

**Vasquez High School -- Chemistry B -- Exam #5 -- Chapter 15 -- 70 points**

Write TRUE if the statement is true OR write the word(s) that substitute for the underlined word(s) that make it true. Writing false only earns partial credit. Three points each.

- \_\_\_\_\_ 1) A solution containing less than the maximum amount of solute is called a supersaturated solution.
- \_\_\_\_\_ 2) The number of moles is the number of  $H^+$  or  $OH^-$  a compound delivers per molecule.
- \_\_\_\_\_ 3) The process of adding more solvent to a solution is called dilution.
- \_\_\_\_\_ 4) Molarity times molar mass equals number of moles present in a solution.
- \_\_\_\_\_ 5) The lowering of a freezing temperature of a liquid with solutes dissolved is called the phenomenon of ionic solid dissociation.

Short answer/fill-in. Answer each neatly and completely. Three points apiece.

6) The rate of dissolving a substance depends on what three factors? \_\_\_\_\_,  
\_\_\_\_\_, and \_\_\_\_\_.

7) A colligative property of a solution depends on what? \_\_\_\_\_  
\_\_\_\_\_.

8) What does "like dissolves like" mean? \_\_\_\_\_  
\_\_\_\_\_.

9) A solute dissolved in water is called a(n) \_\_\_\_\_ solution.

10) Is it possible for a saturated solution to be dilute? If yes, state how. If no, state why. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

11) Why is it we add salt to the water when we cook spaghetti? \_\_\_\_\_  
\_\_\_\_\_.

12) How does soap clean oil and grease from your hands when water alone will not do so? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

Calculation Section. Show all appropriate formulas and show ALL your work. No work, no credit. Five points apiece on these.

- 13) 45.0 mL of a 18.0 M stock solution is diluted to a new volume of 0.900 L. The concentration of this new solution is what?
- 14) What volume of a 0.350 M  $\text{Mg}(\text{OH})_2$  solution is required to neutralize 180 mL of a 0.500 M solution of HCl?
- 15) Calculate the normality of a 0.268 M solution of  $\text{H}_3\text{BO}_3$ .
- 16) Calculate the new molarity when 350 mL of water is added to 250 mL of a 0.64 M solution of  $\text{Na}_2\text{SO}_4$ .
- 17) Ten points on this one. When a solution of barium nitrate,  $\text{Ba}(\text{NO}_3)_2$ , is treated with a mass of crystals of potassium sulfate,  $\text{K}_2\text{SO}_4$ , a precipitate of barium sulfate is formed. How many grams of barium sulfate is formed if 5.3 g of potassium sulfate is added to 350 mL of a 1.6 M solution of barium nitrate?
- Write the balanced equation first. (three points)
  - Calculate how many moles of each you have. (three points)
  - Find the answer. (four points)
- 18) Four points. Define molarity: \_\_\_\_\_.  
(completely)