REPORT FORM Experiment 13

<u>Data:</u>

Metal	Aluminum	Magnesium
Mass of metal sample		
Volume of hydrogen gas collected		
Temperature		
Barometric pressure		
Height of water column		
Vapor pressure of water		

Calculations:

Quantity Calculated	Results (include units)	
	Al	Mg
Height of water column in mmHg		
Pressure of dry hydrogen gas		
Moles of hydrogen gas		
Mass of aluminum reacted		
% Aluminum reacted		
Volume of hydrogen at STP		
Equivalent mass		

Questions:

1.	Write balanced chemical equations f sulfuric acid, H_2SO_4 . Underneath ea metal element in the periodic table; produced as a reaction product; and conditions, that will be liberated by t	For the reactions of each the following metals with ch reaction, write, in order, (i) the group number of the (ii) the oxidation number of the metal in the sulfate salt (iii) the volume (mL) of hydrogen gas, at standard the reaction of sulfuric acid with the metal.
(a)	0.0230 g Na:	
	Equation:	
	Group No:	Oxidation number:
	Vol of H ₂ gas liberated:(show calculations)	
(b)	0.0243 g Mg: Equation Equation:	
	Group No:	Oxidation number:
	Vol of H ₂ gas liberated:(show calculations)	

2. A 0.955-g sample of an unknown metal, with a charge of 2+, reacts with acid to liberate 380. mL of hydrogen gas when collected over water at 20.0 °C and 720. mmHg total pressure. What is the equivalent mass of the metal? What is the identity of the metal? (VP of water at 20°C = 17.5 mmHg)

3. Calculate the maximum mass of a metal, with equivalent mass of 20 g, that should be used in an equivalent mass determination with a 100-mL eudometer tube for collection. For the purposes of calculation, assume 80 mL of hydrogen gas produced at standard conditions. (Round to 2 sig figs)