

Alkali metals, halogens and noble gases

Chemistry grades 9-10 (GCSE · IGCSE · O Level · Class 9-10) · Test

Name: _____ Date: _____ Class: _____ Mark: ____ / 20

This test covers the alkali metals, the halogens and the noble gases. Write balanced equations with state symbols where asked, show your working in calculations, and answer explain questions in complete sentences.

Level: Chemistry grades 9-10 (GCSE · IGCSE · O Level · Class 9-10) · **Curriculum:** GCSE C1, IGCSE 9

Time: 45 minutes · 8 questions · Total: 20 marks · Calculator allowed

Question 1 Potassium in water (3 marks)

Describe three observations when a small piece of potassium is added to water. (3 marks)

Question 2 Equation for potassium (3 marks)

Write the balanced equation, with state symbols, for potassium and water. State the pH of the final solution. (3 marks)

Question 3 Halogens in appearance (2 marks)

State the colour and physical state of chlorine and of iodine at 25 °C. (2 marks)

Question 4 Bromine and sodium iodide (3 marks)

Bromine water is added to sodium iodide solution.

- State what you would see. (1 mark)
- Write a balanced equation. (1 mark)
- Explain why this reaction happens. (1 mark)

Question 5 Noble gases (2 marks)

Explain why argon is unreactive and give one use of argon. (2 marks)

Question 6 Alkali metal trend (3 marks)

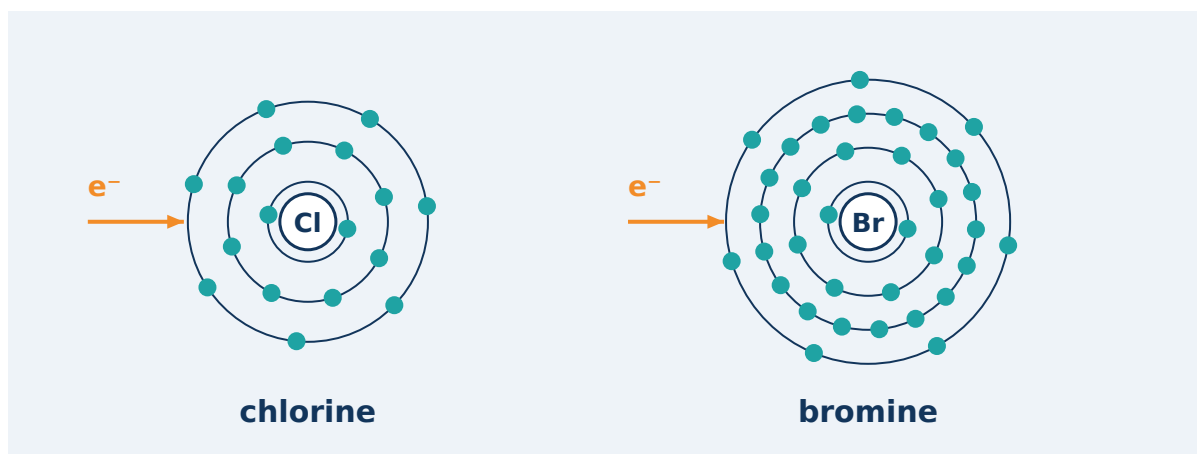
Explain why caesium is more reactive than lithium. (3 marks)

Question 7 Mass of sodium bromide (2 marks)

Chlorine reacts with sodium bromide: $\text{Cl}_2 + 2\text{NaBr} \rightarrow 2\text{NaCl} + \text{Br}_2$. Calculate the mass of sodium bromide (relative formula mass 103) that reacts completely with 0.0500 mol of chlorine. (2 marks)

Question 8 Halogen atoms (2 marks)

Use the diagram below to explain why chlorine is more reactive than bromine. (2 marks)



Chlorine and bromine atoms.