HACETTEPE UNIVERSITY
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
ELE-313 ELECTRONICS LABORATORY II

EXPERIMENT – 2 FEEDBACK CONCEPT IN BJT AMPLIFIERS

PRELIMINARIES:

1. Students who will attend this experiment are assumed to know:
   Basic BJT amplifier circuits,
   DC & AC analysis of BJT circuits,
   Feedback concept in amplifiers,
   Purpose and advantages of negative feedback,
   Types of negative feedback amplifiers,
   How to choose feedback type.

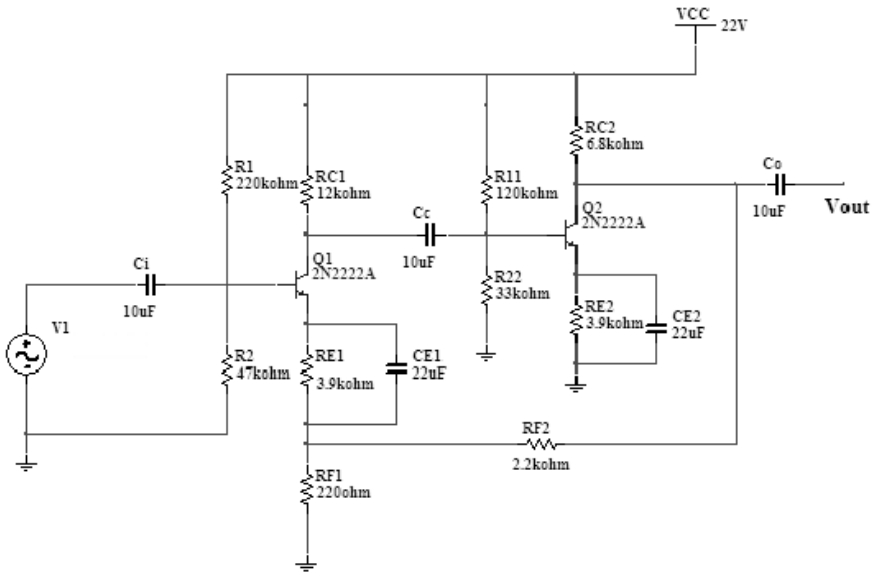
2. Read "Chapter 12-Feedback Amplifiers" from "Microelectronics, Jacob Millman & Arvin GRABEL" or any other related document.

PRELIMINARY WORK:

1. Answer the following questions about circuit which will be set up in the experiment.
   a) Determine the type of feedback used in this amplifier.
   b) Draw the circuit without feedback and then find the operating characteristics, A_v, R_i, R_o, theoretically step by step when there is no feedback but the loading effect of the feedback is considered.
   c) Find the operating characteristics, A_{vf}, R_{if}, R_{of} of the amplifier given in figure, theoretically step by step.
   d) Comment on the effect of feedback to circuit.
   e) Why are two amplifiers used instead of one amplifier?

2. Simulate the sections b) and c) by using Pspice and obtain the operating characteristics for both circuits and show how results are obtained in Pspice. The transistors are of 2N2222 model with h_{fe}=65. Use a 1kHz sinusoidal input signal. Choose appropriate amplitute for the input to find gain.

NOTE: Don't forget to bring the theoretical and simulation results to the experiment. Results are going to be used to compare the experimental results



h_{fe}=65, V_{BE}=0.7.

NOTE-1: There will be oral and/or written quiz during the experiment.
NOTE-2: Also an experiment report is expected to be written at the end of the experiment.

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