

## Appendix D

95) c) given: 0.255 g S  
want: mol S

$$\frac{0.255 \text{ g S}}{32.07 \text{ g S}} \left| \frac{1 \text{ mol S}}{1} \right. = 0.0079513564 \text{ mol S}$$

$$= \boxed{0.00795 \text{ mol S}} \quad 3 \text{ sig figs}$$

d) given: 850.5 g Zn  
want: mol Zn

$$\frac{850.5 \text{ g Zn}}{65.41 \text{ g Zn}} \left| \frac{1 \text{ mol Zn}}{1} \right. = 13.00259899 \text{ mol Zn}$$

$$= \boxed{13.00 \text{ mol Zn}} \quad 4 \text{ sig figs}$$

96) c) given: 0.275 mol Hg  
want: g Hg

$$\frac{0.275 \text{ mol Hg}}{1 \text{ mol Hg}} \left| \frac{200.59 \text{ g Hg}}{1} \right. = 55.16225 \text{ g Hg}$$

$$= \boxed{55.2 \text{ g Hg}} \quad 3 \text{ sig figs}$$

d) given:  $9.37 \times 10^{-3}$  mol Mg  
want: g Mg

$$\frac{9.37 \times 10^{-3} \text{ mol Mg}}{1 \text{ mol Mg}} \left| \frac{24.31 \text{ g Mg}}{1} \right. = 0.2277847 \text{ g Mg}$$

$$= \boxed{0.228 \text{ g Mg}} \quad 3 \text{ sig figs}$$

97) c) given: 5 700 000 000 atoms Pb  
want: mol Pb

$$\frac{5\,700\,000\,000 \text{ atoms Pb}}{6.02 \times 10^{23} \text{ atoms Pb}} \Bigg| \frac{1 \text{ mol Pb}}{1 \text{ mol Pb}} = \frac{9.4684 \times 10^{-15}}{1 \text{ mol Pb}}$$

$$= \boxed{9.5 \times 10^{-15} \text{ mol Pb}}$$

2 sig Figs

d) given:  $2.997 \times 10^{25}$  atoms V  
want: mol V

$$\frac{2.997 \times 10^{25} \text{ atoms V}}{6.02 \times 10^{23} \text{ atoms V}} \Bigg| \frac{1 \text{ mol V}}{1 \text{ mol V}} = \frac{49.784 \text{ mol V}}{1}$$

$$= \boxed{49.78 \text{ mol V}}$$

4 sig Figs

98) c) given: 0.000 0002 mol He  
want: atoms He

$$\frac{0.000\,0002 \text{ mol He}}{1 \text{ mol He}} \Bigg| \frac{6.02 \times 10^{23} \text{ atoms He}}{1 \text{ mol He}} = \frac{1.204 \times 10^{17} \text{ atoms He}}{1}$$

$$= \boxed{1 \times 10^{17} \text{ atoms He}}$$

1 sig Fig

d) given: 32.6 mol Sr  
want: atoms Sr

$$\frac{32.6 \text{ mol Sr}}{1 \text{ mol Sr}} \Bigg| \frac{6.02 \times 10^{23} \text{ atoms Sr}}{1 \text{ mol Sr}} = \frac{1.96252 \times 10^{25} \text{ atoms Sr}}{1}$$

$$= \boxed{1.96 \times 10^{25} \text{ atoms Sr}}$$

## Appendix D

(99) c) given: 0.697 g Ga  
want: atoms Ga

$$\frac{0.697 \text{ g Ga} \mid 1 \text{ mol Ga} \mid 6.02 \times 10^{23} \text{ atoms Ga}}{69.72 \text{ g Ga} \mid 1 \text{ mol Ga}} = \underset{\sim}{6.01827 \times 10^{21}} \text{ atoms Ga}$$

$$= \boxed{6.02 \times 10^{21} \text{ atoms Ga}}$$

3 sig figs

d) given: 0.000 000 020 g Be  
want: atoms Be

$$\frac{0.000 000 020 \text{ g Be} \mid 1 \text{ mol Be} \mid 6.02 \times 10^{23} \text{ atoms Be}}{9.01 \text{ g Be} \mid 1 \text{ mol Be}} = \underset{\sim}{1.33629 \times 10^{15}} \text{ atoms Be}$$

$$= \boxed{1.3 \times 10^{15} \text{ atoms Be}}$$

2 sig figs

(100) c) given:  $1.506 \times 10^{24}$  atoms Ar  
want: g Ar

$$\frac{1.506 \times 10^{24} \text{ atoms Ar}}{6.02 \times 10^{23} \text{ atoms Ar}} \times \frac{1 \text{ mol Ar}}{1 \text{ mol Ar}} \times 39.95 \text{ g Ar} = 99.941 \text{ g Ar}$$

$\downarrow$   
 $\boxed{99.94 \text{ g Ar}}$   
4 sig Figs

d) given:  $1.20 \times 10^{25}$  atoms He  
want: g He

$$\frac{1.20 \times 10^{25} \text{ atoms He}}{6.02 \times 10^{23} \text{ atoms He}} \times \frac{1 \text{ mol He}}{1 \text{ mol He}} \times 4.00 \text{ g He} = 79.7342 \text{ g He}$$

$\downarrow$   
 $\boxed{79.7 \text{ g He}}$   
3 sig Figs