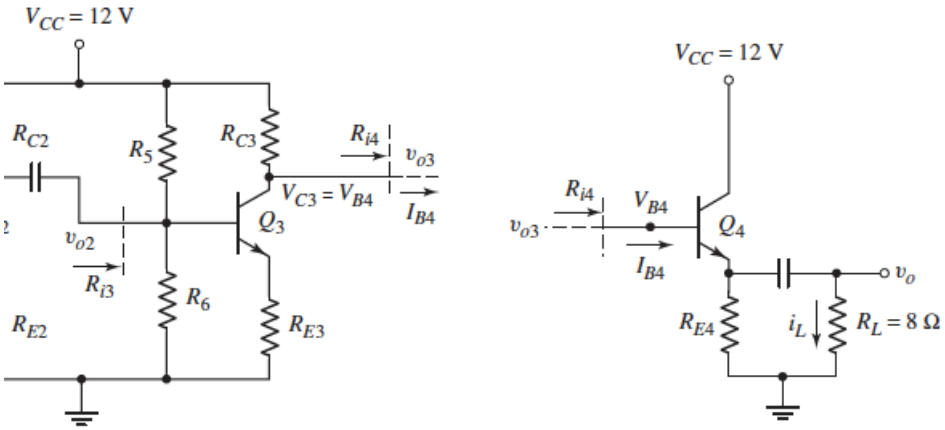
EEE313 Lab Exercise 6 2-12-2018

BJT Audio Amplifier

Preliminary Work

The following circuits are from the "6.11 Design application: Audio Amplifier" of page 445 of Neamen 4th Edition. We assume that our audio source is low impedance and gives up to 1V p-p in the audio range. Therefore we do not need the other stages which are designed in the book.



Initially use the component values determined in the book, and modify them if necessary. Determine appropriate values for the capacitors. For Q3 use BC238 and for Q4 use BD135. Find the Spice models of these transistors and make simulations to obtain the following.

a) The gain of the amplifier in the pass band (e.g. 1KHz)
b) The maximum undistorted output swing.
c) The frequecy range of the amplifier.

Lab Work

Set up the circuit optimized to have around a gain of 5 and maximum output swing property. Also determine if your amplifier covers the 20Hz to 20KHz audio range.

In writing your report explain what you have done (circuits, oscilloscope connections, procedures, etc), what you have obtained (values, graphs, tables, screenshots, etc), and your comments. Report your Spice circuits and results also.

You are expected to upload your report to Moodle after you show your Spice circuit and results and also your experimental results and set-up to your assistant and get his/her check.