Quiz 3- Basic Chemical Concepts
Water and Wastewater Laboratory CE4153
Spring 2010

Match the statements with the correct definition by placing the letter of the statement in the blank. Fill in the blanks for questions 6-20. No partial credit. 5 points for each numbered item.

1. Atomic Weight__c____ a. Special group of molecules that are not compounds but are part of a compound.
2. Valence____d_____ b. Atomic Weight/Valence
3. Equivalent Wt. of an element_b_ c. is relative of an element to carbon-12
4. Molecular weight___e____ d. is the combining power of an element relative to the hydrogen atom.
5. Radicals____a_____ e. Sum of atomic weights expressed in grams.
6. How many grams per liter are equal to a 1N H_2SO_4 solution? ___49_____grams
7. How many grams per liter are equal to 1N HCl solution? __36.5_____grams
8. At what specific gravity is 1 mg/L equal to 1 ppm? ____1.0_____
9. What compound is hardness and alkalinity expressed as? Calcium Carbonate_____
10. mg/L/milli-equivalent weight = _meq/L_____
11. What two major elements comprise Hardness? ___Ca_____ and __Mg_____
12. The symbol ↔ in a chemical formula indicates that the chemical reactions are _reversible_____
13. The symbol [ ] in a chemical formula refers to the molar_____ concentration___.
14. The letter k in a chemical formula is equal to the equilibrium___ constant_____.
15. K_{sp} is termed the _solubility_____ product_____ constant_____.
16. Balance this chemical equation: $Ca^{+2} + 2HCO_3^- + Ca(OH)_2 \leftrightarrow \_2CaCO_3\downarrow + 2CO_2$
17. Alkalinity is the capacity of water to _neutralize__ acids_____.

18. Name the three forms of alkalinity: 1. bicarbonate; 2. carbonate
3. hydroxyl

19. Zero order reactions occur at a rate that is independent of the concentration of the reactant or product. $C = C_o - kt$, plot straight line on arithmetic graph paper, slope =K.

20. Priority Pollutants are selected on the basis of their acute toxicity.