

p. 379

CALVIN



- a) 2.7 mol x mol
- b) x mol 5.44 mol
- c) .246 mol x mol
- d) x mol 118 mol

$$a) \frac{2.7 \text{ mol } C}{5 \text{ mol } C} \times \frac{1 \text{ mol } CS_2}{1 \text{ mol } CS_2} = \boxed{0.54 \text{ mol } CS_2}$$

$$b) \frac{5.44 \text{ mol } SO_2}{2 \text{ mol } SO_2} \times \frac{5 \text{ mol } C}{5 \text{ mol } C} = \boxed{13.6 \text{ mol } C}$$

$$c) \frac{0.246 \text{ mol } CS_2}{1 \text{ mol } CS_2} \times \frac{4 \text{ mol } CO}{1 \text{ mol } CS_2} = \boxed{0.984 \text{ mol } CO}$$

$$d) \frac{118 \text{ mol } CS_2}{1 \text{ mol } CS_2} \times \frac{2 \text{ mol } SO_2}{2 \text{ mol } SO_2} = \boxed{236 \text{ mol } SO_2}$$



a) x mol x mol $3.60 \times 10^2 \text{ g}$

b) x g x g 4.00 mol

c) 2.85 mol x g

$$a) \frac{3.60 \times 10^2 \text{ g } CH_3OH}{32.05 \text{ g } CH_3OH} \times \frac{1 \text{ mol } CH_3OH}{1 \text{ mol } CH_3OH} \times \frac{1 \text{ mol } CO}{1 \text{ mol } CH_3OH} = \boxed{11.2 \text{ mol } CO}$$

$$\frac{3.6 \times 10^2 \text{ g } CH_3OH}{32.05 \text{ g } CH_3OH} \times \frac{1 \text{ mol } CH_3OH}{1 \text{ mol } CH_3OH} \times \frac{2 \text{ mol } H_2}{2 \text{ mol } H_2} = \boxed{22.5 \text{ mol } H_2}$$

$$b) \frac{4.00 \text{ mol } CH_3OH}{1 \text{ mol } CH_3OH} \times \frac{1 \text{ mol } CO}{1 \text{ mol } CH_3OH} \times \frac{28.01 \text{ g } CO}{1 \text{ mol } CO} = \boxed{112 \text{ g } CO}$$

$$\frac{4.00 \text{ mol } CH_3OH}{1 \text{ mol } CH_3OH} \times \frac{2 \text{ mol } H_2}{2 \text{ mol } H_2} \times \frac{2.02 \text{ g } H_2}{1 \text{ mol } H_2} = \boxed{16.2 \text{ g } H_2}$$

$$c) \frac{2.85 \text{ mol } CO}{1 \text{ mol } CO} \times \frac{2 \text{ mol } H_2}{2 \text{ mol } H_2} \times \frac{2.02 \text{ g } H_2}{1 \text{ mol } H_2} = \boxed{11.5 \text{ g } H_2}$$



a) xg $66.6g$

b) xg $4.65g$

c) $225g$ xg

a) $\frac{66.6g \cancel{NH_3}}{17.04g \cancel{NH_3}} \cdot \frac{1 \cancel{mol} \cancel{NH_3}}{2 \cancel{mol} \cancel{NH_3}} \cdot \frac{5 \cancel{mol} \cancel{F_2}}{1 \cancel{mol} \cancel{F_2}} \cdot 38.00g \cancel{F_2} = \boxed{371g F_2}$

b) $\frac{4.65g \cancel{HF}}{20.01g \cancel{HF}} \cdot \frac{1 \cancel{mol} \cancel{HF}}{6 \cancel{mol} \cancel{HF}} \cdot \frac{2 \cancel{mol} \cancel{NH_3}}{1 \cancel{mol} \cancel{NH_3}} \cdot 17.04g \cancel{NH_3} = \boxed{1.32g NH_3}$

c) $\frac{225g \cancel{F_2}}{38.00g \cancel{F_2}} \cdot \frac{1 \cancel{mol} \cancel{F_2}}{5 \cancel{mol} \cancel{F_2}} \cdot \frac{1 \cancel{mol} \cancel{N_2F_4}}{1 \cancel{mol} \cancel{N_2F_4}} \cdot 104.02g \cancel{N_2F_4} = \boxed{123g N_2F_4}$