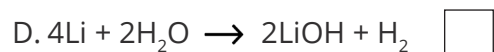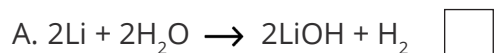# Quantitative Chemistry
Multiple Choice Questions

Set 2

Tick **one** box.

1. What is the correctly balanced symbol equation for the reaction between lithium and water?

    A. $2Li + 2H_2O \longrightarrow 2LiOH + H_2$ ☐

    B. $Li + H_2O \longrightarrow LiO_2 + H_2$ ☐

    C. $Li + H_2O \longrightarrow LiOH + H_2$ ☐

    D. $4Li + 2H_2O \longrightarrow 2LiOH + H_2$ ☐

2. What is the relative formula mass of aluminium hydroxide $(Al(OH)_3)$?
    Relative atomic masses (A_r): Al = 27, O = 16, H = 1

    A. 44 ☐

    B. 46 ☐

    C. 78 ☐

    D. 132 ☐

3. What is the value of the Avogadro constant?

    A. 2.03×10^{23} ☐

    B. 5.08×10^{23} ☐

    C. 6.02×10^{23} ☐

    D. 12.6×10^{23} ☐

4. What is the mass of two moles of chlorine gas (Cl_2)?
    Relative atomic mass (A_r) = 35.5

    A. 18g ☐

    B. 35.5g ☐

    C. 71g ☐

    D. 142g ☐

5. How many moles are there in 147g of sulfuric acid (H_2SO_4)?
    Relative atomic masses (A_r): H = 1, S = 32, O = 16

    A. 0.67 ☐

    B. 0.98 ☐

    C. 1.47 ☐

    D. 1.50 ☐

6. The balanced symbol equation for the reaction between methane and oxygen is $CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$. How many moles of methane are needed to produce four moles of water?

    A. 1 ☐

    B. 2 ☐

    C. 4 ☐

    D. 8 ☐

7. The balanced symbol equation for the reaction between nitrogen and hydrogen is $N_2 + 3H_2 \longrightarrow 2NH_3$. What mass of nitrogen is needed to form 34g of ammonia (NH_3)? Relative formula masses (M_r): N_2 = 28, NH_3 = 17

    A. 17g ☐

    B. 28g ☐

    C. 34g ☐

    D. 68 g ☐

8. What does it mean if a reactant is in excess?

    A. the reactant increases the rate of the reaction ☐

    B. the reactant is completely used up in the reaction ☐

    C. the reactant is not used up in the reaction ☐

    D. the reactant produces more of the product than expected ☐

9. What mass of iron oxide (Fe_2O_3) is formed when 14g of iron wool is burned in air? The balanced symbol equation for the reaction is $4Fe + 3O_2 \longrightarrow 2Fe_2O_3$. Relative atomic masses (A_r): Fe = 56, O = 16

    A. 20g ☐

    B. 28g ☐

    C. 40g ☐

    D. 80g ☐

10. What volume of water is 15g of copper sulfate dissolved in to make a solution with a concentration of 300g/dm³?

    A. 50cm³ ☐

    B. 150cm³ ☐

    C. 300cm³ ☐

    D. 450cm³ ☐