**Quiz 11A**

# Directions: Answer each of the following questions. Be sure to use complete sentences where appropriate. For full credit be sure to show all of your work. Where appropriate answers should be boxed for clarity, written to the correct number of significant figures, and, include the proper units.

1. What happens if you add a very small amount of solid salt (NaCl) to each beaker described below? Include a statement comparing the amount of solid eventually found in the beaker with the amount you added (4 points):
	1. a beaker containing saturated NaCl solution

All the salt added will be solid in the beaker.

* 1. a beaker containing supersaturated NaCl solution

All add salt and some previously dissolved salt will be solid in the beaker.

1. Distinguish between the solute and solvent in each of the following solutions (4 points):
	1. Saltwater, NaCl (aq) NaCl solute, H2O solvent
	2. Sterling silver (92.5% Ag, 7.5% Cu) Cu solute, Ag solvent
2. Are the following statements true or false (4 points)?

|  |  |  |
| --- | --- | --- |
|  | A finely divided solute dissolves faster because more surface area is exposed to the solvent.  | True  |
|  | All solubilities increase at higher temperature.  | False  |
|  | Increasing air pressure over water increases the solubility of nitrogen in the water.  | False  |
|  | The concentration of a secondary standard is found by titration generally.  | True |

1. Use the equation below to answer the following questions (8 points):

3 Ca(NO3)2 (aq) + 2 Na3PO4 (aq) → Ca3(PO4)2 (s) + 6 NaNO3 (aq)

1. Identify the type of chemical reaction. \_\_\_\_\_double replacement\_\_\_\_\_\_\_\_\_
2. How many grams of the precipitate can be obtained from 125 mL of 0.500 M calcium nitrate?

$$125 mL Ca(NO\_{3})\_{2}soln×\frac{1 L}{1000 mL}×\frac{0.500 mol Ca(NO\_{3})\_{2} }{1 L Ca(NO\_{3})\_{2} soln}×\frac{1 mol Ca\_{3}(PO\_{4})\_{2}}{3 mol Ca(NO\_{3})\_{2}}×\frac{310.174 g Ca\_{3}(PO\_{4})\_{2}}{1 mol Ca\_{3}(PO\_{4})\_{2}}=6.46 g Ca\_{3}(PO\_{4})\_{2}$$