



$$25) \text{Na: } \frac{0.979 \text{ g Na} \mid 1 \text{ mol}}{23.00 \text{ g}} = \frac{0.0426}{0.0426} = 1 \times 2 = 2$$

$$\text{S: } \frac{1.365 \text{ g S} \mid 1 \text{ mol}}{32.07 \text{ g}} = \frac{0.0426}{0.0426} = 1 \times 2 = 2$$

$$\text{O: } \frac{1.021 \text{ g O} \mid 1 \text{ mol}}{15.99 \text{ g}} = \frac{0.0639}{0.0426} = 1.5 \times 2 = 3$$



$$26) \text{Co: } \frac{2.10 \text{ g Co} \mid 1 \text{ mol Co}}{58.93 \text{ g}} = \frac{0.0356}{0.0355} = 1.00$$

$$\text{S: } \frac{1.14 \text{ g S} \mid 1 \text{ mol S}}{32.07 \text{ g}} = \frac{0.0355}{0.0355} = 1$$

$$\text{O: } \frac{2.28 \text{ g O} \mid 1 \text{ mol O}}{15.99 \text{ g}} = \frac{0.1426}{0.0355} = 4.01$$

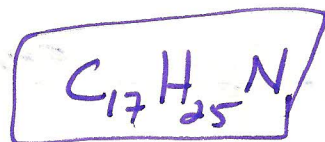
$$H_2O: \frac{4.50 \text{ g H}_2\text{O} \mid 1 \text{ mol H}_2\text{O}}{18.02 \text{ g}} = \frac{0.2497}{0.0355} = 7.03$$



$$27) \text{C: } \frac{83.89 \text{ g C}}{12.01 \text{ g}} \times \frac{1 \text{ mol}}{0.4111} = \frac{6.99}{0.4111} = 17.00$$

$$\text{H: } \frac{10.35 \text{ g H}}{1.01 \text{ g}} \times \frac{1 \text{ mol}}{0.4111} = \frac{10.248}{0.4111} = 24.9$$

$$\text{N: } \frac{5.76 \text{ g N}}{14.01 \text{ g}} \times \frac{1 \text{ mol}}{0.4111} = \frac{0.4111}{0.4111} = 1$$



$$28) \text{NH}_3 = 17.04 \text{ g mol}^{-1} \quad \text{CO}(\text{NH}_2)_2 = 60.06 \text{ g mol}^{-1}$$

$$(\text{NH}_4)_2\text{SO}_4 = 132.13 \text{ g mol}^{-1}$$

$$\boxed{\text{NH}_3: \frac{14.01}{17.04} \times 100 = 82.2\%}$$

$$(\text{NH}_4)_2\text{SO}_4: \frac{28.02}{132.13} \times 100 = 21.2\%$$

$$\text{CO}(\text{NH}_2)_2: \frac{28.02}{60.06} \times 100 = 46.7\%$$

$$29) \text{M}_3\text{N} \quad 0.673 \text{ g N} : 1 \text{ g M}$$

$$\frac{0.673 \text{ g N}}{14.01 \text{ g}} \times \frac{1 \text{ mol}}{0.4111} = 0.048 \text{ mol N} \times 3 = \underline{0.144 \text{ mol M}}$$

$$\frac{1 \text{ g M}}{0.144 \text{ mol M}} = 6.94 \text{ g mol}^{-1} = \text{Li}$$

$$30) \text{CdS} = 144.48 \text{ g/mol} \quad \text{CdSe} = 191.37 \text{ g/mol} \quad \text{CdTe} = 240.01 \text{ g/mol}$$

$$\boxed{\text{CdS: } \frac{112.41}{144.48} \times 100 = 77.8\%}$$

$$\text{CdTe: } \frac{112.41}{240.01} \times 100 =$$

$$\text{CdSe: } \frac{112.41}{191.37} \times 100 = 58.7\%$$

$$46.8\%$$

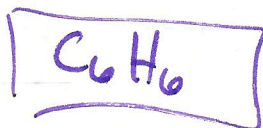
31) 7.74% H so 92.26% C Molar mass = 78.10 g mol<sup>-1</sup>

$$\text{H: } \frac{7.74 \text{ g} | 1 \text{ mol}}{1.01 \text{ g}} = \frac{7.66}{7.66} = 1$$

$$\text{C: } \frac{92.26 \text{ g} | 1 \text{ mol}}{12.01 \text{ g}} = \frac{7.68}{7.66} = 1.00$$

CH = 13.02 g/mol

$$\frac{78.10}{13.02} = 6 \times \text{CH}$$



32) H:  $\frac{0.0220 \text{ g} | 1 \text{ mol}}{1.01 \text{ g}} = \frac{0.02178}{0.01089} = 2$

P:  $\frac{0.3374 \text{ g} | 1 \text{ mol}}{30.97} = \frac{0.01089}{0.01089} = 1$

H<sub>2</sub>PO<sub>3</sub> = E.F  
molar mass  
= 80.96 g/mol

O:  $\frac{0.8821 - (0.3374 + 0.0220) | 1 \text{ mol}}{15.99 \text{ g}} = \frac{0.03269}{0.01089} = 3.00$

Molar mass =  $\frac{162 \text{ g/mol}}{80.96 \text{ g/mol}} = 2 \times \text{H}_2\text{PO}_3 = \text{H}_4\text{P}_2\text{O}_6$

33) C:  $\frac{0.1927 \text{ g} | 1 \text{ mol}}{12.01 \text{ g}} = \frac{0.01604}{0.004814} = 3.33 \times 3 = 10$

$\frac{0.8138 \text{ g} - 0.4801}{0.004814} = 0.3337 \text{ g O}$

H:  $\frac{0.02590 \text{ g} | 1 \text{ mol}}{1.01 \text{ g}} = \frac{0.02564}{0.004814} = 5.33 \times 3 = 16$

N:  $\frac{0.1124 \text{ g} | 1 \text{ mol}}{14.01 \text{ g}} = \frac{0.00802}{0.004814} = 1.66 \times 3 = 5$

C<sub>10</sub>H<sub>16</sub>N<sub>5</sub>P<sub>3</sub>O<sub>13</sub>  
= 507.09 g/mol

P:  $\frac{0.1491 \text{ g} | 1 \text{ mol}}{30.97 \text{ g}} = \frac{0.004814}{0.004814} = 1 \times 3 = 3$

E.F. = M.F.

O:  $\frac{0.3337 \text{ g} | 1 \text{ mol}}{15.99 \text{ g}} = \frac{0.02087}{0.004814} = 4.33 \times 3 = 13$

34) 0.3g sample C, H, O.

$$\text{C: } \frac{0.66\text{g CO}_2}{44.0\text{g CO}_2} \times \frac{1\text{mol CO}_2}{1\text{mol CO}_2} \times \frac{1\text{mol C atoms}}{1\text{mol CO}_2} = 0.015\text{mol C atoms}$$

$$\text{H: } \frac{0.36\text{g H}_2\text{O}}{18.02\text{g H}_2\text{O}} \times \frac{1\text{mol H}_2\text{O}}{1\text{mol H}_2\text{O}} \times \frac{2\text{mol H atoms}}{1\text{mol H}_2\text{O}} = 0.03996\text{mol H atoms}$$

$$\text{C: } \frac{0.015\text{mol C}}{1\text{mol C}} \times 12.01\text{g C} = 0.180\text{g C}$$

$$\text{H: } \frac{0.03996\text{mol H}}{1\text{mol H}} \times 1.01\text{g H} = 0.0404\text{g H}$$

$$= 0.2204\text{g}$$

$$0.3\text{g} - 0.2204\text{g} = 0.0796\text{g O}$$

$$\text{O: } \frac{0.0796\text{g O}}{16.00\text{g}} \times \frac{1\text{mol}}{0.004978} = 1$$

$$\text{C: } \frac{0.015\text{mol C}}{0.004978} = 3.0$$

$$\text{H: } \frac{0.03996\text{mol H}}{0.004978} = 8.0$$

