

## The Halogens (MCQ)

1. Which reaction shows chlorine only being oxidised?

- A  $\text{Cl}_2 + \text{H}_2\text{O} \rightarrow \text{HCl} + \text{HClO}$
- B  $2\text{ClO}_2 + 2\text{NaOH} \rightarrow \text{NaClO}_2 + \text{NaClO}_3 + \text{H}_2\text{O}$
- C  $4\text{KClO}_3 \rightarrow 3\text{KClO}_4 + \text{KCl}$
- D  $\text{MnO}_2 + 4\text{HCl} \rightarrow \text{MnCl}_2 + \text{Cl}_2 + 2\text{H}_2\text{O}$

Your answer

☐

[1]

2. What is the best explanation for the trend in boiling points down the halogens group?

- A The covalent bonds become stronger.
- B The hydrogen bonds become stronger.
- C The permanent dipole–dipole interactions become stronger.
- D The induced dipole–dipole interactions (London forces) increase.

Your answer

☐

[1]

3. Which silver compound is insoluble in concentrated  $\text{NH}_3(\text{aq})$ ?

- A  $\text{AgNO}_3$
- B  $\text{AgCl}$
- C  $\text{AgBr}$
- D  $\text{AgI}$

Your answer

☐

[1]

4. HBr(aq), forms two ions in solution.

Which observation is correct for reactions of HBr(aq)?

- A. It effervesces addition of sodium carbonate solution.
- B. It forms a white precipitate on addition of silver nitrate solution.
- C. It turns orange on addition of silver nitrate solution.
- D. It turns brown on addition of potassium chloride solution.

Your answer

[1]

5. Which halogen most readily forms 1– ions?

- A. bromine
- B. chlorine
- C. fluorine
- D. iodine

Your answer

[1]

6. Which row is correct?

	Highest pH when added to water	Most reactive halogen
A	MgO	F <sub>2</sub>
B	MgO	I <sub>2</sub>
C	BaO	F <sub>2</sub>
D	BaO	I <sub>2</sub>

Your answer

[1]

END OF QUESTION PAPER

# Mark scheme – The Halogens (MCQ)

Question			Answer/Indicative content	Marks	Guidance
1			D	1 (AO2.2)	<p><b><u>Examiner's Comments</u></b></p> <p>Despite most scripts being covered with annotations of oxidation numbers, only about half of all candidates obtained the correct answer of D.. Option B was the most common incorrect response, followed by option C. The annotations on these scripts often showed incorrect assignments of oxidation numbers.</p>
			<b>Total</b>	<b>1</b>	
2			D	1	<p><b>Examiner's Comments</b></p> <p>This part was generally well answered. The common incorrect answer was answer option A.</p>
			<b>Total</b>	<b>1</b>	
3			D	1	<p><b>Examiner's Comments</b></p> <p>Most candidates correctly identified answer option D as the correct insoluble compound. However, answer option A was a common incorrect answer, likely due to it being the only non-halide.</p>
			<b>Total</b>	<b>1</b>	
4			A	1	
			<b>Total</b>	<b>1</b>	
5			C	1	
			<b>Total</b>	<b>1</b>	
6			C	1	
			<b>Total</b>	<b>1</b>	