**Year Ten PCS – Practice test on Chemistry**

1. What is the mass percent of each element in dichloromethane, CH2Cl2?
2. 10.06% C, 60.24% H, 29.70% Cl
3. 20.00% C, 20.00% H, 60.00% Cl
4. 24.10% C, 3.11% H, 72.79% Cl
5. 33.87% C, 0.22% H, 65.91% Cl
6. 14.14% C, 2.37% H, 83.48% Cl

(1 mark)

1. If 1.00 g of an unknown molecular compound is equivalent to 0.0139 moles of that compound. Calculate the molar mass of the compound.
2. 44.0 g/mol
3. 66.4 g/mol
4. 72.1 g/mol
5. 98.1 g/mol
6. 132 g/mol

(1 mark)

1. Identify the compound which would have a molar mass of 52 g.
2. Ca(OH)2
3. BaO
4. (NH4)2O
5. Al2(SO4)3

(1 mark)

1. Aluminium reacts with oxygen to produce aluminium oxide.

4 Al(s) + 3 O2(g) → 2 Al2O3(s)

If 5.0 moles of Al react with excess O2, how many moles of Al2O3 can be formed?

1. 2 mol
2. 2.5 mol
3. 5.0 mol
4. 10.0 mol

(1 mark)

1. Calculate the mass of hydrogen formed when 25 grams of aluminium reacts with excess hydrochloric acid.

2Al + 6HCl https://www.chem.tamu.edu/class/fyp/mcquest/Pics/arrw-tan.gif Al2Cl6 + 3H2

* 1. 0.41 g
  2. 1.2 g
  3. 1.8 g
  4. 2.8 g
  5. 0.92 g

(1 mark)

1. What volume of sulfuric acid (0.77 M) contains 25.0 grams of H2SO4?

(2 marks)

1. How many grams of calcium phosphate can be produced from the reaction of 2.50 L of 0.250 M Calcium chloride with an excess of phosphoric acid?

3CaCl2 + 2H3PO4 ---> Ca3(PO4)2 + 6HCl

(3 marks)

1. Calculate the number of grams of silver sulphide (Ag2S) produced when 35.5 g of silver nitrite (AgNO2) is reacted with 35.5 grams of sodium sulphide (Na2S).

2AgNO2 + Na2S ---> Ag2S + 2NaNO2

(4 marks)

**CHALLENGE Q**

In an experiment 1.17 g of a metal carbonate (MCO3), containing an unknown metal M, is heated to give the metal oxide (MO) and 0.376 g of CO2.

MCO3 (s) + heat → MO (s) + CO2 (g)

Identity which of the following is the correct identity of the metal (M) in the carbonate (MCO3)

1. M = Ni
2. M = Cu
3. M = Zn
4. M = Ba