P1310L, Torque & Moment of Inertia
Lab 10, Raw Data Sheet

Submitted by: _____ Experiment's date: _____

Team members:

1.- _____ 2.- _____

3.- _____ 4.- _____

Instructor must initial:_____

Introduction

Write a short paragraph about the purpose of this lab.

Analysis

Instructions: Follow the steps on this worksheet, using your lab manual as a guide, unless directed to do otherwise by your lab instructor. Show at least one sample calculation for each result requested. The results must include appropriate SI units. If a table is used, then it must have headers (for rows or columns) that include units

Torque

1. For one of the trials, make a diagram to explain where the force producing the torque is being applied and also the direction of the torque. Include the relevant measurements and the appropriate units.

2. Calculate the magnitude of the torque for each mass.

Angular acceleration

3. For each mass, calculate the average rotation rate of the disk, in radians per second.

4. Use the average rotation rate for each hanging mass to determine the corresponding angular acceleration of the disk.

Moment of Inertia

5. Make a plot of torque v.s. angular acceleration and find the best fit line and its slope; include appropriate units.

6. If your plot is in agreement with equation (10.2) of the lab notes, then what is the value of the moment of inertia. Compare this value with that of an homogeneous disk of the same mass and diameter.

Conclusions

Summarize your results and write a brief reflection on the experiment; in particular, comment on whether the theory makes reasonable predictions despite the observed variability.