1. Define the terms:
   (a) Solute
   (b) Solvent
   (c) Solution
   (d) Soluble
   (e) Insoluble

2. Sketch a picture showing how MgCl$_2$ would dissolve in water. Label all charges and partial charges.

3. What is the main difference between strong electrolytes, weak electrolytes, and a nonelectrolytes?

4. Which classes of compounds generally form strong electrolytes, weak electrolytes, and a nonelectrolytes?

5. List 6 strong Acids (Formula and Name).

6. List 4 strong Bases (Formula and Name).

7. List 4 weak acids given in class (Formula and Name).
8. Classify each of the following compounds as either a (S)tong electrolyte, (W)eak electrolyte or (N)onelectrolyte.

(a) HClO$_4$  

(b) HC$_2$H$_3$O$_2$  

(c) NaNO$_3$  

(d) C$_6$H$_{12}$O$_6$  

(e) KCl

Write the Molecular, Ionic and Net Ionic equations for each of the following reactions. Balance all charges and equations, and include states.

9. Silver Nitrate + Barium Chloride $\rightarrow$ Silver Chloride + Barium Nitrate

10. Sodium Carbonate + Sulfuric Acid $\rightarrow$ Sodium Sulfate + Water + Carbon Dioxide

11. Acetic Acid + Sodium Hydroxide $\rightarrow$ Sodium Acetate + Water