**AQA, OCR, Edexcel**

# GCSE Science

# GCSE Chemistry

Moles
Questions

MME
Mathsmadeeasy.co.uk

Total Marks: /34

***Moles***

Q1: What are the units chemical quantities are often measured in?

_____

(1 mark)

Q2: What is the symbol for this unit?

_____

(1 mark)

Q3: Complete the following, the first is given as an example.

A)

Compound: NaOH
Relative Formula Mass: 40
Mass of one mole: 40

B)

Compound: $CO_2$

Relative Formula Mass:

Mass of $3CO_2$:

C)

Compound: $Na_2SO_4$

Relative Formula Mass:

Mass of one $2Na_2SO_4$:

(6 marks)

Q4: In a mole of one substance and in the mole of another, is the number of particles, atoms, molecules or ions the same, less or more?

_____

(1 mark)

Q5: What is numerical value of the Avogadro constant?

_____

_____

(1 mark)

Q6: What is the value of the Avogadro constant?

_____

_____

(1 mark)

**Amounts of substances in equations**

The masses of substances in an equation can be calculated using the following equation:

$$Mass = relative\ formula\ mass\ x\ amount$$

Q7: Using the following equation and the periodic table, give the mass of each reactant and product.
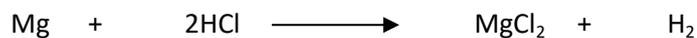
$$Mg \quad + \quad 2HCl \quad \longrightarrow \quad MgCl_2 \quad + \quad H_2$$

| Substance | Mass |
|---|---|
| Mg | |
| 2HCl | |
| $MgCl_2$ | |
| $H_2$ | |

(4 marks)

Q8: 48g of magnesium and 32g of oxygen react to form 80g of magnesium oxide.

$$2Mg \quad + \quad O2 \quad \longrightarrow \quad 2MgO$$
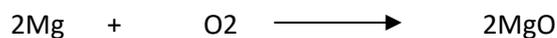
What mass of oxygen is needed to make 20g of MgO?

_____

_____

_____

_____

(4 marks)

*Using moles to balance equations*

$$Number\ of\ moles = \frac{mass}{molar\ mass}$$

Q9: Using this equation and the following information, balance the following equation.

1248g of barium chloride reacts with 684g of aluminium sulphate, forming 1398g of barium sulphate and 534g of aluminium chloride.  Balance the equation below.

☐ $BaCl_2$   +   ☐ $Al2(SO_4)_3$   ⟶   ☐ $BaSO_4$   +   ☐ $AlCl_3$

_____

_____

_____

_____
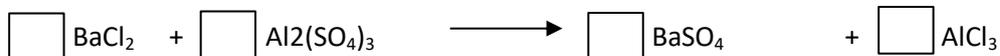
(4 marks)

*Limiting reactants*

Q10: Describe what is meant by the term 'a limiting reactant'.

_____

_____

_____

(3 marks)

Q11: In the following equation:

$$Zn \quad + \quad I_2 \quad \longrightarrow \quad ZnI_2$$
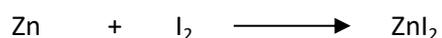
If 3 moles of zinc are used and only 1 mole of iodine, what is the mass of the product, zinc iodide?

_____

_____

_____

_____

(2 marks)

***Concentration of solutions***

Q12: How is the concentration of a solution measured?

_____

_____

(2 marks)

Q13: Write this in an equation form, including the units.

$$Concentration = \frac{\rule{3cm}{0.4pt}}{}$$

(2 marks)

Q14: Calculate the amount of sodium chloride, NaCl, in 55.0cm$^3$ concentration 0.5mol/dm$^3$.

_____

_____

_____

_____

(2 marks)

***Concentration of solutions***