Chemistry 11 Review Worksheet - Answers

September 10, 2015 9:29 AM

Chemistry 12

Chemistry 11 Group Review Work – Answer sheet:

63

1. Periodic Table

a. Formula Name:

i. potassium chloride
ii. magnesium nitrate
iii. lead (IV) sulphate
iv. carbon tetrachloride
v. diphosphorous pentoxide

5

b. Formula:

i. $NaClO_3$
ii. $BaSO_3$
iii. $Fe_2(NO_3)_3$
iv. N_2O_3
v. SiO_2

5

c. Groups of Families

i. Group 2 Metal
   1. alkali-earth metals
   2. $CaCl_2$ etc
ii. Group VII non-metals
   1. halogens
   2. AlF_3
iii. Non-Reactive Element Group
   1. Nobel Gases, 0
   2. 2 - He, rest have 8

6

1

iv. Electron Configuration

1. nitrogen
2. zirconium

2. Chemical Formula Equations

a. Type of Reaction:

i. combustion
ii. decomposition
iii. Double replacement
iv. synthesis
v. single replacement

b. Balancing Reaction Equations:

i. $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$
ii. $2\,KCl \rightarrow 2K + Cl_2$
iii. $FeCl_3 + 3AgNO_3 \rightarrow Fe(NO_3)_3 + 3AgCl$
iv. $1\,Si + 1O_2 \rightarrow 1\,SiO_2$
v. $2Al + 3CuCl_2 \rightarrow 2\,AlCl_3 + 3\,Cu$

c. Translating and Balancing Reaction Equations

i. $2Mg + O_2 \rightarrow 2MgO$

ii. $Cl_2 + CaI_2 \rightarrow I_2 + CaCl_2$

iii. $Ba(ClO_3)_2 \rightleftharpoons BaCl_2 + 3O_2$

iv. $Na_2CO_3 + 2HCl \rightleftharpoons 2NaCl + CO_2 + H_2O$

3. Mole Calculations

a. 6.02×10^{23}

b. Molar Mass

i. 58.5 g/mole

ii. 396.6 g/mole

iii. 219.8 g/mole

c. $0.17\,g \times \frac{1\,mole}{58.5\,g} = 2.91 \times 10^{-3}$ moles

d. $Al(NO_3)_3$ - 212.98 g/moles

2.3×10^{-2} moles x 212.98 g/mole = 4.90 g

e. $2.48_g \times \frac{1\,mole}{11.0_g} \times \frac{22.4\,L}{mole} = 3.27\,L$ /3

f. $2C_2H_2 + 5O_2 \longrightarrow 4CO_2 + 2H_2O$
125_g /3

$125_g \times \frac{1\,mole}{26_g} \times \frac{4}{2} = 9.62\,moles\ CO_2$

4. Concentration Calculations

a. $18\,M \times 4.0 = 72\,moles\ HCl$ /1

b. $0.100\,M \times 0.250\,L = 0.025\,moles$
$0.025\,moles \times \frac{74.55\,g}{mole} = 1.86\,g\ KCl$ /2

c. $2.5\,g \times \frac{1\,mole}{98.06_g} \times \frac{1}{0.1500\,L} = 0.17\,M\ H_2SO_4$ /3

d. $\frac{15}{100} \times 0.450\,M = 0.0675\,M\ Pb(NO_3)_2$ /2

e. $NaCl \rightarrow Na^+ + Cl^-$
0.01125 mole
$CaCl_2 \rightarrow Ca^{2+} + 2Cl^-$
0.01875 moles
(count in black)

e) $[Na^+] = \frac{0.01125}{0.100} = 0.113\,M$

$[Ca^{2+}] = \frac{0.01875}{0.100} = 0.188\,M$

$[Cl^-] = \frac{0.01125 + (2 \times 0.01875)}{0.100} = 0.488\,M$ /4