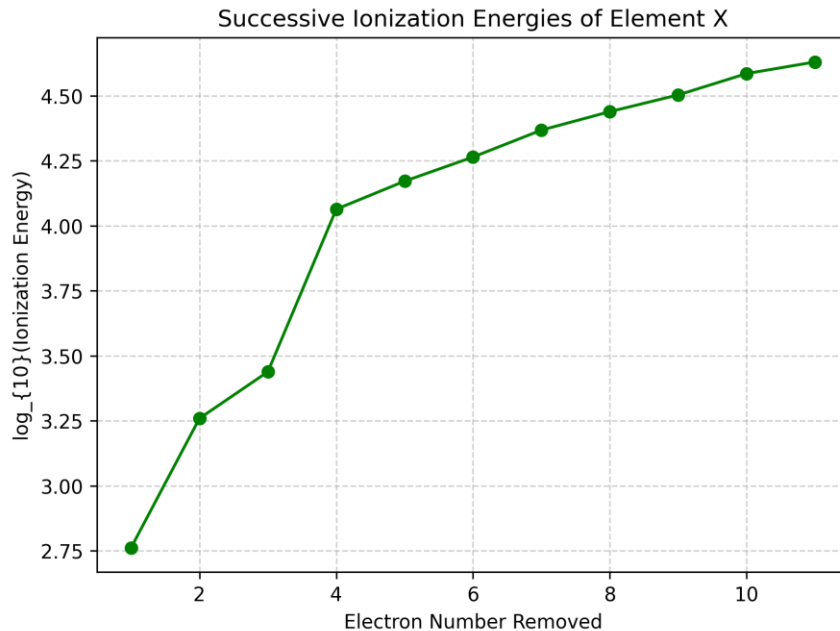


Chemistry
Higher level
Paper 1B

Practice paper

Topic: Periodicity (Topic 3 and 13 Subset)

1. The graph below shows the successive ionization energies of an unknown element X.



(a) Identify the group of element X and justify your answer based on the significant jump in the log-scale graph.

[2]

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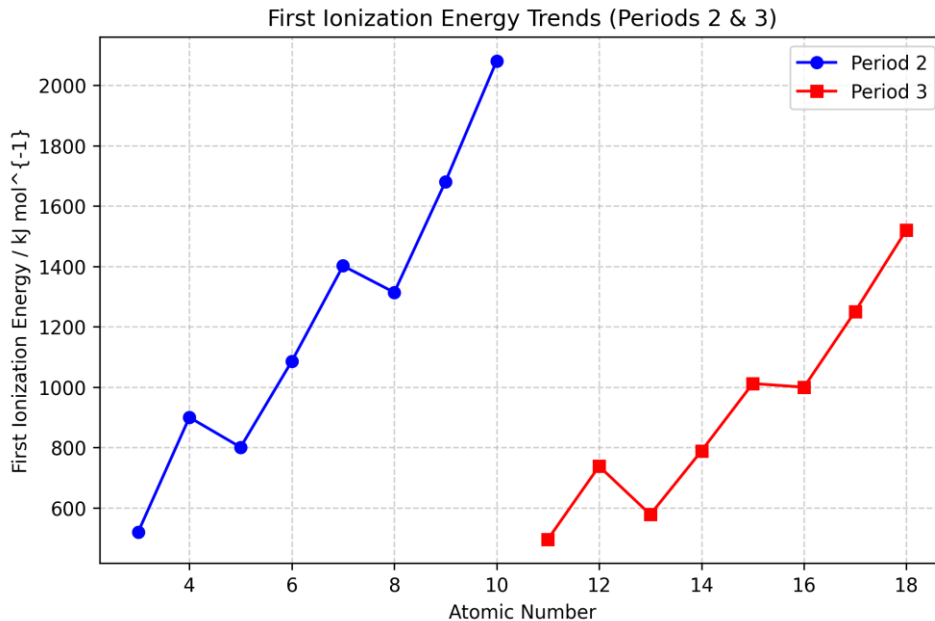
(b) Deduce the valence electron configuration for element X.

[1]

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2. The first ionization energies for Periods 2 and 3 are plotted below.



(a) Explain the decrease in first ionization energy from Nitrogen to Oxygen.

[2]

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3. Analyze the melting point data for selected Period 3 elements.

Na	Mg	Al	Si	P	S	Cl	Ar
371	923	933	1687	317	388	172	84

Melting Point / K

(a) Identify which substance represents Silicon. Explain its high melting point.

[2]

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(b) Explain the difference in melting points between Sodium and Aluminum based on their metallic bonding.

[2]

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