Answers Physical Science 10

Chemistry Exam Review #1: Bohr Diagrams, Naming and Writing Formulas for Compounds, Balancing Equations

1. Explain the difference between an atom, element and compound giving an example of each.
   An element is a pure substance that cannot be broken down i.e. H, C, O,N etc
   A compound is a pure substance that contains two or more elements i.e. NaCl, MgO etc
   A molecule is made up of at least two atoms different from each other or two atoms of the same element i.e. O_2, F_2, H_2O

1. Draw each of the following Bohr Diagrams
   a) Al b) C c) Mg^{+2} d) N^{3-} e) Cl^{1-}

2. Write the names of the following molecular compounds:
   a) CO_2 carbon dioxide

   b) N_2O_5 dinitrogen pentaoxide

   c) PF_5 phosphorous pentafluoride

   d) NH_3 ammonia or nitrogen trihydride

   e) CCl_4 carbon tetrachloride

3. Write the formulas for the following molecular compounds:
   a) dinitrogen monoxide N_2O

   b) diphosphorous hexabromide P_2Br_6

   c) sulfur dioxide SO_2

   d) silicon tetrahydride SiH_4

   e) nitrogen diselenide NSe_2

4. Balance the following equations
   a) $8\ Br_2 + 8\ K_2S \rightarrow 16\ KBr + S_8$

   b) $2\ C_8H_{18} + 25\ O_2 \rightarrow 16\ CO_2 + 18\ H_2O$

   c) $2\ NaCl \rightarrow 2\ Na + Cl_2$

d) $Na_2CO_3 + CaCl_2 \rightarrow CaCO_3 + 2\ NaCl$

e) $2\ Fe_2O_3 \rightarrow 4\ Fe + 3\ O_2$

f) $2\ Al + 6\ HCl \rightarrow 3\ H_2 + 2\ AlCl_3$

g) $Au + HNO_3 + 3\ HCl \rightarrow AuCl_3 + NO + 2\ H_2O$

5. Write the names of the following ionic compounds:

a) $LiCl$ lithium chloride

b) Mg_3P_2 magnesium phosphide

c) $Ba(NO_3)$ barium nitrate

d) K_3PO_4 potassium phosphate

e) $CsOH$ cesium hydroxide

f) $Ca_3(PO_4)_2$ calcium phosphate

g) FeO iron (II) oxide

h) PbO_2 lead (IV) oxide

6. Write the formulas for the following ionic compounds:

a) barium hydroxide $Ba(OH)_2$

b) iron (II) fluoride FeF_2

c) calcium sulfide Ca_2S

d) copper (I) sulfate Cu_2SO_4

e) cobalt (III) iodide CoI_3

f) aluminum oxide Al_2O_3

g) sodium carbonate Na_2CO_3

h) iron (III) nitrate $Fe(NO_{3)3}$