Unit 4 Hand-In **Assignment #1 (4.1-4.3)**

Name: _____

This assignment covers sections 4.1-4.3. When writing solvation equations, make sure you show all states for products and remember to balance the equation. When using a formula, write down the formula then substitute values with units. **Your answer must have the correct units and significant figures in all of your final answers.**

1. Determine whether each of the following will undergo dissociation, dissolving or ionization. Then write the solvation equation for each substance:
   a) Lithium oxide

6

   b) Magnesium nitride

   c) Hydrobromic acid

2. What mass of calcium chloride is needed to make 330.0 mL of 0.125 M solution?

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3. What volume of 0.100 M K_2S solution contains 3.5 g of the solute?

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4. What is the molarity of a 75.0 mL solution that contains 0.225 g of potassium nitrate?

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5. Describe how to prepare 750.0 mL of a standard 2.00 M sulfuric acid solution. Be sure to identify any special lab equipment required. Show all calculations. (3 marks for math, 3 marks for description)

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6. A student adds 1.15 L of water to 750 mL of a 0.330 M solution of NaCl. What is the concentration of the diluted solution?

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7. What volume of a 10.0 M HBr solution is required to make 2.5 L of a 0.500 M diluted solution?

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8. Find the concentration of all ions present in a 0.223 M solution of $PbCl_2$. (2 marks for solvation, 2 marks for each concentration).

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9. During a serial dilution, you use 15.0 mL of a standard solution and dilute it to 1.35 L twice. What is the final concentration if the standard solution had a concentration of 0.500 M?

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10. Calculate the concentration of each ion in each of the following mixed solutions in which no reaction occurs.
    a. 200mL of 0.6M $AlBr_3$ mixed with 300mL of 0.4M $BaBr_2$

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b. 6.4g of NaCl and 5.2 g of KCl dissolved and made up to 250mL

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