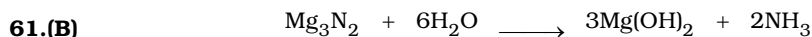


Daily Tutorial Sheet-5

Level-1



Initially 1 mole

Finally

2 moles

62.(B) moles of $\text{CaCO}_3 = \frac{10}{100} = 0.1$

Moles of Ca = 0.1

63.(C) Apply $M_1V_1 + M_2V_2 = M(V_1 + V_2)$



Initially 0.1

0.36

0.9

-

-

-

-

Finally 0.02

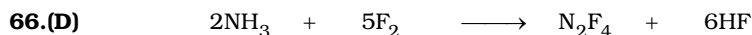
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0.3

0.06

65.(A) Let x be valency of element M $\Rightarrow$ Formula of oxide is M_2O_x

Now, $(2 \times x \times 14) + (x \times 16) = 44 \Rightarrow x = 1 \Rightarrow$ Atomic weight of element = $14 \times 1 = 14$



Initially $\frac{2}{17}$ moles

$\frac{8}{18}$ moles

-

-

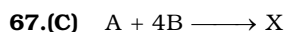
Finally

- $\frac{8}{18} - \frac{2}{17}$ moles

$\frac{1}{17}$ moles

mass of $\text{N}_2\text{F}_4 = \frac{1}{17} \times 100 = 5.9\text{g}$

% yield = $\frac{3.56}{5.9} \times 100\% = 60\%$



$\Rightarrow$ Molar mass of X = Molar mass of A + 4 X molar mass of B

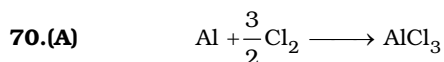
= $12 + 4 \times 35.5 = 154$

68.(C) Ideal gas equation $PV = nRT$

We can see that moles $\text{SO}_2 = 2X$ moles of O_2

$\Rightarrow$ molecules of $\text{SO}_2 = 2X$ molecules of $\text{O}_2 = 2N$

69.(B) Mole of Fe = $\frac{0.0056}{56} = 0.0001 = 10^{-4}$ moles. So, moles of ferric alum = 0.5×10^{-4} moles.

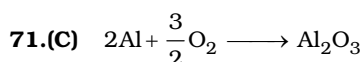


Initially

Finally $\frac{0.54}{27} = 0.02$ moles

$\frac{6.67}{133.5}$ moles = $\frac{1}{20}$ moles = 0.05 moles

$\Rightarrow$ Initially there were 0.095 moles of Al and 0.075 moles of Cl_2



Initially 1 mole $\frac{3}{4}$ moles $\therefore \frac{3}{4} \times 32 = 24\text{g}$

72.(A) Acidic meq. used = $25 \times 1 = 25$

Excess of acidic meq. used = $5 \times 1 = 5$

$\Rightarrow$ Acidic meq. used for carbonate = Meq. of carbonate = 20 $20 = \frac{1}{E} \times 1000 \Rightarrow E = 50$



In the above reaction n-factor of H_3PO_4 is 2. $\Rightarrow$ Equivalent weight = $\frac{98}{2} = 49$

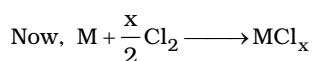
74.(C) Let masses of O_2 and N_2 be 1g and 4g

Molecules of $\text{O}_2 = \frac{1}{32} N_A$

Molecules of $\text{N}_2 = \frac{4}{28} N_A = \frac{1}{7} N_A$ Ratio of no. of molecules = $\frac{1}{32} N_A : \frac{1}{7} N_A = 7 : 32$

75.(A) Let x be valency of metal M. $\Rightarrow$ Formula of its chloride = MCl_x

Moles of $\text{MCl}_x = \frac{0.475}{12x + 35.5x} = \frac{0.475}{47.5x} = 0.01 / x$



Initially $0.01/x$

Finally $0.01/x \times 12x = 0.12$