Year 11 Chemistry **NAME:**

**Molar Volume of H2 (and Percentage Purity of Mg) /25**

PRE-LAB Questions.

1. Write a balanced Chemical equation for the reaction. Include all species. (2)

2. Compare the solubility of Cu and Mg in:

i. Water (1)

ii. Hydrochloric Acid (aq) (1)

1. i. Compare the density of the 3M HCI(aq) with water. (1)

ii. Explain how this property is particularly useful in this experiment. (1)

*Refer to the Procedure Steps as indicated*

1. Step 1: Why should the Mg be cleaned? (1)
2. Step 4: Write 2 Safety Rules relevant to this step. (2)
3. Step 5: a. Explain why the tube should contain no bubbles. (1)

b. Consider a student's apparatus that does contain bubbles.

Explain what effects this will have on their final results for the Molar Volume

of H2 **and** the percentage purity of Magnesium. (2)

1. Step 7: How will you know that the reaction is complete? (1)

8. With the aid of diagram/s describe in detail how you are going to determine the volume

of collected gas. Include scale reading and pressure equalization. (See Equipment) (4)

9. a. What is the maximum volume the supplied gas collection tube can measure? \_\_\_\_\_ (1)

b. How many moles of Hydrogen gas at STP is this? (1)

c. What mass of pure Magnesium will produce this volume at STP? *(Refer to Q1)*  (2)

d. 50 cm of the magnesium ribbon supplied is found to have a mass of \*\_\_\_\_\_\_ grams.

Assuming the magnesium ribbon is 100% pure, how many cm of ribbon would you need

to react to fill the tube (***See part a above***)? *(\*ASK your teacher for this data)* (2)

e. Allowing for variations from STP it is recommended that you use only about

80% of this length. What length is that? (1)

f. Is it critical to cut exactly this length of ribbon? Explain your answer. (1)