Physics Lab A3 – Determining the Value of Acceleration due to Gravity

The purpose of this laboratory investigation is to determine the local value of acceleration due to gravity ($\mathbf{a_g}$).
A percent difference calculation can be used to determine adequacy of the experimental design.

Problem
What is the value of the acceleration due to gravity in Doha?

Prediction
Please make a suitable prediction and state your reasoning.

Experimental Design 1
Prepare a brief summary outlining the plan used to solve the problem. List manipulated, responding and controlled variables.

Materials
Provide a list of materials required to perform the lab.

Procedure
Write a series of step by step instructions to perform the lab investigation.

1.
2.
3.
4.
5.

Evidence
Record and display all evidence in a neat table or chart.

Analysis
1. Calculate the experimental value of $\mathbf{a_g}$ and write a sentence to answer the problem.

2. Calculate the percent error relative to the accepted value for $\mathbf{a_g}$.

Evaluation
1. What are the sources of uncertainty for this investigation?

2. How confident are you with your results? Justify your reasoning.

3. What are some suggestions for improving your chosen experimental design?

Marking Rubric	
Prediction	1 mark
Experimental Design, including identification of variables	1 mark
Procedure (clear, well sequenced and logical	1 mark
Evidence (appropriate data values measured to correct precision)	1 mark
Analysis (including sample calculation)	1 mark
Analysis (percent difference)	1 mark
Evaluation (Parts 1 and 2, including sources or uncertainty, confidence, and suggestions for improvement)	2 marks
Lab A3 is to be included with portfolio A1. The portfolio value of this lab is 8 marks.	