DIRECTIONS: Answer each of the following questions using your knowledge of chemistry and the NYS Reference Tables. PLEASE SHOW ALL WORK! Express final answers to the proper number of significant figures and be sure to include the proper units.

1. How many moles of KOH are contained in 200.0 mL of a 2.0 M solution? How many grams of KOH are present?
2. A solution is made by dissolving 6.0 mL of vinegar in 294 mL of water. What is the percent by volume of vinegar in the solution?
3. Determine the molarity of a solution made by dissolving 28 g HCl in 3.0 L of water. (Note: molar mass of $\mathrm{HCl}=36.5 \mathrm{~g} / \mathrm{mol}$ )
4. A 350 g solution contains 0.0050 g NaCl . What is the concentration of NaCl in parts per million (ppm)?
5. A solution is made by dissolving 80. $\mathrm{g} \mathrm{KNO}_{3}$ in $300 . g \mathrm{H}_{2} \mathrm{O}$. What is the percent by mass of $\mathrm{KNO}_{3}$ in the solution?
6. A solution has a concentration of 6.5 ppm . How many grams of solute are dissolved in 450 grams of the solution?
7. Determine the mass of KI dissolved in 375 g of a $16 \% \mathrm{KI}$ solution.
