

## Advanced Chemistry – Moles and molar mass

## Question 1.

Determine the number of **moles (n)** for each of the following substances:

- a)  $1.806 \times 10^{24}$  atoms of copper  
a. 3 mol (1 mark)
- b)  $1.505 \times 10^{24}$  molecules of hydrogen gas  
a. 2.5 mol (1 mark)
- c)  $9.81 \times 10^{24}$  molecules of carbon dioxide gas  
a. 16.3 mol (1 mark)
- d) An aluminium sheet that contains  $1.204 \times 10^{23}$  atoms  
a. 0.2 mol (1 mark)

## Question 2

Determine the **total** number of **atoms (N)** for each of the following substances:

- a) 3.0 mol of sodium atoms  
a.  $1.806 \times 10^{24}$  atoms (1 mark)
- b) 0.8 mol of mercury  
a.  $4.816 \times 10^{23}$  atoms (1 mark)
- c) 2 mol of carbon dioxide gas  
a. Number of moles x number of atoms per mole x Avagadro's number  
 $2 \times 6.02 \times 10^{23} \times 3 = 3.612 \times 10^{24}$  atoms (2 marks)
- d) 1 mol of ethanoic acid ( $\text{CH}_3\text{COOH}$ )  
a. Number of moles x number of atoms per mole x Avagadro's number  
 $1 \times 8 \times 6.02 \times 10^{23} = 4.816 \times 10^{24}$  atoms (2 marks)

Marked by: \_\_\_\_\_