



**CHEMISTRY ONLINE**  
— **TUITION** —

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# CHEMISTRY

## INORGANIC CHEMISTRY

Level & Board	AQA (A-LEVEL)
TOPIC:	PERIODICITY
PAPER TYPE:	QUESTION PAPER - 4
TOTAL QUESTIONS	10
TOTAL MARKS	34

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## Periodicity - 4

1. This question is about Periodicity.

**(a)** Write the electronic configuration of Potassium and state the block in the Periodic Table to which it belongs.

**(2)**

**(b)** Describe the bonding in metals.

**(2)**

**(c)** Explain why the melting point of calcium is higher than that of Potassium.

**(3)**

**(d)** Explain how metals conduct electricity.

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(2)

2. Which is the correct classification for the element Nitrogen (N)?

- A. s block
- B. p block
- C. d block
- D. f block

(1)

3. This question is about p block elements.

(a) Explain why the elements nitrogen, oxygen, fluorine, and neon are classified as p block elements in the Periodic Table.

(2)

(b) Compare the trend in atomic radius from nitrogen to fluorine and provide an explanation for the observed trend.

(3)

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**(c)** In atomic terms, explain why neon, a noble gas, exhibits very low reactivity and does not readily form compounds with other elements.

**(3)**

4. Which of the following elements is a halogen?

- A. Sodium
- B. Fluorine
- C. Aluminum
- D. Calcium

**(1)**

5. This question is about Periodicity.

**(a)** Write an equation, including state symbols, to represent the process for which the energy change is the second ionisation energy of sodium.

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**(2)**

**(b)** Explain why the second ionisation energy of sodium is greater than the second ionisation energy of magnesium.

**(3)**

**6.** The first ionisation energy of oxygen is  $1314 \text{ kJ mol}^{-1}$  and the second ionisation energy of oxygen is  $3388 \text{ kJ mol}^{-1}$ .

**(a)** Write an equation to represent the second ionisation energy of oxygen. Include state symbols.

**(1)**

**(b)** Suggest why the second ionisation energy of oxygen has a greater value than the first ionisation energy of oxygen.

**(1)**

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7. Among the following elements, which one belongs to the same period as oxygen in the periodic table?

- A. Nitrogen
- B. Sulfur
- C. Sodium
- D. Magnesium

(1)

8. The electronic configuration of a bromine atom can be written in terms of sub-shells.

(a) Write the electronic configuration of a bromine atom.

(1)

(b) Why is bromine classified as a p-block element?

(1)

9. This question is about atomic structure.

(a) There is a general trend for an increase in ionisation energy across Period 3.

Give one example of an element that deviates from this trend.

Explain why this deviation occurs.

(3)

(b) Give an equation, including state symbols, to represent the process that occurs when the third ionisation energy of sodium is measured.

(1)

10. Which element is in the s-block of the Periodic Table?

- A. Oxygen
- B. Sodium
- C. Fluorine
- D. Chlorine

(1)

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