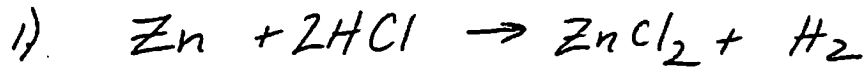


Stoichiometry Review

1B.



$$7.50 \text{ mol ZnCl}_2 \times \frac{2 \text{ mol HCl}}{1 \text{ mol ZnCl}_2} = \boxed{15.0 \text{ mol ZnCl}_2}$$



$$0.75 \text{ mol Al}_2\text{O}_3 \times \frac{3 \text{ mol O}_2}{2 \text{ mol Al}_2\text{O}_3} = 1.125 \text{ mol O}_2$$

$$1.125 \text{ mol O}_2 \times \frac{32.0 \text{ g}}{1 \text{ mol}} = \boxed{36 \text{ g O}_2}$$

2B

1) Same equation as 1B #1

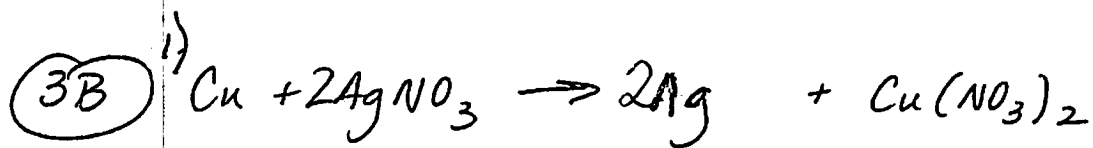
$$\frac{9.34 \text{ g Zn}}{65.4 \text{ g/mol}} = 0.1428... \text{ mol Zn} \times \frac{1 \text{ mol ZnCl}_2}{1 \text{ mol Zn}}$$

$$0.1428... \text{ mol ZnCl}_2 \times \frac{136.4 \text{ g}}{1 \text{ mol}} = \boxed{19.5 \text{ g ZnCl}_2}$$

2) " "

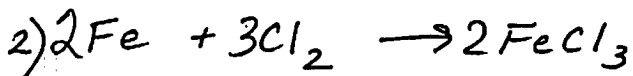
$$\frac{0.125 \text{ g Zn}}{65.4 \text{ g/mol}} = 0.00191... \text{ mol Zn} \times \frac{2 \text{ mol HCl}}{1 \text{ mol Zn}} = 0.00382... \text{ mol HCl}$$

$$0.00382... \text{ mol HCl} \times \frac{36.5 \text{ g}}{1 \text{ mol}} = 0.1395... \text{ g HCl} = \boxed{140. \text{ mg HCl}}$$



$$\frac{250. \text{g Ag}}{107.9 \text{g/mol}} = 2.316... \text{ mol Ag} \times \frac{1 \text{ mol Cu}}{2 \text{ mol Ag}} = 1.16 \text{ g Cu}$$

$$\frac{2.316... \text{ mol Cu}}{1.16 \text{g}} \times \frac{63.6 \text{g}}{1 \text{mol}} = \boxed{148.5 \text{ g Cu}}$$



$$\frac{15.3 \text{g Fe}}{55.8 \text{g/mol}} = 0.274... \text{ mol Fe} \times \frac{2 \text{ mol FeCl}_3}{2 \text{ mol Fe}} = 0.274 \text{ mol FeCl}_3$$

$$0.274 \text{ mol FeCl}_3 \times \frac{162.3 \text{g}}{1 \text{mol}} = \boxed{44.5 \text{ g FeCl}_3}$$

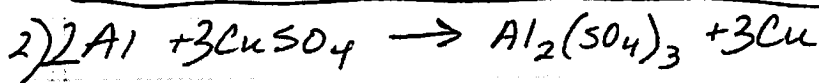
4B) 1) Same problem as 1B #1 - SORRY!

2) Same equation as 3B #1

$$3.65 \text{ mol AgNO}_3 \times \frac{1 \text{ mol Ag}}{2 \text{ mol AgNO}_3} = \boxed{1.83 \text{ mol Ag}}$$

5B) $\frac{16.3 \text{g Mg}}{24.3 \text{g/mol}} = 0.6707... \text{ mol Mg} = 0.3353... \text{ ER}$

LR $\frac{4.52 \text{g O}_2}{32.0 \text{g/mol}} = 0.1412... \text{ mol O}_2 = 0.1412...$

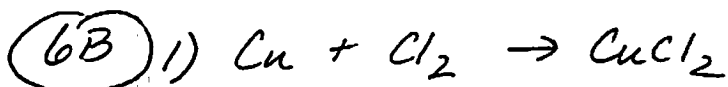


$$\frac{25.3 \text{g Al}}{27.0 \text{g/mol}} = 0.937... \text{ mol Al} = 0.4685... \quad 0.158... \text{ mol CuSO}_4 \times \frac{1 \text{ mol}}{3 \text{ mol}} =$$

LR $\frac{25.3 \text{g CuSO}_4}{159.6 \text{g/mol}} = 0.158... \text{ CuSO}_4 = 0.0528... \quad 0.0528... \text{ mol Al}_2(\text{SO}_4)_3 \times 342.3 = 18.1 \text{ g Al}_2(\text{SO}_4)_3$

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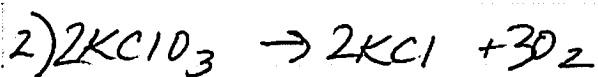
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$$\frac{12.5 \text{ g Cu}}{63.6 \text{ g/mol}} = 0.1965 \dots \text{ mol Cu} \times \frac{1 \text{ mol CuCl}_2}{1 \text{ mol Cu}} =$$

$$0.1965 \dots \text{ mol CuCl}_2 \times \frac{134.6 \text{ g}}{1 \text{ mol}} = 26.5 \text{ g CuCl}_2$$

$$\frac{\text{actual}}{\text{theor.}} \times 100 \rightarrow \frac{25.4 \text{ g}}{26.5 \text{ g}} \times 100 = \boxed{96.0\%}$$



$$\frac{5.45 \text{ g KClO}_3}{122.6 \text{ g/mol}} = 0.0444 \dots \text{ mol KClO}_3 \times \frac{3 \text{ mol O}_2}{2 \text{ mol KClO}_3} =$$

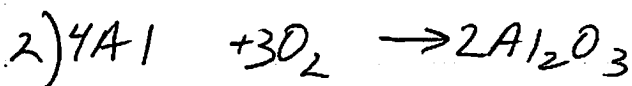
$$0.0666 \dots \text{ mol O}_2 \times \frac{32.0 \text{ g}}{1 \text{ mol}} = 2.13 \text{ g O}_2$$

$$\frac{a}{+} \times 100 \rightarrow \frac{1.75 \text{ g}}{2.13 \text{ g}} \times 100 = \boxed{82.0\%}$$



$$31.0 \text{ L Cl}_2 \times \frac{1 \text{ mol}}{22.4 \text{ L}} = 1.38 \dots \text{ mol Cl}_2 \times \frac{2 \text{ mol Fe}}{3 \text{ mol Cl}_2} =$$

$$0.922 \dots \text{ mol Fe} \times \frac{55.8 \text{ g}}{1 \text{ mol}} = \boxed{51.5 \text{ g Fe}}$$



$$\frac{65.3 \text{ g Al}}{27.0 \text{ g/mol}} = 2.41 \dots \text{ mol Al} \times \frac{3 \text{ mol O}_2}{4 \text{ mol Al}} =$$

$$1.81 \dots \text{ mol} \times \frac{22.4 \text{ L}}{1 \text{ mol @ STP}} = \boxed{40.6 \text{ L}}$$

