Wkst 10 J

① $\left(\frac{130\text{g Zn}}{1}\right)\left(\frac{1\text{ mole Zn}}{65.4\text{g Zn}}\right) = \boxed{2.0\text{ mole Zn}}$

$\left(\frac{2.0\text{ mole Zn}}{1}\right)\left(\frac{6.02\times10^{23}\text{ Atoms}}{1\text{ mole Zn}}\right) = \boxed{1.2\times10^{24}\text{ Atoms Zn}}$

$\left(\frac{18.0\text{g C}}{1}\right)\left(\frac{1\text{ mole C}}{12.0\text{g C}}\right) = \boxed{1.50\text{ mole C}}$

$\left(\frac{1.50\text{ mole C}}{1}\right)\left(\frac{6.02\times10^{23}\text{ Atoms C}}{1\text{ mole C}}\right) = \boxed{9.03\times10^{23}\text{ Atoms C}}$

$\left(\frac{21.0\text{g } N_2}{1}\right)\left(\frac{1\text{ mole } N_2}{28.0\text{g } N_2}\right) = \boxed{.750\text{ mole } N_2}$

$\left(\frac{.750\text{ mole } N_2}{1}\right)\left(\frac{6.02\times10^{23}\text{ molecules } N_2}{1\text{ mole } N_2}\right) = \boxed{4.52\times10^{23}\text{ molecules } N_2}$

② $\left(\frac{18\text{g } H_2O}{1}\right)\left(\frac{1\text{ mole } H_2O}{18.0\text{g } H_2O}\right) = \boxed{1.0\text{ mole } H_2O}$

$\left(\frac{1.0\text{ mole } H_2O}{1}\right)\left(\frac{6.02\times10^{23}\text{ molecules } H_2O}{1\text{ mole } H_2O}\right) = \boxed{6.02\times10^{23}\text{ molecules } H_2O}$

$\left(\frac{1.0\text{ mole } H_2O}{1}\right)\left(\frac{2\text{ mole H}}{1\text{ mole } H_2O}\right)\left(\frac{6.02\times10^{23}\text{ Atoms H}}{1\text{ mole H}}\right) = \boxed{1.2\times10^{24}\text{ Atoms H}}$

$\left(\frac{1.0\text{ mole } H_2O}{1}\right)\left(\frac{1\text{ mole O}}{1\text{ mole } H_2O}\right)\left(\frac{6.02\times10^{23}\text{ Atoms O}}{1\text{ mole O}}\right) = \boxed{6.0\times10^{23}\text{ Atoms O}}$

$\left(\frac{27.0\text{g } H_2O}{1}\right)\left(\frac{1\text{ mole } H_2O}{18.0\text{g } H_2O}\right) = \boxed{1.50\text{ mole } H_2O}$

$\left(\frac{1.50\text{ mole } H_2O}{1}\right)\left(\frac{6.02\times10^{23}\text{ molecules } H_2O}{1\text{ mole } H_2O}\right) = \boxed{9.03\times10^{23}\text{ molecules } H_2O}$

Wkst 10 J

(2) cont:

$$\left(\frac{1.50\text{ mole } H_2O}{1}\right)\left(\frac{2\text{ mole H}}{1\text{ mole } H_2O}\right)\left(\frac{6.02\times10^{23}\text{ Atoms H}}{1\text{ mole H}}\right) = 1.81\times10^{24}\text{ Atoms H}$$

$$\left(\frac{1.50\text{ mole } H_2O}{1}\right)\left(\frac{1\text{ mole O}}{1\text{ mole } H_2O}\right)\left(\frac{6.02\times10^{23}\text{ Atoms O}}{1\text{ mole O}}\right) = 9.03\times10^{23}\text{ Atoms O}$$

$$\left(\frac{12\text{g } CH_4}{1}\right)\left(\frac{1\text{ mole } CH_4}{16.0\text{g } CH_4}\right) = .75\text{ mole } CH_4$$

$$\left(\frac{.75\text{ mole } CH_4}{1}\right)\left(\frac{6.02\times10^{23}\text{ molecules } CH_4}{1\text{ mole } CH_4}\right) = 4.5\times10^{23}\text{ molecules } CH_4$$

$$\left(\frac{.75\text{ mole } CH_4}{1}\right)\left(\frac{4\text{ mole H}}{1\text{ mole } CH_4}\right)\left(\frac{6.02\times10^{23}\text{ Atoms H}}{1\text{ mole H}}\right) = 1.8\times10^{24}\text{ Atoms H}$$

$$\left(\frac{.75\text{ mole } CH_4}{1}\right)\left(\frac{1\text{ mole C}}{1\text{ mole } CH_4}\right)\left(\frac{6.02\times10^{23}\text{ Atoms C}}{1\text{ mole C}}\right) = 4.5\times10^{23}\text{ Atom C}$$

$$\left(\frac{51\text{g } NH_3}{1}\right)\left(\frac{1\text{ mole } NH_3}{17.0\text{g } NH_3}\right) = 3.0\text{ mole } NH_3$$

$$\left(\frac{3.0\text{ mole } NH_3}{1}\right)\left(\frac{6.02\times10^{23}\text{ molecules } NH_3}{1\text{ mole } NH_3}\right) = 1.8\times10^{24}\text{ molecules } NH_3$$

$$\left(\frac{3.0\text{ mole } NH_3}{1}\right)\left(\frac{3\text{ mole H}}{1\text{ mole } NH_3}\right)\left(\frac{6.02\times10^{23}\text{ Atoms H}}{1\text{ mole H}}\right) = 5.4\times10^{24}\text{ Atoms H}$$

$$\left(\frac{3.0\text{ mole } NH_3}{1}\right)\left(\frac{1\text{ mole N}}{1\text{ mole } NH_3}\right)\left(\frac{6.02\times10^{23}\text{ Atoms N}}{1\text{ mole N}}\right) = 1.8\times10^{24}\text{ Atoms N}$$

c) 1 * $\left(\frac{117\text{g NaCl}}{1}\right)\left(\frac{1\text{ mole NaCl}}{58.5\text{ g NaCl}}\right) = \boxed{2.00\text{ mole NaCl}}$

$\left(\frac{2.00\text{ mole NaCl}}{1}\right)\left(\frac{6.02\times10^{23}\text{ f.u. NaCl}}{1\text{ mole NaCl}}\right) = \boxed{1.20\times10^{24}\text{ f.u. NaCl}}$

$\left(\frac{2.00\text{ mole NaCl}}{1}\right)\left(\frac{1\text{ mole Na}}{1\text{ mole NaCl}}\right)\left(\frac{6.02\times10^{23}\text{ Atoms Na}}{1\text{ mole Na}}\right) = \boxed{1.20\times10^{24}\text{ Atom Na}}$

$\left(\frac{2.00\text{ mole NaCl}}{1}\right)\left(\frac{1\text{ mole Cl}}{1\text{ mole NaCl}}\right)\left(\frac{6.02\times10^{23}\text{ Atom Cl}}{1\text{ mole Cl}}\right) = \boxed{1.20\times10^{24}\text{ Atom Cl}}$

2 * $\left(\frac{55\text{g } CaCl_2}{1}\right)\left(\frac{1\text{ mole } CaCl_2}{111.1\text{g } CaCl_2}\right) = \boxed{.50\text{ mole } CaCl_2}$

$\left(\frac{.50\text{ mole } CaCl_2}{1}\right)\left(\frac{6.02\times10^{23}\text{ f.u. } CaCl_2}{1\text{ mole } CaCl_2}\right) = \boxed{3.0\times10^{23}\text{ f.u. } CaCl_2}$

$\left(\frac{.50\text{mole } CaCl_2}{1}\right)\left(\frac{1\text{ mole Ca}}{1\text{ mole } CaCl_2}\right)\left(\frac{6.02\times10^{23}\text{ Atoms Ca}}{1\text{ mole Ca}}\right) = \boxed{3.0\times10^{23}\text{ Atoms Ca}}$

$\left(\frac{.50\text{mole } CaCl_2}{1}\right)\left(\frac{2\text{ mole Cl}}{1\text{ mole } CaCl_2}\right)\left(\frac{6.02\times10^{23}\text{ Atoms Cl}}{1\text{ mole Cl}}\right) = \boxed{6.0\times10^{23}\text{ Atoms Cl}}$

3) $\left(\frac{28\text{g } Al_2O_3}{1}\right)\left(\frac{1\text{ mole } Al_2O_3}{102\text{ g } Al_2O_3}\right) = \boxed{.27\text{ mole } Al_2O_3}$

$\left(\frac{.27\text{ mole } Al_2O_3}{1}\right)\left(\frac{6.02\times10^{23}\text{ fu } Al_2O_3}{1\text{ mole } Al_2O_3}\right) = \boxed{1.6\times10^{23}\text{ f.u. } Al_2O_3}$

$\left(\frac{.27\text{ mole } Al_2O_3}{1}\right)\left(\frac{2\text{ mole Al}}{1\text{ mole } Al_2O_3}\right)\left(\frac{6.02\times10^{23}\text{ Atoms Al}}{1\text{ mole Al}}\right) = \boxed{3.3\times10^{23}\text{ Atoms Al}}$

$\left(\frac{.27\text{ mole } Al_2O_3}{1}\right)\left(\frac{3\text{ mole O}}{1\text{ mole } Al_2O_3}\right)\left(\frac{6.02\times10^{23}\text{ Atoms O}}{1\text{ mole O}}\right) = \boxed{4.9\times10^{23}\text{ Atoms O}}$

wkst 10J

(3) (D) $\left(\frac{16.4\text{g } NaPO_4}{1}\right)\left(\frac{1\text{ mole } NaPO_4}{118.0\text{g } NaPO_4}\right) = \boxed{.139\text{ mole } NaPO_4}$

$\left(\frac{.139\text{ mole } NaPO_4}{1}\right)\left(\frac{6.02\times10^{23}\text{ FU } NaPO_4}{1\text{ mole } NaPO_4}\right) = \boxed{8.37\times10^{22}\text{ FU } NaPO_4}$

$\left(\frac{.139\text{ mole } NaPO_4}{1}\right)\left(\frac{1\text{ mole } Na^+}{1\text{ mole } NaPO_4}\right)\left(\frac{6.02\times10^{23}\text{ Atoms } Na^+}{1\text{ mole } Na^+}\right) = \boxed{8.37\times10^{22}\text{ Atoms } Na^+}$

$\left(\frac{.139\text{ mole } NaPO_4}{1}\right)\left(\frac{1\text{ mole } PO_4^-}{1\text{ mole } NaPO_4}\right)\left(\frac{6.02\times10^{23}\text{ Atoms } PO_4^-}{1\text{ mole } PO_4^-}\right) = \boxed{8.37\times10^{22}\text{ Atoms } PO_4^-}$

$\left(\frac{55\text{g } Li_2SO_4}{1}\right)\left(\frac{1\text{ mole } Li_2SO_4}{109.9\text{g } Li_2SO_4}\right) = \boxed{.50\text{ mole } Li_2SO_4}$

$\left(\frac{.50\text{ mole } Li_2SO_4}{1}\right)\left(\frac{6.02\times10^{23}\text{ FU } Li_2SO_4}{1\text{ mole } Li_2SO_4}\right) = \boxed{3.0\times10^{23}\text{ FU } Li_2SO_4}$

$\left(\frac{.50\text{ mole } Li_2SO_4}{1}\right)\left(\frac{2\text{ mole } Li^+}{1\text{ mole } Li_2SO_4}\right)\left(\frac{6.02\times10^{23}\text{ Atoms } Li^+}{1\text{ mole } Li^+}\right) = \boxed{6.0\times10^{23}\text{ Atoms } Li^+}$

$\left(\frac{.50\text{ mole } Li_2SO_4}{1}\right)\left(\frac{1\text{ mole } SO_4^{-2}}{1\text{ mole } Li_2SO_4}\right)\left(\frac{6.02\times10^{23}\text{ Atoms } SO_4^{-2}}{1\text{ mole } SO_4^{-2}}\right) = \boxed{3.0\times10^{23}\text{ Atoms } SO_4^{-2}}$

① $\left(\frac{1.0 \text{ mole O}}{1}\right)\left(\frac{16.0 \text{ g O}}{1 \text{ mole O}}\right) = \boxed{16 \text{ g O atoms}}$

② $\left(\frac{.5 \text{ mole } H_2SO_4}{1}\right)\left(\frac{98.1 \text{ g } H_2SO_4}{1 \text{ mole } H_2SO_4}\right) = \boxed{50 \text{ g } H_2SO_4}$

③ $\left(\frac{1.0 \text{ mole } Fe_2O_3}{1}\right)\left(\frac{159.8 \text{ g } Fe_2O_3}{1 \text{ mole } Fe_2O_3}\right) = \boxed{160 \text{ g } Fe_2O_3}$

④ $\left(\frac{.25 \text{ mole } CuSO_4}{1}\right)\left(\frac{159.7 \text{ g } CuSO_4}{1 \text{ mole } CuSO_4}\right) = \boxed{40. \text{ g } CuSO_4}$

⑤ $\left(\frac{2.5 \text{ mole } H_2O}{1}\right)\left(\frac{18.0 \text{ g } H_2O}{1 \text{ mole } H_2O}\right) = \boxed{45 \text{ g } H_2O}$

⑥ $\left(\frac{1.0 \text{ mole } O_2}{1}\right)\left(\frac{32.0 \text{ g } O_2}{1 \text{ mole } O_2}\right) = \boxed{32 \text{ g } O_2}$

⑦ $\left(\frac{1.5 \text{ mole } H_2SO_4}{1}\right)\left(\frac{98.1 \text{ g } H_2SO_4}{1 \text{ mole } H_2SO_4}\right) = \boxed{150 \text{ g } H_2SO_4}$

⑧ $\left(\frac{.5 \text{ mole } Mg^{+2}}{1}\right)\left(\frac{24.3 \text{ g } Mg^{+2}}{1 \text{ mole } Mg^{+2}}\right) = \boxed{10 \text{ g } Mg^{+2}}$

⑨ $\left(\frac{2.0 \text{ mole } OH^-}{1}\right)\left(\frac{17.0 \text{ g } OH^-}{1 \text{ mole } OH^-}\right) = \boxed{34 \text{ g } OH^-}$

⑩ $\left(\frac{.1 \text{ mole } Ca_3(PO_4)_2}{1}\right)\left(\frac{310.3 \text{ g } Ca_3(PO_4)_2}{1 \text{ mole } Ca_3(PO_4)_2}\right) = \boxed{30 \text{ g } Ca_3(PO_4)_2}$