

Moles and Conversions

$$① \quad 12.0 + 16.0 = \boxed{28.0 \text{ g/mol}}$$

$$② \quad 1.01 + 35.5 = \boxed{36.51 \text{ g/mol}}$$

$$③ \quad \text{molar mass} \quad 2(31.0) + 5(16.0) = 142 \text{ g/mol}$$

$$0.65 \text{ mol} \times 142 \text{ g/mol} = \boxed{92.3 \text{ g}}$$

$$④ \quad \text{molar mass} \quad 23.0 + 14.0 + 3(16.0) = 85 \text{ g/mol}$$

$$\frac{100 \text{ g}}{85 \text{ g/mol}} = \boxed{1.18 \text{ mol}}$$

$$⑤ \quad 0.36 \text{ mol} \times 6.02 \times 10^{23} = \boxed{2.17 \times 10^{23} \text{ atoms}}$$

$$⑥ \quad \frac{7.9 \times 10^{24}}{6.02 \times 10^{23}} = \boxed{13.1 \text{ mol}}$$

$$⑦ \quad \text{molar mass} \quad 23.0 + 1.01 + 12.0 + 3(16.0) = 84.01 \text{ g/mol}$$

$$\frac{1.8 \text{ g}}{84.01 \text{ g/mol}} = 0.0214 \text{ mol}$$

$$0.0214 \text{ mol} \times 6.02 \times 10^{23} = \boxed{1.3 \times 10^{22} \text{ formula units}}$$

$$⑧ \quad \frac{4 \times 10^{24}}{6.02 \times 10^{23}} = 6.64 \text{ mol} \quad \text{molar mass}$$

$$12.0 + 4(1.01) = 16.04 \text{ g/mol}$$

$$6.64 \text{ mol} \times 16.04 \text{ g/mol} = \boxed{106.6 \text{ g}}$$