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**Worksheet 16**

1. Which of the following is a nonpolar molecule? PH3, CH4, CH4OH (Ch. 10)
2. List all strong bases. (Ch. 14)
3. The pH of a solution is 7.5, what is the OH1- concentration? (Ch. 14) **(3.16E-7 M)**
4. Determine the mass of CaCl2 found in 50 ml of a 1.2 M solution of CaCl2. (Ch. 13) **(6.7 g)**
5. 15 grams of substance X absorbs 920 J of energy, changing its temperature by 17⁰. What is the specific heat of this substance? (Ch. 12) **(3.6 J/g oC)**
6. Consider the reaction: 2 HCl 🡪 H2 + Cl2 H = 185 kJ. How many joules of energy will be absorbed if 95 grams of HCl is reacted? Is this reaction exothermic or endothermic? (Ch. 12) **(241,000 J)**
7. If one burns 0.315 moles of hexane (C6H14) in a bomb calorimeter containing 5.65 liters of water, what’s the molar heat of combustion of hexane if the water temperature rises 55.40 C? The heat capacity of water is 4.184 J/g0C. (Ch. 12) **(4.16E6 J/mol)**
8. As an electron moves from energy level 6 to energy level 2, is it absorbing energy or releasing energy? Explain your answer. (Ch. 9)
9. Rank the following elements from most stable to least stable. In, Cd, Rn, Rb. Explain your ranking. (Ch. 9)
10. A student adds 200.0g of C7H6O3 to an excess of C4H6O3, this produces C9H8O4 and C2H4O2. Calculate the percent yield if 231 g of aspirin (C9H8O4) is produced. (Stoichiometry) **(88.5%)**

C7H6O3 + C4H6O3 🡪 C9H8O4 + C2H4O2