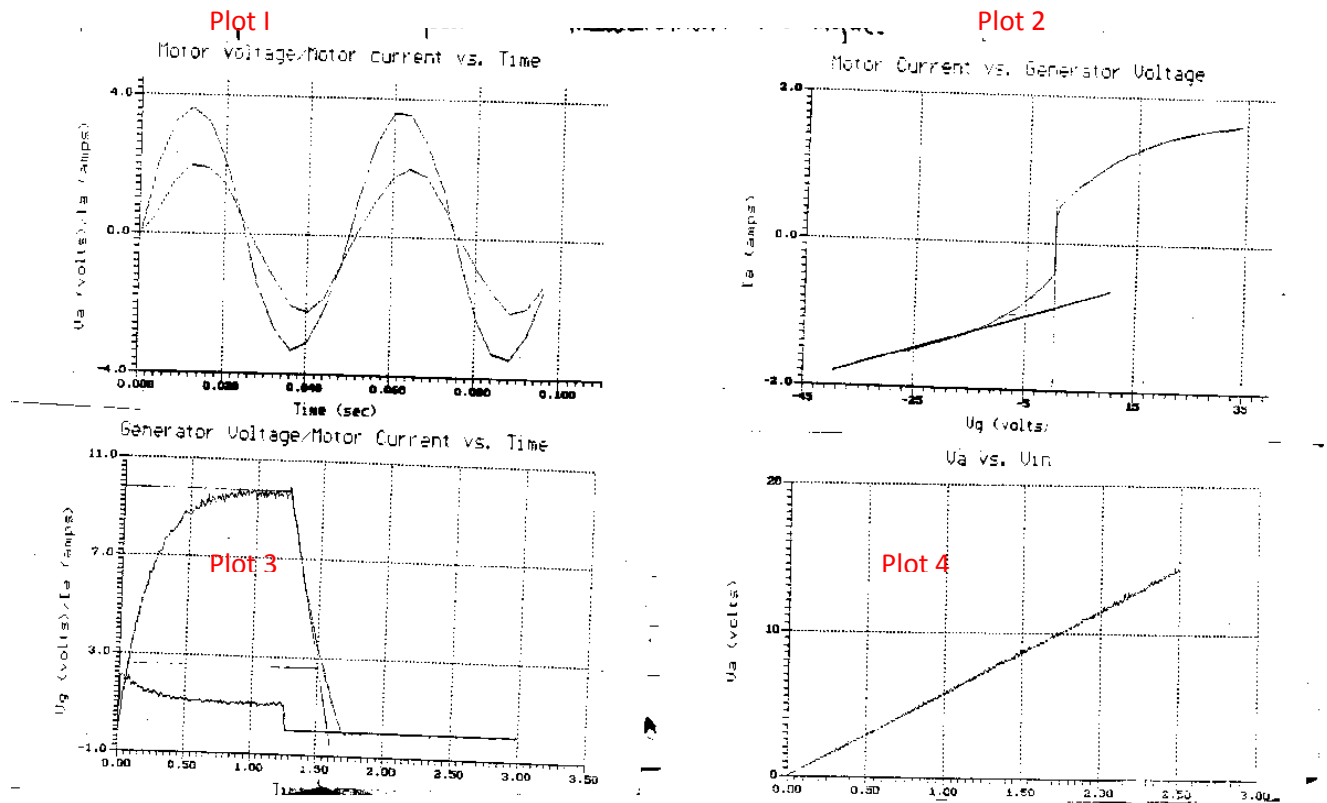


## Lab 2 Screen Printouts



### Hints:

Plot 1: Here, we input a sinusoid for  $V_a$  at 20 Hz and hold the motor shaft so that the back emf ( $V_b$ ) is zero. You know that the current  $I_a$  should LAG the voltage  $V_a$  so you can determine which is which and you can find the magnitude and phase angle. This will lead you to the armature resistance and inductance ( $R_a$  and  $L_a$ ).

Plot 2: This is the steady-state plot where we let the motor reach a constant speed before we take a data point. Find the slope and the Y-intercept like we discussed in class.  $V_g = K_g \omega_m$  and we know  $K_g = 0.1842$  volts/(rad/sec).

Plot 3: This is the plot where we pull out the armature lead and set  $I_a = 0$ . You can find the motor velocity and the derivative of the motor velocity because we know  $V_g = K_g \omega_m$

Plot 4: This is simply a plot of the output of the amplifier as we vary the input. The slope is the amplifier gain,  $K_a$