Name: Key

Chapter 10 Review

Section One

Calculate the formula mass:

1.) Na_2SO_4 $2(22.99u)+32.07u+4(16.00u)=142.05u$

2.) $CrCl_3$ $52.00u+3(35.45u)=158.35u$

3.) $Mg(OH)_2$ $24.31u+2(16.00u)+2(1.01u)=58.33u$

Section Two

4.) 5 moles Na = 100 g Na $5\,mol\,Na \times \frac{22.99g}{1\,mol} = 114.95g = 100g$

5.) 1.7 moles $Ca(OH)_2$ = 130 g $Ca(OH)_2$ $1.7\,mol\,Ca(OH)_2 \times \frac{74.10g}{1\,mol} = 125.97g = 130g$

6.) 51 g ZnO = 0.63 moles ZnO $51g\,ZnO \times \frac{1\,mol}{81.39g} = 0.63\,mol$

7.) 810g Cl_2 = 11 moles Cl_2 $810g\,Cl_2 \times \frac{1\,mol}{70.90g} = 11\,mol$

8.) 6 moles of aluminum = 4×10^{24} atoms of aluminum

$6\,mol \times \frac{6.022\times10^{23}\,atom}{1\,mol} = 3.613\times10^{24}\,atom$

$= 4\times10^{24}\,atom$

9.) 3.27 moles of NaCl = 1.97×10^{24} ~~form.u.~~ ~~atoms~~ of NaCl

$3.27\,mol\,NaCl \times \frac{6.022\times10^{23}\,form.u.}{1\,mol} \longrightarrow = 1.97\times10^{24}\,atom$

10.) 1.2×10^{24} ~~form.u.~~ ~~atoms~~ of NaCl = 2.0 moles NaCl

$1.2\times10^{24}\,form.u. \times \frac{1\,mol}{6.022\times10^{23}\,form.u.} = 2.0\,mol$

11.) 9.37×10^{26} ~~form.u.~~ ~~atoms~~ of AgCl = 1560 moles AgCl

$9.37\times10^{26}\,form.u. \times \frac{1\,mol}{6.022\times10^{23}\,form.u.} = 1555.96\,mol = 1560\,mol$

12.) 120 g $CaCO_3$ = 7.2×10^{23} molecules of $CaCO_3$

$120g\,CaCO_3 \times \frac{1\,mol}{100.09g} \times \frac{6.022\times10^{23}\,molec.}{1\,mol} = 7.2\times10^{23}\,molec.$

13.) 7.7×10^{25} atoms Ni = 7500 g Ni

$7.7\times10^{25}\,atom \times \frac{1\,mol}{6.022\times10^{23}\,atom} \times \frac{58.69g}{1\,mol} = 7504g = 7500g$

14.) 6 moles of H_2 = 100 L H_2

$6\,mol\,H_2 \times \frac{22.4L}{1\,mol} = 134.4L = 100L$

15.) 56 L N_2 = 2.5 moles N_2

$56L\,N_2 \times \frac{1\,mol}{22.4L} = 2.5\,mol$