Solutions Review Study Guide

1. Draw a representation of a strong electrolyte, magnesium fluoride, dissolving in water.

2. What factors determine whether one substance will dissolve in another (solubility)?

3. What are the two components of a solution? Define each component.

4. What is necessary for a solution to conduct an electric current?

5. How does one create a supersaturated solution? An unsaturated solution?

6. As the temperature increases, what happens to the solubility of a solid? Of a gas?

7. Explain the meaning of the phrase “like dissolves like”?

8. What does molarity measure and what is the equation?

9. How would you prepare 100.ml of a 0.500M HNO3 solution if you have a 12.0M stock solution of HNO3?

10. What volume of a 6.0M NaCl solution can be made from 3.51g of NaCl?

11. How many grams of KOH are needed to make a 250ml 1.5M solution of KOH?

12. What volume of 1.500M NaCl is needed for a reaction that requires 146.3g NaCl?

13. What is the molar concentration (molarity) of a 125ml solution made by dissolving 34.2g of sucrose, C12H22O11, in water?

14. Calculate the molal concentration (molality) of a solution made by dissolving 346g of copper (II) chloride in 2500ml of water?

15. What is the molar concentration of glucose in a solution containing 4.82 g of glucose in 29.5 mL of solution?

16. Calculate the molar concentration of sodium ions in a solution containing 2.56 g of sodium carbonate in 500 mL of solution.

17. A different student was given 1.95 g of KNO3(s). He was instructed to prepare a 0.115 mol/L solution of KNO3(aq). What volume of solution could be prepared?

18. Concentrated H2SO4(l) is approximately 17.6 mol/L. What volume of concentrated acid would be required to prepare 200 mL of 1.50 mol/L H2SO4(aq)?