

$$6. m_{\text{Na}_2\text{CO}_3} = ? n \times M$$

$$n = \frac{\# \text{ of for. units}}{N_A} = \frac{1.57 \times 10^{21} \text{ for. units}}{6.022 \times 10^{23} \text{ for. units/mol}}$$

$$= 0.00260(7) \text{ mol}$$

$$M_{\text{Na}_2\text{CO}_3} = \begin{array}{l} 2 \times \text{Na} = 2 \times 22.99 \\ 1 \times \text{C} = 1 \times 12.01 \\ 3 \times \text{O} = 3 \times 16.00 \\ \hline 105.99 \text{ g/mol} \end{array}$$

$$\begin{aligned} m &= n \times M \\ &= (0.00260(7) \text{ mol})(105.99 \text{ g/mol}) \\ &= \boxed{0.276 \text{ g}} \end{aligned}$$

$$7. m_{\text{SF}_6} = ? n \times M$$

$$n = \frac{\# \text{ of molecules}}{N_A} = \frac{3.85 \times 10^{26} \text{ molecules}}{6.022 \times 10^{23} \text{ molecules/mol}}$$

$$= 639. \textcircled{3} \text{ mol}$$

$$M_{\text{SF}_6} = \begin{array}{l} 1 \times \text{S} = 1 \times 32.07 \\ 6 \times \text{F} = 6 \times 19.00 \\ \hline 146.07 \text{ g/mol} \end{array}$$

$$\begin{aligned} m &= n \times M \\ &= (639. \textcircled{3} \text{ mol})(146.07 \text{ g/mol}) \\ &= \boxed{\cancel{1.01 \times 10^5 \text{ g}}} \\ &= 9.34 \times 10^4 \text{ g} \end{aligned}$$