Name of the Student:_____
Max. Marks : 25 Marks **Time : 25 Minutes**

Q1.

The elements sodium to sulfur in Period 3 all react with oxygen to form oxides.

(a) Give an equation and **two** observations made for the reaction that occurs when sodium is heated in oxygen.

Equation _____

Observation 1 _____

Observation 2 _____

(2)

(b) Give an equation and **one** observation made for the reaction that occurs when phosphorus is heated in oxygen.

Equation _____

Observation _____

(2)

(c) The melting points of the highest oxides of the elements sodium to sulfur are shown in the table.

	Highest oxide of					
	sodium	magnesium	aluminium	silicon	phosphorus	sulfur
Melting point / K	1548	3125	2345	1883	573	290

Explain the increase in melting point from sodium oxide to magnesium oxide.

_____

_____

_____

_____

_____

_____

(2)

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(d) Explain why the melting point of the oxide of silicon is much higher than that of the highest oxide of phosphorus.

(3)

(e) A sample of the highest oxide of phosphorus was prepared in a laboratory.

Describe a method for determining the melting point of the sample.
State how the result obtained could be used to evaluate its purity.

(3)

(Total 12 marks)

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Q2.

This question is about some Period 3 elements and their oxides.

(a) Write an equation for the reaction of phosphorus with an excess of oxygen.

_____

(1)

(b) Describe a test you could carry out in a test tube to distinguish between sodium oxide and the product of the reaction in part (a)

_____

_____

_____

_____

_____

_____

(3)

(c) State the type of crystal structure shown in silicon dioxide and in sulfur trioxide.

Silicon dioxide _____

Sulfur trioxide _____

(2)

(d) Explain why silicon dioxide has a higher melting point than sulfur trioxide.

_____

_____

_____

_____

_____

_____

_____

_____

(4)

(e) Write an equation for the reaction of sulfur trioxide with potassium hydroxide solution.

_____

_____

(1)

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(f) Write an equation for the reaction of an excess of magnesium oxide with phosphoric acid.

_____

_____

(1)

(g) Draw the displayed formula of the undissociated acid formed when sulfur dioxide reacts with water.

(1)

(Total 13 marks)

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