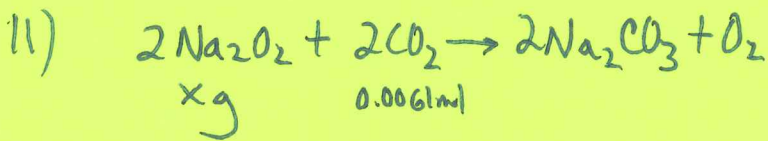


$$PV = nRT$$

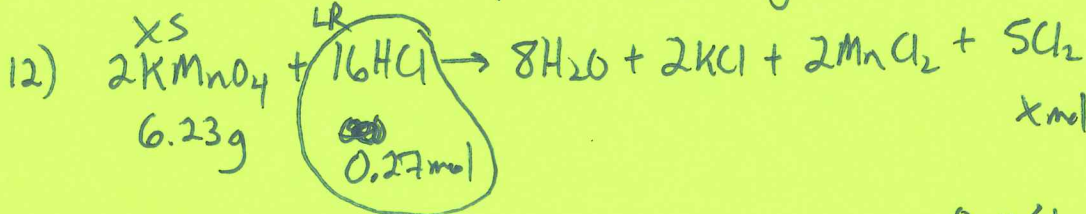
$$n = \frac{PV}{RT} = \frac{(1.15 \text{ atm})(37 \text{ K})}{(0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}})(299 \text{ K})} = \frac{1.7 \text{ mol N}_2}{9 \text{ mol N}_2} \cdot \frac{6 \text{ mol NaN}_3}{1 \text{ mol NaN}_3} \cdot \frac{65.02 \text{ g NaN}_3}{1 \text{ mol NaN}_3} = \boxed{75 \text{ g NaN}_3}$$



$$PV = nRT$$

$$n = \frac{PV}{RT} = \frac{(1.0 \text{ atm})(0.15 \text{ L})}{(0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}})(298 \text{ K})} = \frac{0.0061 \text{ mol CO}_2}{2 \text{ mol CO}_2} \cdot \frac{2 \text{ mol Na}_2\text{O}_2}{1 \text{ mol Na}_2\text{O}_2} \cdot \frac{77.98 \text{ g Na}_2\text{O}_2}{10^3 \text{ g Na}_2\text{O}_2} = \frac{1 \text{ kg Na}_2\text{O}_2}{10^3 \text{ g Na}_2\text{O}_2}$$

$$\frac{4.8 \times 10^{-4} \text{ Kg}}{\text{min}} \cdot \frac{60 \text{ min}}{1 \text{ h}} \cdot \frac{24 \text{ h}}{1 \text{ day}} = \boxed{0.68 \text{ Kg/day}}$$



$$M = \frac{n}{L}$$

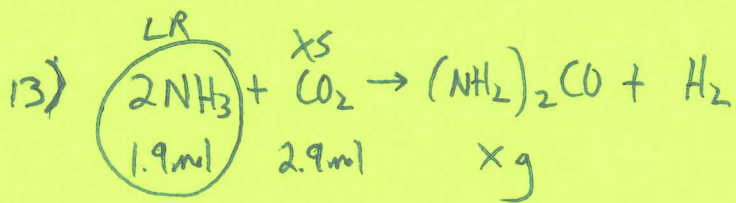
$$n = M \cdot L = (6.00 \frac{\text{mol}}{\text{L}})(0.045 \text{ L}) = 0.27 \text{ mol}$$

$$\frac{0.27 \text{ mol HCl}}{16 \text{ mol HCl}} \cdot \frac{5 \text{ mol Cl}_2}{2 \text{ mol KMnO}_4} = 0.0844 \text{ mol Cl}_2$$

$$\frac{6.23 \text{ g KMnO}_4}{158.04 \text{ g KMnO}_4} \cdot \frac{1 \text{ mol KMnO}_4}{2 \text{ mol KMnO}_4} \cdot \frac{5 \text{ mol Cl}_2}{2 \text{ mol KMnO}_4} = 0.0986 \text{ mol Cl}_2$$

$$PV = nRT$$

$$V = \frac{nRT}{P} = \frac{(0.0844 \text{ mol})(0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}})(313 \text{ K})}{(1.05 \text{ atm})} = \boxed{2.07 \text{ L}}$$



$$PV = nRT$$

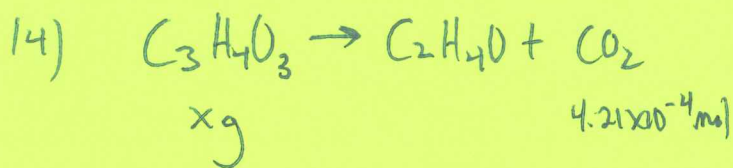
$$n = \frac{PV}{RT} = \frac{(9.0 \text{ atm})(5.0 \text{ L})}{(0.0821 \frac{\text{K} \cdot \text{atm}}{\text{mol} \cdot \text{K}})(296 \text{ K})} = 1.9 \text{ mol}$$

$$= \frac{(14.0 \text{ atm})(5.0 \text{ L})}{(0.0821 \frac{\text{K} \cdot \text{atm}}{\text{mol} \cdot \text{K}})(296 \text{ K})} = 2.9 \text{ mol}$$

$$\frac{1.9 \text{ mol NH}_3}{2 \text{ mol NH}_3} \times \frac{1 \text{ mol } (\text{NH}_2)_2\text{CO}}{2 \text{ mol NH}_3} = 0.95 \text{ mol } (\text{NH}_2)_2\text{CO} \quad \frac{60.07 \text{ g } (\text{NH}_2)_2\text{CO}}{1 \text{ mol } (\text{NH}_2)_2\text{CO}} =$$

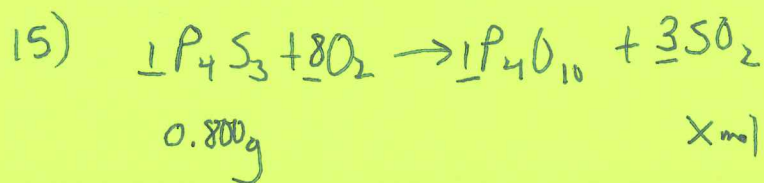
$$\frac{2.9 \text{ mol CO}_2}{1 \text{ mol CO}_2} \times \frac{1 \text{ mol } (\text{NH}_2)_2\text{CO}}{1 \text{ mol CO}_2} = 2.9 \text{ mol}$$

$$\boxed{57 \text{ g } (\text{NH}_2)_2\text{CO}}$$



$$PV = nRT$$

$$n = \frac{PV}{RT} = \frac{(0.983 \text{ atm})(0.6107 \text{ L})}{(0.0821 \frac{\text{L} \cdot \text{atm}}{\text{mol} \cdot \text{K}})(304 \text{ K})} = 4.21 \times 10^{-4} \text{ mol CO}_2 \left| \frac{1 \text{ mol C}_3\text{H}_4\text{O}_3}{1 \text{ mol CO}_2} \right| \frac{88.07 \text{ g C}_3\text{H}_4\text{O}_3}{1 \text{ mol C}_3\text{H}_4\text{O}_3} = \boxed{0.0371 \text{ g C}_3\text{H}_4\text{O}_3}$$



$$\frac{0.800 \text{ g P}_4\text{S}_3}{220.06 \text{ g P}_4\text{S}_3} \left| \frac{1 \text{ mol P}_4\text{S}_3}{1 \text{ mol P}_4\text{S}_3} \right| \frac{3 \text{ mol SO}_2}{1 \text{ mol P}_4\text{S}_3} = 0.0109 \text{ mol SO}_2$$

$$PV = nRT$$

$$P = \frac{nRT}{V} = \frac{(0.0109 \text{ mol})(0.0821 \frac{\text{L} \cdot \text{atm}}{\text{mol} \cdot \text{K}})(297.8 \text{ K})}{(2.04 \times 10^4 \text{ L})} = \boxed{1.31 \times 10^{-5} \text{ atm}}$$