

# Stoichiometry (Mole to Mole) Key

$$1.a) \frac{5.0 \text{ mol C}_{10}\text{H}_{22}}{2 \text{ mol C}_{10}\text{H}_{22}} \left| \frac{20 \text{ mol CO}_2}{2 \text{ mol C}_{10}\text{H}_{22}} \right. = \boxed{5.0 \times 10^1 \text{ mol CO}_2}$$

$$b) \frac{0.75 \text{ mol C}_{10}\text{H}_{22}}{2 \text{ mol C}_{10}\text{H}_{22}} \left| \frac{31 \text{ mol O}_2}{2 \text{ mol C}_{10}\text{H}_{22}} \right. = \boxed{12 \text{ mol O}_2}$$

$$c) \frac{4.0 \text{ mol H}_2\text{O}}{22 \text{ mol H}_2\text{O}} \left| \frac{31 \text{ mol O}_2}{22 \text{ mol H}_2\text{O}} \right. = \boxed{5.6 \text{ mol O}_2}$$

$$2.a) i) \frac{6.0 \text{ mol SiO}_2}{3 \text{ mol SiO}_2} \left| \frac{4 \text{ mol Al}}{3 \text{ mol SiO}_2} \right. = \boxed{8.0 \text{ mol Al}}$$

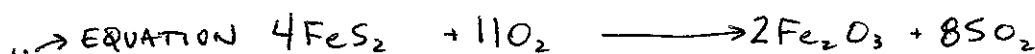
$$ii) \frac{6.0 \text{ mol SiO}_2}{3 \text{ mol SiO}_2} \left| \frac{3 \text{ mol Si}}{3 \text{ mol SiO}_2} \right. = \boxed{6.0 \text{ mol Si}}$$

$$iii) \frac{6.0 \text{ mol SiO}_2}{3 \text{ mol SiO}_2} \left| \frac{2 \text{ mol Al}_2\text{O}_3}{3 \text{ mol SiO}_2} \right. = \boxed{4.0 \text{ mol Al}_2\text{O}_3}$$

$$b) i) \frac{2.5 \text{ mol Al}_2\text{O}_3}{2 \text{ mol Al}_2\text{O}_3} \left| \frac{4 \text{ mol Al}}{2 \text{ mol Al}_2\text{O}_3} \right. = \boxed{5.0 \text{ mol Al}}$$

$$ii) \frac{2.5 \text{ mol Al}_2\text{O}_3}{2 \text{ mol Al}_2\text{O}_3} \left| \frac{3 \text{ mol SiO}_2}{2 \text{ mol Al}_2\text{O}_3} \right. = \boxed{3.8 \text{ mol SiO}_2}$$

$$3. \frac{4.18 \text{ mol NH}_3}{2 \text{ mol NH}_3} \left| \frac{1 \text{ mol N}_2}{2 \text{ mol NH}_3} \right. = \boxed{2.09 \text{ mol N}_2}$$



$$4.a) i) \frac{12 \text{ mol FeS}_2}{4 \text{ mol FeS}_2} \left| \frac{2 \text{ mol Fe}_2\text{O}_3}{4 \text{ mol FeS}_2} \right. = \boxed{6.0 \text{ mol Fe}_2\text{O}_3}$$

$$ii) \frac{12 \text{ mol FeS}_2}{4 \text{ mol FeS}_2} \left| \frac{11 \text{ mol O}_2}{4 \text{ mol FeS}_2} \right. = \boxed{33 \text{ mol O}_2}$$

$$b) \frac{8.6 \text{ mol SO}_2}{8 \text{ mol SO}_2} \left| \frac{4 \text{ mol FeS}_2}{8 \text{ mol SO}_2} \right. = \boxed{4.3 \text{ mol FeS}_2}$$