Vasquez High School -- Chemistry -- S'15 Exam #6 -- Chapter 15 -- 100 points

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

_____ 1) The <u>saturation</u> of sugar becomes greater when the temperature of the solution is increased.

_____ 2) Each colligative property of solutions only depends on the <u>number of particles of solute</u> present in the solution.

_____ 3) To increase the surface area of a salt crystal, one can <u>crush it into dust</u>.

_____ 4) Sulfuric acid donates <u>one $H^{\pm}$</u> ion per molecule.

_____ 5) The proper term for describing how something is dissolved in water is <u>saturation</u>.

_____ 6) The number of <u>moles</u> is the number of H^+ or OH^- a compound delivers per molecule.

_____ 7) Because it does not dissolve in water, we say that sand is <u>insoluble</u> in water.

_____ 8) A tincture is a solution where the solute is <u>salt water</u>.

_____ 9) The substance present in the greater amount in a solution is called the <u>solvent</u>.

_____ 10) <u>Normality</u> times molarity equals number of moles present in a solution.

<u>Short answer/fill-in</u>. Answer each neatly and completely with the best answer possible. Three points apiece.

11) The rate of dissolving a substance depends on what three factors? _____,

_____, and _____.

12) Consider the terms "concentrated" and "dilute." Describe how they are used and if any exceptions exist.

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13) How does soap remove grease from a mechanic's dirty hands? _____

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14) The solubility of a gas _____ as the temperature of a liquid increases.

15) Define supersaturated (precisely) _____

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16) Picture a petroleum spill in the ocean. The crude oil floats because it is less dense than sea water. The petroleum is composed of many carbon-carbon and carbon-hydrogen bonds. The oil does not mix with the water for what reason? Why is that? _____

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17) <u>Short Essay.</u> Describe the overall process by which salt dissolves in water. Five points.

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<u>Multiple Choice</u>. Write the letter that best answers each problem. Two points each.

_____ 17) Given equal molarities and volumes, which of these would be best at neutralizing $Ca(OH)_2$?

      a) HCl   b) $HC_2H_3O_2$ c) H_2SO_4 d) H_3PO_4

_____ 18) A solution of one metal in another metal, like 14K gold, is called a(n)

      a) alloy   b) constituent   c) volumetric   d) aqueous solution

_____ 19) Determine the concentration of a solution made by dissolving 10 g of sodium chloride in 750 mL of solution.

      a) 0.133 M   b) 0.171 M   c) 0.228 M   d) 0.476 M

_____ 20) The normality of a 1.50 M solution of $Al(OH)_3$ is

      a) 4.50 N   b) 3.00 N   c) 1.50 N   d) 0.50 N

<u>Calculation Section</u>. Be clear and neat in your presentations. Write all pertinent equations. Five points each.

21) What volume of a 0.150 M $Sr(OH)_2$ solution is required to neutralize 425 mL of a 0.400 M solution of HNO_3?

22) I measured out 15.0 mL of 18 M sulfuric acid. To exactly how much water will I add this acid to make the solution 2.0 M?

23) How many grams of silver iodide would precipitate from the reaction of 230 mL of 0.250 M $AgNO_3$ and 360 mL of 0.180 M KI?

24) Ten points on this one. When a solution of gallium nitrate, $Ga(NO_3)_3$, is treated with a mass of crystals of cesium chloride, CsCl, a precipitate of gallium chloride is formed. How many grams of gallium chloride is formed if 19.6 g of cesium chloride is added to 250 mL of a 0.84 M solution of gallium nitrate?
   a) Write the balanced equation first. (three points)
   b) Calculate how many moles of each you have. (three points)
   c) Find the answer. (four points)

25) Calculate the new molarity when 450 mL water is added to 2.35 L of a 1.65 M solution of sodium nitrate.

26) You dissolve 18.0 grams iron (III) bromide in 47.0 grams water. What is the percentage by mass of the iron (III) bromide?

27) Four points. Define molarity (completely). _____

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