Vasquez High School -- AP Chemistry -- Chapter 4 -- Test #4 -- 105 points

1) Balance this equation. Then write the ionic equation for it. State what the spectator ion(s) is(are). Then write the net ionic equation. Easy ten points.

_____ $AgNO_3$ (aq) + _____ $AlCl_3$ (aq) ==> _____ $AgCl$ (s) + _____ $Al(NO_3)_3$ (aq)
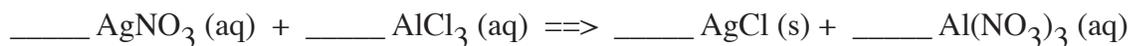
2) The term "redox" is short for _____.

3) For two points apiece, determine the oxidation number of the indicated element in each compound

a) H_2SO_3; S   b) $NaHCO_3$; C   c) SrO_2; O   d) $Al(NO_3)_3$; N   e) LiH; H
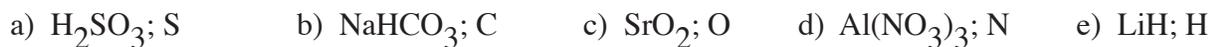
4) Using the half-reaction method, balance the following redox reaction (ten points):

_____ $Na_2Cr_2O_7$ + _____ HBr ==> _____ NaBr + _____ $CrBr_3$ + _____ Br_2 + _____ H_2O

5) What is the final concentration of NaCl when three solutions are added together: a) 150 mL of a 0.250 M, b) 325 mL of a 0.400 M, and c) 425 mL of a 0.500 M solution?
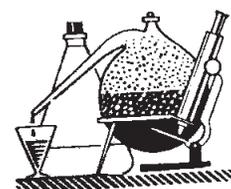
6) Circle all of the pairs of reactants that would form a precipitate when added together: (five points)

$AgNO_3 + BaCl_2$ $HNO_3 + Ca(OH)_2$ $(NH_4)_2SO_4 + BaBr_2$

$Li_3PO_4 + Fe(OH)_3$ $NaOH + K_2S$
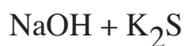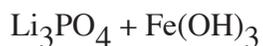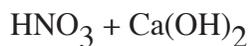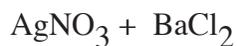
7) Describe the process of hydration, as it pertains to dissolving KI in water: _____

_____

_____.

8) Fill in the following (easy five points): We dissolve a _____ in a _____

to form a _____.

9) Describe the distinction between a single arrow and a double arrow in chemical equations by using the

difference between hydrochloric and acetic acids: _____

_____

_____.

10) Give the three definitions of acids. Five points.

     a) Arrhenius: _____

     b) Bronsted-Lowry: _____

     c) Lewis: _____

Seven points apiece on these last five problems.

11) If we know that calcium is higher than zinc on the activity series, give an example of any balanced reaction that demonstrates what the effect of being higher on the activity series means:

12) On a deserted mining colony on Mars...oh wait, just kidding...you have been asked to prepare 800 mL of of 0.150 M solution of strontium nitrate. How many grams of strontium nitrate would you need?
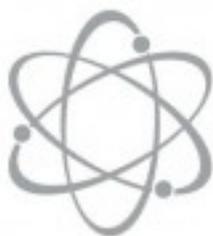
13) How many milliliters of a 0.450 M NaOH solution are needed to neutralize 80.0 mL of a 0.275 M solution of H_2SO_4?

14) The chemical company sent you concentrated 15.6 M nitric acid. You wish to dilute 25.0 mL of it to a final concentration of 0.200 M for use in a lab experiment. To how much distilled water must you add that amount of the concentrated acid?

15) If you added 25.0 mL of 0.150 M barium nitrate, $BaNO_3$, to 20.0 mL of 0.200 M ammonium phosphate, $(NH_4)_3PO_4$, ideally how many grams of precipitated barium phosphate would you get?

16) <u>Extra Credit</u> -- Guessing is okay -- Five points -- All or nothing.

If a chicken and a half lays an egg and a half in a day and a half,
how long would it take ten chickens to lay ten eggs?