Chemistry Exam Review Part II

Key

5

Compounds and Formulas

1. Think about this first when looking at a compound: ***Is there a metal or a polyatomic ion?***

If YES = ionic

If NO = covalent

2. Write binary compounds of two nonmetals(COVALENT/MOLECULAR): use Greek prefixes (di-, tri-, tetra-, …)

3. Write the prefixes for

1 mono	2 di	3 tri	4 tetra	5 penta
6 hexa	7 hepta	8 octa	9 nona	10 deca

4. Name the following covalent compounds:
   * use a prefix for the first element ONLY if there is more than one
   * always use a prefix for the second element
   * name ends in -ide

a) SiF_4 silicon tetrafluoride (only one Si)

b) P_4S_5 tetraphosphorus pentasulfide

c) CO carbon monoxide (only one C)

5. Write the formulas for the following covalent compounds:

a) diboron hexahydride B_2H_6

b) nitrogen tribromide NBr_3

c) diphosphorus pentoxide P_2O_5

6. Write the formulas for the following ionic compounds without transition metals:

lithium sulfite	beryllium chloride	sodium phosphide
Li_2SO_3	$BeCl_2$	Na_3P

7. Name the following ionic compounds with transition metals:

Co_3N_2 cobalt (II) nitride

$FeCl_3$ iron (III) chloride

PbO Lead (II) oxide

8. Write the formulas for the following ionic compounds with transition metals:

vanadium (V) phosphate	lead (II) sulfite	copper (I) carbonate
$V_3(PO_4)_5$	$PbSO_3$	Cu_2CO_3

4. Write the symbol used in chemical equations to represent the following:
   a) aqueous solution (aq)
   b) heated Δ
   c) reversible reaction $\rightleftharpoons$
   d) a solid s
   e) a gas g
   f) a liquid ℓ

5. CaO is an ingredient of cement mixes. When water is added it heats up and calcium hydroxide forms.
   a) Is there any evidence a chemical reaction has taken place? heat (energy release)
   b) List 4 indicators of a chemical change.
      ① energy (heat or light)
      ② ~~light~~ precipitate
      ③ color
      ④ gas production

6. A student heats a substance in a test tube. A glowing splint is placed over the opening to the test tube and it reignites. What is one possible product created by the heating of this substance?

   O_2

7. During a demonstration a teacher extinguishes a burning splint by placing it near a beaker containing baking soda and vinegar. What did this reaction produce that extinguished the flame?

   CO_2

8. When a glowing splint is placed near a beaker of HCl and Zn, an audible "pop" sound is heard. Which product caused this sound to be made?

   $2HCl + Zn \longrightarrow ZnCl_2 + H_2$

   H_2

9. Write and balance the net ionic equation

$CaCl_{2(aq)} + 2AgNO_{3(aq)} \longrightarrow Ca(NO_3)_2 + 2AgCl(s)$

$Ca^{+2} + 2Cl^- + 2Ag^+ + 2NO_3^- \longrightarrow Ca^{+2} + 2NO_3^- + 2AgCl(s)$

$2Ag^+ + 2Cl^- \longrightarrow 2AgCl(s)$

$Ag^+ + Cl^- \longrightarrow AgCl(s)$

11. What is the net ionic equation for a neutralization reaction?

$HCl + NaOH \longrightarrow NaCl + H_2O(\ell)$

$H^+ + Cl^- + Na^+ + OH^- \longrightarrow Na^+ + Cl^- + H_2O$

$H^+ + OH^- \longrightarrow H_2O$