

**Name of the Student:** \_\_\_\_\_

**Max. Marks : 20 Marks**

**Time : 20 Minutes**

**Q1.**

The elements phosphorus, sulfur, chlorine and argon are in the p block of the Periodic Table.

- (a) State why these elements are classified as p block elements.

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**(1)**

- (b) State the trend in atomic radius from phosphorus to chlorine and explain the trend.

*Trend* \_\_\_\_\_

*Explanation* \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**(3)**

- (c) In terms of structure and bonding, explain why sulfur has a higher melting point than phosphorus.

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**(3)**

- (d) In terms of atomic structure, explain why the van der Waals' forces in liquid argon are very weak.

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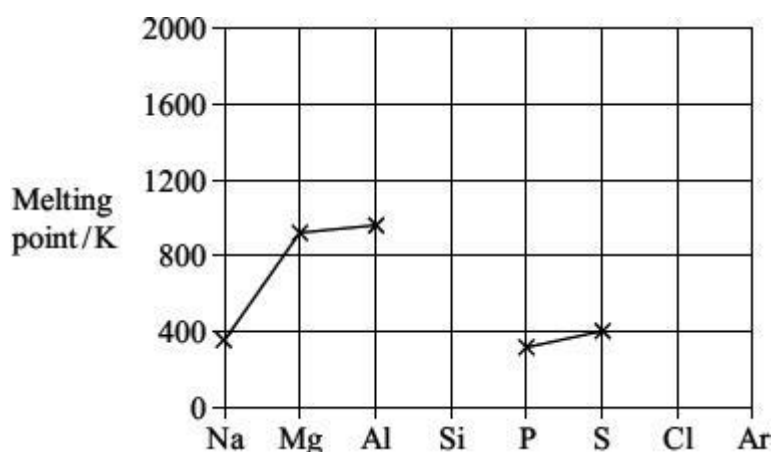
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**(2)**

**(Total 9 marks)**

Q2.

- (a) The diagram below shows the melting points of some of the elements in Period 3.



- (i) On the diagram, use crosses to mark the approximate positions of the melting points for the elements silicon, chlorine and argon. Complete the diagram by joining the crosses.

- (ii) By referring to its structure and bonding, explain your choice of position for the melting point of silicon.

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- (iii) Explain why the melting point of sulphur,  $S_8$ , is higher than that of phosphorus,  $P_4$

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(8)

- (b) State and explain the trend in melting point of the Group II elements Ca–Ba.

Trend \_\_\_\_\_

Explanation \_\_\_\_\_

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(3)

(Total 11 marks)