1. $\dfrac{0.89 \text{ mol } CaCl_2}{} \bigg| \dfrac{111.1 \text{g } CaCl_2}{1 \text{ mol } CaCl_2} = 99 \text{ g } CaCl_2$

2. $\dfrac{158.1 \text{ g } PbSO_4}{} \bigg| \dfrac{1 \text{ mol } PbSO_4}{303.3 \text{ g } PbSO_4} = 0.5213 \text{ mol } PbSO_4$

3. $\dfrac{1.112 \text{ mol } HF}{} \bigg| \dfrac{20.0 \text{ g } HF}{1 \text{ mol } HF} = 22.2 \text{ g } HF$

4. $\dfrac{362.8 \text{ g } C_5H_{12}}{} \bigg| \dfrac{1 \text{ mol } C_5H_{12}}{72.0 \text{ g } C_5H_{12}} = 5.04 \text{ mol } C_5H_{12}$

5. $\dfrac{0.159 \text{ mol } SiO_2}{} \bigg| \dfrac{60.1 \text{ g } SiO_2}{1 \text{ mol } SiO_2} = 9.56 \text{ g } SiO_2$

6. $\dfrac{12.35 \text{ g } C_4H_8O_2}{} \bigg| \dfrac{1 \text{ mol } C_4H_8O_2}{88.0 \text{ g } C_4H_8O_2} = 0.140 \text{ mol } C_4H_8O_2$

7. $\dfrac{3.66 \text{ mol } N_2 \quad | \quad 28.0 \text{ g } N_2}{| \quad 1 \text{ mol } N_2} = 102 \text{ g } N_2$

8. $\dfrac{66.38 \text{ g } KMnO_4 | \ 1 \text{ mol } KMnO_4}{| \ 158.0 \text{ g } KMnO_4} = 0.4201 \text{ mol } KMnO_4$

9. $\dfrac{0.58 \text{ mol Se} \quad | \quad 6.02 \times 10^{23} \text{ Se}}{| \quad 1 \text{ mol Se}} = 3.5 \times 10^{23} \text{ Se}$

10. $\dfrac{5.38 \times 10^{24} \text{ Ba(NO}_3)_2 \ | \quad 1 \text{ mol Ba(NO}_3)_2}{| \ 6.02 \times 10^{23} \text{ Ba(NO}_3)_2} = 8.94 \text{ mol Ba(NO}_3)_2$

11. $\dfrac{1.25 \text{ mol } O_2 \ | \ 6.02 \times 10^{23} \ O_2 | \quad 2 \text{ O}}{| \quad 1 \text{ mol } O_2 \quad | \quad 1 \ O_2} = 1.51 \times 10^{24} \text{ O}$

12. $\dfrac{5.38 \times 10^{24} \text{ MgBr}_2 \quad | \quad 1 \text{ mol MgBr}_2}{| \ 6.02 \times 10^{23} \text{ MgBr}_2} = 8.94 \text{ mol MgBr}_2$

13. $\dfrac{0.668 \text{ mol AgNO}_3}{} \;\Bigg|\; \dfrac{6.02 \times 10^{23} \text{ AgNO}_3}{1 \text{ mol AgNO}_3} = 4.14 \times 10^{23} \text{ AgNO}_3$

14. $\dfrac{8.46 \times 10^{24} \text{ C}_2\text{H}_6}{} \;\Bigg|\; \dfrac{1 \text{ mol C}_2\text{H}_6}{6.02 \times 10^{23} \text{ C}_2\text{H}_6} = 14.1 \text{ mol C}_2\text{H}_6$

15. $\dfrac{1.48 \text{ mol NaF}}{} \;\Bigg|\; \dfrac{6.02 \times 10^{23} \text{ NaF}}{1 \text{ mol NaF}} = 8.91 \times 10^{23} \text{ NaF}$

16. $\dfrac{3.5 \text{ g NaOH}}{} \;\Bigg|\; \dfrac{1 \text{ mol NaOH}}{40.0 \text{ g NaOH}} \;\Bigg|\; \dfrac{6.02 \times 10^{23} \text{ NaOH}}{1 \text{ mol NaOH}} = 5.3 \times 10^{22} \text{ NaOH}$

17. $\dfrac{6.10 \times 10^{24} \text{ C}_2\text{H}_6}{} \;\Bigg|\; \dfrac{1 \text{ mol C}_2\text{H}_6}{6.02 \times 10^{23} \text{ C}_2\text{H}_6} \;\Bigg|\; \dfrac{30.0 \text{ g C}_2\text{H}_6}{1 \text{ mol C}_2\text{H}_6} = 305 \text{ g C}_2\text{H}_6$

18. $\dfrac{5.1 \text{ g TiO}_2}{} \;\Bigg|\; \dfrac{1 \text{ mol TiO}_2}{79.9 \text{ g TiO}_2} \;\Bigg|\; \dfrac{6.02 \times 10^{23} \text{ TiO}_2}{1 \text{ mol TiO}_2} = 3.8 \times 10^{22} \text{ TiO}_2$

19. $\dfrac{3.62 \times 10^{24} \text{ CH}_3\text{OH}}{} \left| \dfrac{1 \text{ mol CH}_3\text{OH}}{6.02 \times 10^{23} \text{ CH}_3\text{OH}} \right| \dfrac{32.0 \text{ g CH}_3\text{OH}}{1 \text{ mol CH}_3\text{OH}} = 192 \text{ g CH}_3\text{OH}$

20. $\dfrac{1.4 \text{ g PbCl}_2}{} \left| \dfrac{1 \text{ mol PbCl}_2}{278.2 \text{ g PbCl}_2} \right| \dfrac{6.02 \times 10^{23} \text{ PbCl}_2}{1 \text{ mol PbCl}_2} = 3.0 \times 10^{21} \text{ PbCl}_2$

21. $\dfrac{2.94 \times 10^{24} \text{ C}_{10}\text{H}_{22}}{} \left| \dfrac{1 \text{ mol C}_{10}\text{H}_{22}}{6.02 \times 10^{23} \text{ C}_{10}\text{H}_{22}} \right| \dfrac{142.0 \text{ g C}_{10}\text{H}_{22}}{1 \text{ mol C}_{10}\text{H}_{22}} = 693 \text{ g C}_{10}\text{H}_{22}$

22. $\dfrac{5.6 \text{ g H}_2\text{S}}{} \left| \dfrac{1 \text{ mol H}_2\text{S}}{34.1 \text{ g H}_2\text{S}} \right| \dfrac{6.02 \times 10^{23} \text{ H}_2\text{S}}{1 \text{ mol H}_2\text{S}} = 9.9 \times 10^{22} \text{ H}_2\text{S}$