Name: _____ *Date:* _____

Unit 3.7 & 3.8

Solutions & Mixtures / Representations of Solutions

1. Draw one representation that shows the intermolecular interactions between NH_3 and water and another that shows the intermolecular interactions between SbH_3 and water. Use your representations to help explain why NH_3 has a higher solubility in water than SbH_3.

2. Potassium bromide is **least** soluble in which of the two liquids from each set below. Justify your choice in each case.

   (i) H_2O or CH_4

   (ii) CH_3OH or CH_3CH_2OH

   (iii) NH_3 or Br_2

3. A 1.34 mole sample of LiCl dissolves in water. The volume of the final solution is 0.86 L. Find the molarity of the solution.

4. A 9.98 g sample of glucose, $C_6H_{12}O_6$, is dissolved in enough water to produce a 1395 mL solution. What is the molarity of the solution?

5. A 251 mL sample of 0.45 M HCl is added to 455 mL of distilled water. What is the molarity of the final solution?

6. How many fluorine atoms are in 750.0 mL of a 0.500 M HF solution?

7. Suppose you needed to prepare 100.0 mL of 1.05 M NaOH using 1.50 M NaOH, distilled water and a 100 mL graduated cylinder. How would you do this?

8. Find the mole fraction of glucose, $C_6H_{12}O_6$, in a solution that contains 2.1 moles of glucose and 55.49 moles of water.

9. A rigid 5.5 L sealed vessel contains 0.350 moles $N_2(g)$, 0.125 moles Ar(g) and 0.110 moles He(g). Find the mole fraction of each gas.

10. A gaseous solution contains 41.0% O_2 and 59.0% N_2 by mass. Find the mole fraction of each substance in the solution.