Chem Lab Pretest Answers

1.   A   0.0182 cm. After 0.01(think of it as 0.010(really 0.0100; see B), comes 0.011, 0.012etc. The eight line is 0.0180. The last decimal(2) comes from an estimate.

            B   0.0200 cm Notice that this measurement must have as many sig figs as the previous one since it's from the same instrument.

            C   25.00 ml because the estimate (±0.01) *is in the second decimal place.*

2.   Option (a) has the lowest error. 1/953 << 0.0001/0.0002. The latter is a 50% error!!!!!!!!!

3.   Mass of liquid in pipette = 40.25-18.25 = 22.00 g
Density = mass/volume = 22.00 g/25.00 ml = 0.8800 g/ml

4.   a)   You could reweigh the magnesium, and subtract it from the original mass. The difference will be what reacted.
This approach, however, is not recommended because you will deal with a lower volume of hydrogen which will introduce a bigger error.

            b)   There has to be a hole to let the water out, or else the gas pressure would be so great that it would make the stopper pop out. All the water would gush out followed by the hydrogen gas, and you would not be able to measure the volume of hydrogen.

            c)   You need to line up the volume of water inside the biuret with the level of water inside the graduated cylinder to equalize pressure.

            d) $H_2O_{(g)}$. Any gas collected over water will be contaminated with water vapour because a small amount of water will evaporate during the reaction and remain trapped inside with the gas.

            e)   Lower temperature: less evaporation. This will lower the concentration and the partial pressure of water vapour.
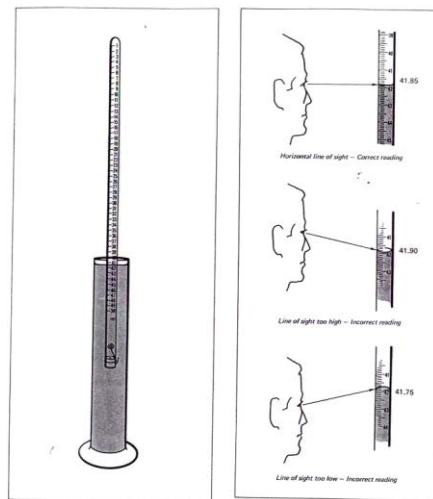
A partial pressure is the pressure of just one gas in the entire mixture. So if, for example, a gas mixture is 95.0% hydrogen and 5.00% water, at 100.0 kPa, the partial pressure of water will be 5.00 kPa, and that of hydrogen will be 95.0 kPa.