

1 What happens to the solubilities of the hydroxides and sulfates as Group 2 is descended?

	Solubility of hydroxides	Solubility of sulfates
<input type="checkbox"/> A	decreases	decreases
<input type="checkbox"/> B	decreases	increases
<input type="checkbox"/> C	increases	decreases
<input type="checkbox"/> D	increases	increases

(Total for Question = 1 mark)

2 Which of the following describes the appearance of iodine under the stated conditions?

	Solid	Dissolved in aqueous potassium iodide	Dissolved in a liquid hydrocarbon
<input type="checkbox"/> A	purple	brown	purple
<input type="checkbox"/> B	brown	blue-black	yellow
<input type="checkbox"/> C	shiny grey	brown	purple
<input type="checkbox"/> D	shiny grey	brown	brown

(Total for Question = 1 mark)

3 Which of the following reactions is the most likely to occur with chlorine in hot, concentrated sodium hydroxide solution?

- A $\text{Cl}_2 + 2\text{NaOH} \rightarrow \text{NaCl} + \text{NaClO} + \text{H}_2\text{O}$
- B $2\text{Cl}_2 + 4\text{NaOH} \rightarrow 3\text{NaCl} + \text{NaClO}_2 + 2\text{H}_2\text{O}$
- C $3\text{Cl}_2 + 6\text{NaOH} \rightarrow 5\text{NaCl} + \text{NaClO}_3 + 3\text{H}_2\text{O}$
- D $4\text{Cl}_2 + 8\text{NaOH} \rightarrow 7\text{NaCl} + \text{NaClO}_4 + 4\text{H}_2\text{O}$

(Total for Question = 1 mark)

4 When concentrated sulfuric acid is added to solid sodium bromide, bromine is produced.

When concentrated sulfuric acid is added to solid sodium chloride, **no** chlorine is produced.

The reason for this difference is

- A sulfuric acid is a strong acid.
- B hydrogen chloride is a weak acid.
- C the chloride ion is a weaker reducing agent than the bromide ion.
- D bromine is less volatile than chlorine.

(Total for Question = 1 mark)

5 Which of the following statements about the elements in Group 7 is **incorrect**?

- A They all show variable oxidation states in their compounds.
- B They all form acidic hydrides.
- C Electronegativity decreases as the group is descended.
- D They all exist as diatomic molecules.

(Total for Question = 1 mark)

6 What are the products, other than water, when chlorine is passed through cold, dilute aqueous sodium hydroxide solution?

- A NaCl and NaClO
- B NaClO and NaClO₃
- C NaCl and NaClO₃
- D NaClO and NaClO₄

(Total for Question = 1 mark)

7 Going down Group 7 from chlorine to iodine

- A the boiling temperature of the hydrogen halide decreases.
- B the polarity of the hydrogen halide bond increases.
- C the reducing power of the halide ion increases.
- D the oxidizing power of the halogen element increases.

(Total for Question = 1 mark)

8 Which of the following properties of the elements chlorine, bromine and iodine **increases** with increasing atomic number?

- A Boiling temperature
- B Bond enthalpy
- C Electronegativity
- D First ionization energy

(Total for Question = 1 mark)

9 Which of the following is **not** a true statement about hydrogen iodide?

- A It forms steamy fumes in moist air.
- B It dissolves in water to form an acidic solution.
- C It forms a cream precipitate with silver nitrate solution.
- D It forms dense white smoke with ammonia.

(Total for Question = 1 mark)