<p style="text-align:center;">Sample Post-Lab Quiz for PHY324</p>

Q1: What experiment are you doing?

The hoop pendulum.

Q2: Summarize the physics elements in this experiment.

A hoop is free to rotate about its top. Gravity produces a restoring torque. The hoop is thus a pendulum. Since gravity is the restoring torque, you can measure "g".

Q3: Describe one major goal of the lab.

Measure "g" (acceleration due to gravity).

Q4: What do you measure directly in pursuit of the major goal described above?

The average diameter of the hoop.
The average thickness of the hoop.
The mass of the hoop.
The period of oscillations of the hoop.

Q5: Outline how you get the answer to Q3 from the data collected as described in Q4. If you will graph data to achieve the goal in Q3 then explain what you will graph, what the trend-line will look like, and how it achieves the goal in Q3. Include any equations you will use to turn the data described in Q4 into the answer described in Q3.

For a pendulum, $T = 2\pi \sqrt{I/mgd}$.
I can find I from the mass, average diameter and average thickness of the hoop.
I measure d and T directly.
The only unknown left is "g", which is the goal.

Q6: Your TA asked you a/some question(s) about the equipment. Write the question(s) and answer(s) here.

Q: What determines the accuracy of our time measurements?
A: Several factors, but most important is human reaction time.

Q: How will we measure the period of the hoop?
A: Start the hoop oscillating. Start the stop watch when the hoop is at the bottom. Count 10 oscillations, then stop the stop watch when the hoop is at the bottom (going the same way). Divide that time by 10.

Q: How do you determine the reading of a Vernier caliper?
A: The bottom 0 line lines up with the approximate value on the top (say 10.3). To get the next decimal place you see which value of a line on the bottom exactly lines up with some line on the top (say 34). These two value give you the result (here 10.34).