Stoichiometry Test

5 pts each - 50 pts total

Do not forget your units.

1. Calculate the mass of aluminum chloride that can be formed from 12.0 g of aluminum with excess chlorine. (5 points)
2. When a reaction between potassium and sulfuric acid occurs, 12.3 L of hydrogen gas at SATP is produced. What is the mass of potassium that was used in this reaction? (5 points)
3. What volume of carbon dioxide is produced when 13.7 g of methanol (CH3OH) in a fondue burner is completely burned? The temperature of the room is 23.5°C with a pressure of 100.5 kPa.
4. In a chemical reaction, hydrogen sulfate reacts with zinc metal. How many grams of hydrogen sulfate are required to produce 1.0 grams of H2 gas?
5. What mass of propane (C3H8) from a tank can be burned using 48.9 L of oxygen gas at SATP?
6. What is the concentration of a NaOH(aq) solution if 10.6 mL of this solution is required to react with 23.4 mL of 0.185 mol/L HNO3(aq)?
7. What volume of 0.188 mol/L Ca(OH)2(aq) is required to react completely with 14.0 mL of 0.200 mol/L Al2(SO4)3(aq)?
8. In a chemical analysis, a 20.0 mL sample of H3PO4)aq) was reacted with 14.3 mL of 0.248 mol/L Ba(OH)2(aq). Calculate the concentration of the phosphoric acid.
9. What volume of chlorine gas at SATP is produced from the decomposition of sodium chloride when 58.94 Kg of sodium is also produced?
10. Hydrogen peroxide (H2O2) is a liquid used in disinfectants and hair coloring. It decomposes to produce water and oxygen. What volume of 1.05 mol/L hydrogen peroxide is decomposed when 350.9 mL of oxygen gas is produced at SATP?

**Formulas:**

PV=nRT m=nM P1V1 = P2V2 T1 T2

C = n or C= mor C= V depending on the state of the substance (solid, liquid or gas)

V V n