Quantitative Chemistry
Multiple Choice Questions

Set 1

Tick **one** box.

1. What does the law of conservation of mass state?

   A. atoms are created during a chemical reaction so the mass of the products is greater than the mass of the reactants ☐

   B. no atoms are lost or made during a chemical reaction so the mass of the products equals the mass of the reactants ☐

   C. atoms are lost during a chemical reaction so the mass of the products is lower than the mass of the reactants ☐

   D. atoms are both created and destroyed in a chemical reaction so the mass of the products equals the mass of the reactants ☐

2. Calcium carbonate has the chemical formula $CaCO_3$. How many different elements are there in calcium carbonate?

   A. 2 ☐

   B. 3 ☐

   C. 4 ☐

   D. 5 ☐

3. Potassium nitrate has the chemical formula KNO_3. What is the total number of atoms in potassium nitrate?

   A. 3 ☐

   B. 4 ☐

   C. 5 ☐

   D. 6 ☐

4. Which is the correctly balanced symbol equation for the reaction between magnesium and oxygen?

   A. $2Mg + O_2 \rightarrow 2MgO$ ☐

   B. $2Mg + O \rightarrow MgO$ ☐

   C. $Mg + O_2 \rightarrow MgO$ ☐

   D. $2Mg + O_2 \rightarrow MgO_2$ ☐

5. 3g of magnesium completely reacts with 2g of oxygen. What is the mass of magnesium oxide formed?

   A. 3g ☐
   B. 5g ☐
   C. 6g ☐
   D. 10g ☐

6. When copper carbonate is heated in an unsealed test tube, it undergoes thermal decomposition to form copper oxide and carbon dioxide. What would you expect to happen to the mass inside the test tube?

   A. decrease ☐
   B. increase ☐
   C. stay the same ☐
   D. it will depend on the type of test tube ☐

7. What is the relative formula mass of sodium hydroxide (NaOH)?
   Relative atomic masses (A_r): Na = 23, O = 16, H = 1

   A. 17 ☐
   B. 24 ☐
   C. 37 ☐
   D. 40 ☐

8. What is the concentration of a solution containing 1.5g of solute dissolved in 2dm^3 of solvent?

   A. 0.75g/dm^3 ☐
   B. 1.3g/dm^3 ☐
   C. 3g/dm^3 ☐
   D. 3.5g/dm^3 ☐

9. A solution has a concentration of 4g/dm^3. What mass of solute is dissolved in 2dm^3 of the solution?

   A. 1g ☐
   B. 2g ☐
   C. 4g ☐
   D. 8g ☐

10. A student carried out a chemical reaction and measured the mass of the product formed. They repeated the reaction five times. The results are shown below.
What was the mean mass of product formed in the reaction?

A. 5.00g ☐
B. 5.08g ☐
C. 5.15g ☐
D. 5.22g ☐

Repeat	Mass of Product (g)
1	5.08
2	5.20
3	5.08
4	5.23
5	5.16