Practice Question Set For A-Level
Subject : Chemistry
Paper-1 Topic: Inorganic 2

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

Q1.

Some melting points of Period 3 oxides are given in this table.

	Na_2O	SiO_2	SO_2	SO_3
Melting point / K	1548	1883	200	290

(a) Explain, in terms of structure and bonding, why sodium oxide has a high melting point.

_____

_____

_____

_____

(2)

(b) Explain, in terms of structure and bonding, why sulfur trioxide has a higher melting point than sulfur dioxide.

_____

_____

_____

_____

(2)

(c) Some Period 3 oxides have basic properties.

State the type of bonding in these basic oxides.
Explain why this type of bonding causes these oxides to have basic properties.

Type of bonding _____

Explanation _____

_____

_____

_____

_____

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(3)

(d) Sulfur dioxide reacts with water to form a weakly acidic solution.

(i) Ions are formed when sulfur dioxide reacts with water.
Write an equation for this reaction.

_____

(1)

(ii) With reference to your equation from part (d)(i), suggest why sulfur dioxide forms a weakly acidic solution.

_____

_____

_____

(1)

(e) Suggest why silicon dioxide is described as an acidic oxide even though it is insoluble in water.

_____

_____

(1)

(Total 10 marks)

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Q2.

White phosphorus (P_4) is a hazardous form of the element. It is stored under water.

(a) Suggest why white phosphorus is stored under water.

_____

_____

_____

(1)

(b) Phosphorus(V) oxide is known as phosphorus pentoxide.
Suggest why it is usually represented by P_4O_{10} rather than by P_2O_5

_____

_____

_____

(1)

(c) Explain why phosphorus(V) oxide has a higher melting point than sulfur(VI) oxide.

_____

_____

_____

_____

_____

(2)

(d) Write an equation for the reaction of P_4O_{10} with water to form phosphoric(V) acid.
Give the approximate pH of the final solution.

Equation _____

pH _____

(2)

(e) A waste-water tank was contaminated by P_4O_{10}. The resulting phosphoric(V) acid solution was neutralised using an excess of magnesium oxide. The mixture produced was then disposed of in a lake.

(i) Write an equation for the reaction between phosphoric(V) acid and magnesium oxide.

_____

(1)

(ii) Explain why an excess of magnesium oxide can be used for this neutralisation.

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_____

_____

(1)

(iii) Explain why the use of an excess of sodium hydroxide to neutralise the phosphoric(V) acid solution might lead to environmental problems in the lake.

_____

_____

_____

(1)

(Total 9 marks)

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