AQA – Group 2, the alkaline earth metals – AS Chemistry P1

1. June/ 2019/Paper_1/No.5

0 5 This question is about Group 2 elements and their compounds.

0 5 . 1 Explain why the melting point of magnesium is higher than the melting point of sodium.

[2 marks]

0 5 . 2 Give an equation to show how magnesium is used as the reducing agent in the extraction of titanium.

Explain, in terms of oxidation states, why magnesium is the reducing agent.

[2 marks]

Equation

Explanation

0 5 . 3 State what is observed when dilute aqueous sodium hydroxide is added to separate solutions of magnesium chloride and barium chloride.

[2 marks]

Observation with magnesium chloride

Observation with barium chloride

2. June/ 2021/Paper_1/No.4

0 4 This question is about the identification of ions in unknown solutions.

A student completes a number of test-tube reactions on solutions **A**, **B** and **C**.

Table 2 shows the student's observations.

Table 2

	Test 1	Test 2	Test 3
	Add $H_2SO_4(aq)$	Warm with NaOH(aq)	Add acidified $AgNO_3(aq)$
A	white precipitate	no visible change	no visible change
B	effervescence	a gas is formed that turns damp red litmus blue	effervescence
C	no visible change	no visible change	off-white precipitate

0 4 . 1 Suggest the identity of the positive ion in solution **A**.

Give the simplest ionic equation for the formation of the white precipitate in **Test 1** for solution **A**.

[2 marks]

Identity of positive ion in **A** _____

Ionic equation

_____

0 4 . 2 Different gases are formed when solution **B** reacts in **Test 1** and in **Test 2**.

Suggest the identity of each gas.

Give the simplest ionic equation for the formation of the gas in **Test 2**.

[2 marks]

Gas formed in **Test 1** _____

Gas formed in **Test 2** _____

Ionic equation for the formation of the gas in **Test 2**

_____

0 4 . 3 The student thinks that solution **C** contains either chloride ions or bromide ions.

Describe a further test, or tests, to show whether solution **C** contains chloride or bromide ions.

[3 marks]

3. June/ 2021/Paper_1/No.22

What is a use for barium sulfate?

[1 mark]

A In agriculture to act as a fertiliser ⬭

B In agriculture to neutralise acidic soil ⬭

C In medicine to produce an X-ray image ⬭

D In medicine as an antacid to treat indigestion ⬭