Practice Question Set For A-Level
Subject : Chemistry
Paper-1 Topic: Inorganic 1

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

This question is about the elements in Group 2.

(a) Describe the structure and bonding in magnesium.

_____

_____

_____

_____

(2)

(b) State the trend in the atomic radius of the elements down Group 2 from Mg to Ba

Give a reason for this trend.

Trend _____

Reason _____

_____

_____

(2)

(c) Give an equation, including state symbols, for the reaction of magnesium with steam.

State **two** observations for this reaction.

Equation

_____

Observation 1 _____

Observation 2 _____

(3)

(d) The sulfates of the elements in Group 2 from Mg to Ba have different solubilities.

State the formula of the least soluble of these sulfates.

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Give a use for this sulfate.

Formula _____

Use _____

(2)

(e) A sample of strontium is made up of only three isotopes: ^{86}Sr, ^{87}Sr and ^{88}Sr
This sample contains 83.00% by mass of ^{88}Sr
This sample of strontium has $A_r = 87.73$

Calculate the percentage abundance of each of the other two isotopes in this sample.

% abundance ^{87}Sr = _____

% abundance ^{86}Sr = _____

(4)

(f) $Mg(OH)_2$ is used as an antacid to treat indigestion.
A student does an experiment to determine the percentage by mass of $Mg(OH)_2$ in an indigestion tablet.

40.0 cm^3 of 0.200 mol dm^{-3} HCl (an excess) is added to 0.200 g of a powdered tablet.
The mixture is swirled thoroughly.
All of the $Mg(OH)_2$ reacts with HCl as shown.

$$Mg(OH)_2 + 2\ HCl \rightarrow MgCl_2 + 2\ H_2O$$

The amount of HCl remaining after this reaction is determined by titration with 0.100 mol dm^{-3} NaOH

29.25 cm^3 of 0.100 mol dm^{-3} NaOH are needed.

Calculate the percentage by mass of $Mg(OH)_2$ in the indigestion tablet.

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Percentage by mass _____

(6)

(Total 19 marks)

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