CW/HW: Solutions 20 points maximum

Name:

Part 1: Choose 2 questions to answer.

1. Explain how an ionic compound, such as sodium chloride (NaCl) dissolve in polar liquids such as water. (1.6 points)
2. Why can someone overdoes on vitamin A but not on vitamin C? Your answer should include a discussion on the solubility of each vitamin. (2 points)
3. Some industrial plants use water from nearby rivers and streams as a coolant. When the water is returned to the river or stream, the water is warmer than it was originally. This is referred to as thermal pollution. Using your knowledge of solubility, why might this thermal pollution be harmful to fish? (2 points)

Part 2: Solve 4 problems.

1. What is the molarity of a solution created by dissolving 5.55 moles of hydrochloric acid into 3.33L of solution? (1.6 points)
2. How many moles of phosphoric acid is dissolved in 0.750L of solution to create a 0.652 Molar solution? (1.6 points)
3. What mass of sugar (C12H22O11) is dissolved into 1.200L of solution to create a 0.345 Molar solution? (2 points)
4. How many grams of calcium hydroxide are needed to make 100.0mL of a .250 Molar solution? (2 points)
5. Calculate the molarity of a solution prepared by dissolving 1.56g of gaseous HCl in enough water to make 26.8mL of solution. (2 points)
6. What volume must the solution be when preparing 11.5g of solid NaOH in enough water to make a .192 Molar solution? (2 points)

Part 3: Solve both problems.

1. For an upcoming lab, you need.250L of .600 Molar HNO3 solution. In your stock, you only have a 1.00M solution. What volume of stock solution must you use to create the solution to use in lab? (2 points)
2. You have 100.0mL of a 6.00 Molar solution of NaOH. You need a 2.30 Molar solution, to what volume must you dilute your solution? (2 points)

Part 4: Choose 2 questions to answer completely.

1. Explain how adding a solute to a solution raises the boiling point of the solution. (1.6 points)
2. Explain how adding a solute to a solution lowers the freezing point of the solution. (1.6 points)
3. Why do people put antifreeze in their car’s radiators in the summer time? Use colligative properties in your answer. (2 points)
4. Why do people mix salt with ice when they are making ice cream? Use colligative properties in your answer. (2 points)