

EE105 Lab Experiments

## Report 8: Multi-stage Amplifiers

Name:

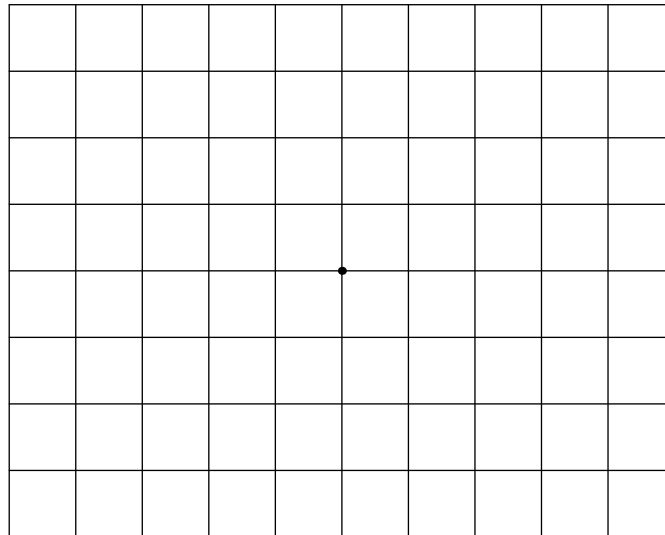
Lab Section:

3.1.3 Measure  $I_{BIAS}$  and the DC voltage at  $v_{OUT}$ .

$I_{BIAS} =$
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$v_{OUT} =$
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3.1.4 Using the oscilloscope, plot both the input  $v_{IN}$  and the output  $v_{OUT}$ . Sketch the waveforms you observe.



3.1.5 Why is  $v_{OUT}$  not sinusoidal?

3.1.7 What is the peak-to-peak voltage of the output waveform (at  $v_L$ ) with the load resistor? What is the gain of the amplifier with the resistive load?

$$v_{L,p-p} =$$

$$\left| \frac{v_L}{v_{in}} \right| =$$

3.2.1 Can you hear anything when the speaker is directly hooked up to the function generator?

Yes or No

3.2.3 Can you hear anything when the speaker is hooked up to the output of the amplifier?

Yes or No

3.2.4 Measure  $I_{BIAS1}$ ,  $I_{BIAS2}$ , and the DC voltages at  $v_{OUT1}$  and  $v_{OUT2}$ .

$$I_{BIAS1} =$$

$$I_{BIAS2} =$$

$$v_{OUT1,DC} =$$

$$v_{OUT2,DC} =$$

3.2.5 Measure  $V_{BE}$  of  $Q_2$ . Is the DC voltage at  $v_{OUT1}$  enough to bias  $Q_2$  in the forward active region?

$$V_{BE} =$$

Yes or No

3.2.6 Using the oscilloscope, plot both the input  $v_{IN}$  and the output  $v_{OUT2}$ . Sketch these waveforms (a plot is on the following page).

3.2.7 Measure the gain  $v_{out2}/v_{in}$ .

$$\left| \frac{v_{out2}}{v_{in}} \right| =$$

3.2.8 Now increase the DC offset of the input waveform to 620 mV. What happens to the waveform at  $v_{OUT2}$ ?

