

CHM 1025

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grp. work

$$(1) \quad 1203.7 \text{ g } \text{N}_2\text{O} \times \frac{1 \text{ mol } \text{N}_2\text{O}}{44 \text{ g } \text{N}_2\text{O}} = 27.4 \text{ mol } \text{N}_2\text{O}$$

$$(2) \quad 1.62 \times 10^{32} \text{ mol } \text{H}_2\text{O} \times \frac{18 \text{ g } \text{H}_2\text{O}}{1 \text{ mol } \text{H}_2\text{O}} = 2.92 \times 10^{33} \text{ g } \text{H}_2\text{O}$$

$$(3) \quad 36.72 \text{ g } \text{NH}_3 \times \frac{1 \text{ mol } \text{NH}_3}{17 \text{ g } \text{NH}_3} \times \frac{6.022 \times 10^{23} \text{ molecules } \text{NH}_3}{1 \text{ mol } \text{NH}_3} = 1.30 \times 10^{24} \text{ molecules } \text{NH}_3$$

$$(4) \quad 120.6 \text{ L } \text{CO}_2 \times \frac{1 \text{ mol } \text{CO}_2}{22.4 \text{ L } \text{CO}_2} = 5.38 \text{ mol } \text{CO}_2$$

$$(5) \quad 120.6 \text{ L } \text{CO}_2 \times \frac{1 \text{ mol } \text{CO}_2}{22.4 \text{ L } \text{CO}_2} \times \frac{6.022 \times 10^{23} \text{ molecules } \text{CO}_2}{1 \text{ mol } \text{CO}_2} = 3.24 \times 10^{24} \text{ molecules } \text{CO}_2$$

$$(6) \quad 10.29 \text{ g } \text{SO}_2 \times \frac{1 \text{ mol } \text{SO}_2}{64 \text{ g } \text{SO}_2} = 0.161 \text{ mol } \text{SO}_2$$

$$(7) \quad 6.29 \times 10^{-13} \text{ mol } \text{BF}_3 \times \frac{67.8 \text{ g } \text{BF}_3}{1 \text{ mol } \text{BF}_3} = 4.26 \times 10^{-11} \text{ g } \text{BF}_3$$

$$(8) \quad 400.13 \text{ mol } \text{SF}_6 \times \frac{6.022 \times 10^{23} \text{ molecules } \text{SF}_6}{1 \text{ mol } \text{SF}_6} = 2.41 \times 10^{26} \text{ molecules } \text{SF}_6$$

$$(9) \quad 4.63 \times 10^{10} \text{ molecules } \text{N}_2 \times \frac{1 \text{ mol } \text{N}_2}{6.022 \times 10^{23} \text{ N}_2} \times \frac{22.4 \text{ L } \text{N}_2}{1 \text{ mol } \text{N}_2} = 1.72 \times 10^{12} \text{ L } \text{N}_2$$

$$(10) \quad 7.21 \times 10^8 \text{ L } \text{O}_2 \times \frac{1 \text{ mol } \text{O}_2}{22.4 \text{ L } \text{O}_2} = 3.22 \times 10^7 \text{ mol } \text{O}_2$$

$$(11) \quad 7.21 \times 10^8 \text{ L } \text{O}_2 \times \frac{1 \text{ mol } \text{O}_2}{22.4 \text{ L } \text{O}_2} \times \frac{32 \text{ g } \text{O}_2}{1 \text{ mol } \text{O}_2} = 1.03 \times 10^9 \text{ g } \text{O}_2$$

$$(12) \quad 7.21 \times 10^8 \text{ L } \text{O}_2 \times \frac{1 \text{ mol } \text{O}_2}{22.4 \text{ L } \text{O}_2} \times \frac{6.022 \times 10^{23} \text{ molecules } \text{O}_2}{1 \text{ mol } \text{O}_2} = 1.94 \times 10^{31} \text{ molecules } \text{O}_2$$