

Solutions, Acid, Base Study Guide

The Solutions, Acid, and Base Mastery Quiz will be on Wednesday, April 20th. It will consist of 20 multiple choice questions covering the topics below. You will not be able to use this study guide on the test; however, you will be given the NC Reference Table. This study guide will be counted as a participation grade and is due at the beginning of class on Tuesday, April 19th.

Topic 1: Properties and Types of Solutions

1. List/describe the 3 colligative properties of solutions:

- Boiling Point Elevation
- Vapor Pressure Lowering
- Freezing Point Depression

2. Describe unsaturated, saturated, and supersaturated solutions. (You will need to be able to pick out which is which based on graphs/charts)

Un - not enough solute (below) super~~at~~ more solute than it should (above)
Sat - as much solute (on)

3. Explain how you could increase the rate of dissolving in a solution.

- * Increase temp
- * Increase SA (crush)
- * Increase agitate

4. What is the definition of a colligative property? Depends on amount, not type of solute

5. What does it mean to be immiscible? Miscible?

Immiscible - won't dissolve
Miscible - will dissolve

Topic 2: Solutions Calculations (Molarity, Dilutions, Solubility Graphs)

6. Be able to interpret solubility graphs. What do points above lines represent? Points on the lines? Points below the lines?

Sat.

Un.

super

7. What is the molarity of a solution that contains 56 g of LiCl in 500 mL of water?

$$M = \frac{1.32}{.5} = \boxed{2.64M}$$

$$\frac{56g}{42.39g} = 1.32$$

8. If a 400 mL of a 6 M solution is diluted to 300 mL, what is the resulting concentration?

$$(6)(400) = (x)(300)$$
$$\frac{2400}{300} = \frac{300x}{300} \quad \boxed{x = 8M}$$

9. How many moles of calcium oxide are needed to make 3500 mL of a 7.8 M solution?

$$7.8 = \frac{\text{mol}}{3.5}$$

$$\text{mol} = (7.8)(3.5) = \boxed{27.3 \text{ mol}}$$