1. Design a series-shunt feedback amplifier using BJTs. Design specifications are a target (assuming the open loop gain is \( \infty \)) closed loop gain of 5. The load impedance is \( R_L = 10 \, \text{k}\Omega \). Use dc power supplies of \( \pm 15 \, \text{V} \). The lower \(-3dB\) frequency is to be 100 Hz or less. The upper \(-3dB\) frequency is to be 120 kHz or greater. The input impedance seen by the function generator is to be 100 k\( \Omega \) or greater. The other parameters are up to the designer. To simplify the calculations invoke the infinite \( \beta \) assumption. This experiment will be built in lab and compared with the design specifications. Perform a SPICE simulation to obtain the \( Q \) point, small signal gain, and clipping behavior. Assume that \( R_g \) is zero.