

Bonding – A2 2022 Chemistry P1

1. June/2022/Paper_7405/1/No.5

0 5

This question is about Period 3 elements and their compounds.

0 5 . 1

Which is **not** a correct statement about magnesium hydroxide?**[1 mark]**Tick (✓) **one** box.

It is used to neutralise stomach acid

It forms a solution with pH = 14 at 25 °C

It has the empirical formula H_2MgO_2

0 5 . 2

Give an equation for the reaction of aluminium oxide with sulfuric acid.

[1 mark]

0 5 . 3

Identify a reagent or test that could be used to distinguish between aqueous solutions of sulfur dioxide and sulfur trioxide with the same concentrations.

State the observation in each case.

[3 marks]

Reagent or test _____

Observation with sulfur dioxide solution _____

Observation with sulfur trioxide solution _____

0 5 . 4

The mass spectrum of the element phosphorus has a peak at $\frac{m}{z} = 124$

Give the formula of the species responsible for this peak.

[2 marks]

0 5 . 5

Give an equation for the reaction of phosphorus(V) oxide with sodium hydroxide solution.

[1 mark]

0 5 . 6

Draw the displayed formula of the molecule formed when phosphorus(V) oxide reacts with water.

[1 mark]

0 5 7

Table 4 shows the melting points of three substances.

Table 4

Substance	Melting point / K
sodium chloride	1074
chlorine	172
hydrogen chloride	158

Explain why the melting points of these substances are different.

You should refer to the structure of and bonding in each substance.

[6 marks]
