Chapter 14 Homework Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the **mass percent** of an ammonium carbonate solution prepared by dissolving 33.2 g of solid into 39.5 g of water?

2. What **mass of solute, in grams**, is present in 257 g of 15.0% AgNO3 solution?

3. What is the concentration in **parts per million** of a solution in which 40.0 *mg* of potassium chloride are dissolved in 15.0 *kg* of water?

4. A quantity of 3.50 mol of methanol is dissolved in water such that the total solution volume is

675 mL. What is the **molarity** of methanol in the solution?

5. How many **moles of NaCl** are present in 80 mL of 0.45 M solution? ***(Use dimensional analysis.)***

6. How many **grams of KCl** are needed to make 50.0 mL of 2.45 M KCl? ***(Use dimensional analysis.)***

7. What **molarity** should the stock solution *(meaning concentrated solution)* be if you want to dilute

25.0 mL to 2.00 L and have the final concentration be 0.103 M? ***(EASY—M1V1 = M2V2)***

8. A laboratory stock solution of sulfuric acid has a concentration of 9.50 *M*. What **volume of concentrated stock solution** do you need in order to make 355 mL of 2.50 *M* sulfuric acid?

***(EASY—M1V1 = M2V2)***

9. Using the **balanced** equation below, determine the **number of moles Al(OH)3** produced from

500. mL of 5.75 *M* Ba(OH)2?

**3** Ba(OH)2 + **2** AlCl3 🡺 **2** Al(OH)3 + **3** BaCl2

10. How many **mL of 0.113 M sodium sulfate** are needed to produce 0.668 g barium sulfate?If needed, use the molar masses given.

BaCl2 (aq) + Na2SO4 (aq) → BaSO4 (s) + **2** NaCl (aq)

208.23 g/mol 142.05 g/mol 233.40 g/mol 58.44 g/mol

11. In order for 38.7 mL of KMnO4 to react completely, one must add 25.0 mL of 2.50 *M* HCl. What is the **molarity of the KMnO4 solution**?

**2** KMnO4(*aq*) + **16** HCl(*aq*) → **2** MnCl2(*aq*) + **5** Cl2(*g) +* **8** H2O(*l*) + **2** KCl(*aq*)