


Mark scheme

Question			Answer/Indicative content	Marks	Guidance
1	a		(Solution would) turn yellow / brown / orange / red ✓	1 (AO 2.2)	<p>ALLOW correct colour combinations e.g., orange-red</p> <p>IGNORE initial colour of solution</p> <p>DO NOT ALLOW a precipitate / solid / vapour</p> <p>DO NOT ALLOW fizzing / bubbles / effervescence</p> <p>Examiner's Comments</p> <p>Some candidates stated the type of reaction (displacement) rather than the correct observation. Responses stating that fizzing or a precipitate would be observed were also common, as were statements that there would be a colour change without describing the colour change.</p>
	b	i	Electrons are gained ✓	1 (AO 1.1)	<p>Examiner's Comments</p> <p>Most candidates correctly stated that electrons are gained.</p>
		ii	$2\text{Br}^- - 2\text{e}^- \rightarrow \text{Br}_2$ OR $2\text{Br}^- \rightarrow \text{Br}_2 + 2\text{e}^-$ Formulae ✓ Balancing ✓	2 (2 × AO 2.2)	<p>ALLOW any correct multiple, including fractions</p> <p>DO NOT ALLOW and / & instead of '+'</p> <p>Balancing mark is dependent on the correct formulae but</p> <p>ALLOW 1 mark for a balanced equation with a minor error in subscripts / formulae e.g., $2\text{br}^- - 2\text{e}^- \rightarrow \text{Br}_2$</p> <p>Examiner's Comments</p> <p>Lots of candidates found it difficult to give the correct response for this question. Less successful responses gave the equation for the reverse reaction, i.e. $\text{Br}_2 \rightarrow 2\text{Br}^- - 2\text{e}^-$.</p>

					 OCR support When carrying out PAG C1 – Reactivity trends of halogens it would be appropriate to take time to reinforce the half equations involved too. This practical group can be used to reinforce the knowledge assessed in topics C3 and C4.
	c		Idea that chlorine gains electrons more easily (than bromine) / ORA ✓ (Because) incoming electron is closer to nucleus / greater attraction between nucleus and incoming electron / less shielding / ORA ✓	2 (2 × AO 1.1)	Assume unqualified answer refers to chlorine, unless clearly describing the trend in reactivity up or down Group 7 IGNORE idea that chlorine gains electrons faster or more quickly (than bromine) / ORA ALLOW chlorine has fewer (electron) shells <u>Examiner's Comments</u> Successful responses to this question explained that chlorine has a greater attraction between the nucleus and the incoming electron (because chlorine has fewer shells) and so gains electrons more easily. Lower attaining candidates simply stated the trend in reactivity down the group or referred to chlorine losing electrons.
			Total	6	
2			D ✓	1(AO1.1)	
			Total	1	
3			B ✓	1 (AO1.1)	
			Total	1	