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.

This question is about elements in Period 3 and their compounds.

(a) When a piece of sodium is added to 200 $cm^3$ of water in a large beaker a vigorous reaction occurs. The temperature of the water increases by 25 $^oC$

Give an equation, including state symbols, for the reaction of sodium with water.

Suggest why it is dangerous to react a similar piece of sodium with 10 $cm^3$ of water in a boiling tube.

Equation

_____

Why it is dangerous _____

_____

_____

**(2)**

(b) Give an equation for the reaction of phosphorus(V) oxide with water.

Suggest a pH for the solution formed.

Equation

_____

pH _____

**(2)**

(c) Explain, in terms of crystal structure and bonding, why silicon(IV) oxide has a higher melting point than phosphorus(V) oxide.

_____

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**(4)**

(d) An element in Period 3 forms an oxide that is insoluble in water.
This oxide reacts with sulfuric acid and with aqueous potassium hydroxide.

Give the formula for this oxide.

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

Formula _____

Equation

_____

**(2)**

(e) Give the formula of a hydroxide of an element in Period 3 used in medicine.

_____

**(1)**

(f) Identify the element in Period 3, from sodium to chlorine, that has the largest atomic radius.

_____

**(1)**

**(Total 12 marks)**

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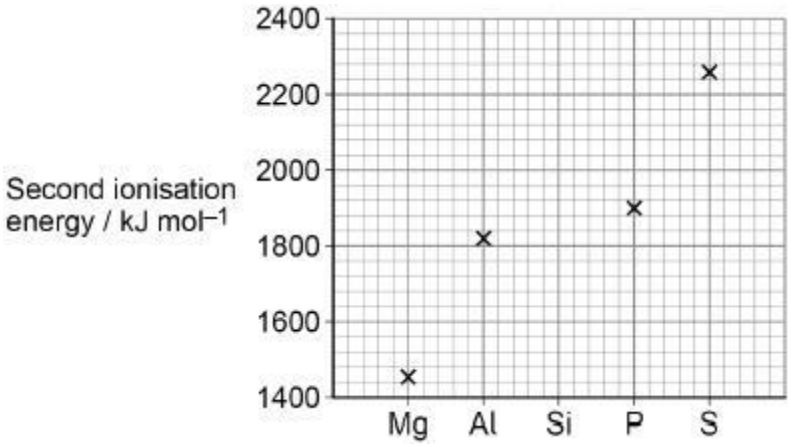
Q2.

This question is about Period 3 elements.

The graph shows the **second** ionisation energies of some elements in Period 3.




(a) Draw a cross (x) on the graph above to show the **second** ionisation energy of silicon.

**(1)**

(b) Identify the element in Period 3, from sodium to argon, that has the highest **second** ionisation energy.

Give an equation, including state symbols, to show the process that occurs when the **second** ionisation energy of this element is measured.

If you were unable to identify the element you may use the symbol **Q** in your equation.

Element _____

Equation

_____

**(2)**

(c) Explain why the atomic radius decreases across Period 3, from sodium to chlorine.

_____

_____

_____

_____

**(2)**

(d) Identify the element in Period 3, from sodium to chlorine, that has the highest electronegativity.

_____

**(1)**

(e) Phosphorus burns in air to form phosphorus(V) oxide.
Give an equation for this reaction.

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**(1)**

**(Total 7 marks)**

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