

**The University of Jordan  
School of Engineering  
Electrical Engineering Department**

**EE 449  
Instrumentation and Control Lab**

**EXPERIMENT 2 REPORT  
MOTOR CONTROL**

**Section # \_\_\_\_\_ Group # \_\_\_\_\_**

**Student Name**

**ID**

- 1.
- 2.
- 3.
- 4.

## EXPERIMENT 2 MOTOR CONTROL

### PROCEDURE I: STEADY-STATE CHARACTERISTICS

1. Fill in the following table, then make a plot of motor speed against amplifier input:

Amplifier Input (DVM 1, Volts)	Tachogenerator Output (DVM 2, Volts)	Output Shaft Speed (RPM)	Motor Speed (RPM)
+10			
+7.5			
+5			
+2.5			
0			
-2.5			
-5			
-7.5			
-10			

2. Plot the tachogenerator characteristics, the generated voltage by the tachogenerator DVM 2 against motor speed:



3. The tachogenerator factor in (volts per 1000 rpm) is:

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4. According to your results above, briefly explain the relationship between the applied input voltage and the rotational speed of the DC motor, considering the effect of the back EMF and armature resistance.

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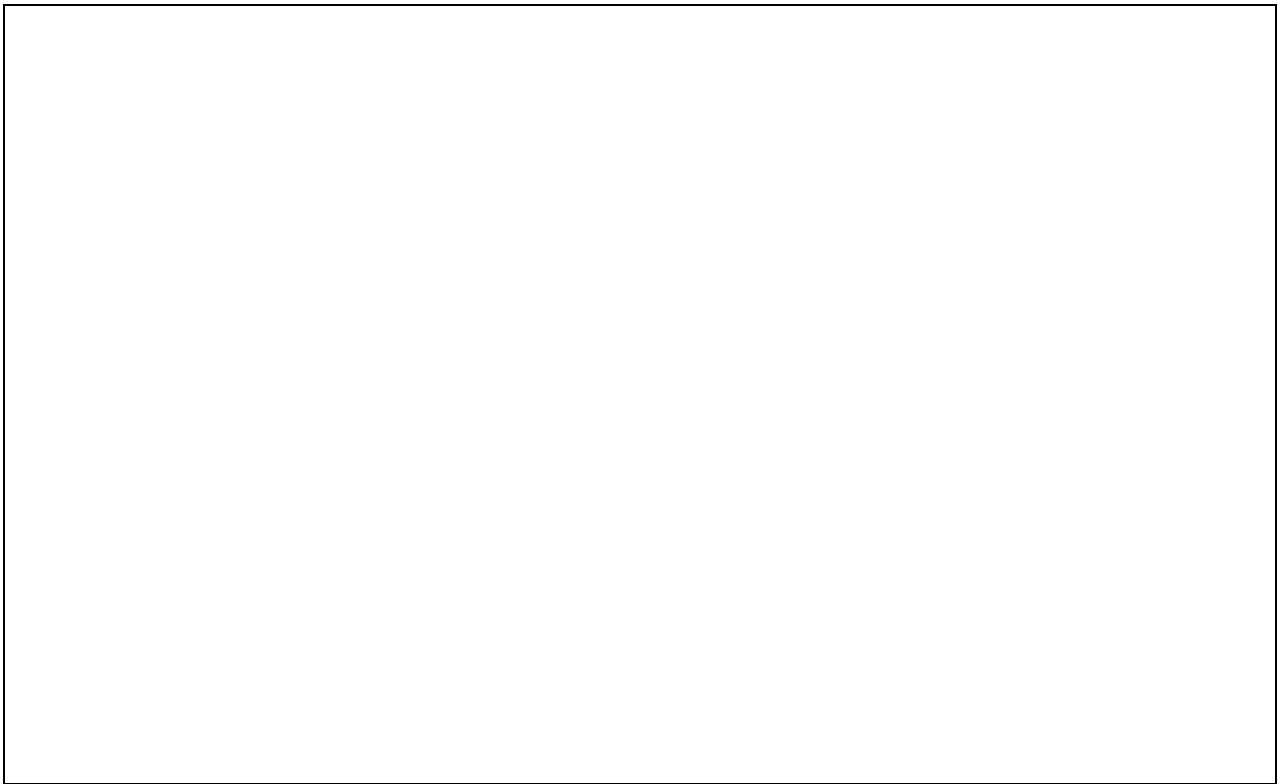
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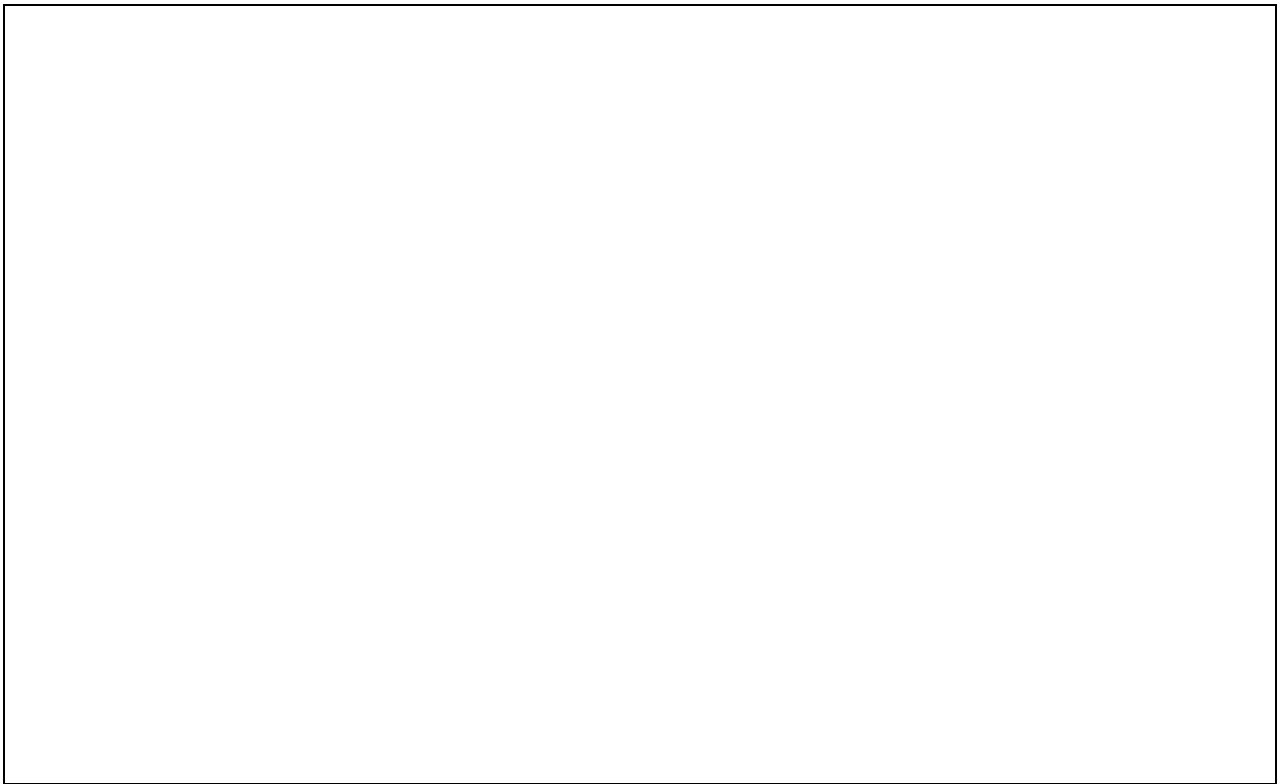
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2. Set P2 to 100 and readjust P3 to give 1000 r/min with the brake off. Fill in the following table, then plot the speed characteristic and error (Power Amplifier input):

<b>Brake Setting</b>	<b>Armature Current (I<sub>a</sub>, Amps)</b>	<b>Output Shaft Speed (RPM)</b>	<b>Motor Speed (RPM)</b>	<b>PA Input (Volts)</b>
0				
1				
2				
3				
4				
5				
6				



3. For a DC motor, what is the effect of brake load on the motor speed with closed-loop control (negative feedback) compared to open- loop control?

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**\*\* End \*\***