Question	Part	Sub Part	Marking Guidance	Mark	Comments
3	(a)		By definition	1	allow 'set to this value'
3	(b)		1.23 V	1	Allow + or -
3	(c)		$Pt\|H_2(g)\|OH^-(aq),H_2O(l)\|\|O_2(g)\|H_2O(l),OH^-(aq)\|Pt$ Correct but with Pt missing Includes Pt with correct representation	 1 1	H_2O not essential, allow reverse order
3	(d)		Uses $O_2 + 2H_2O + 4e^- \rightarrow 4OH^-$ And (2x) $2OH^- + H_2 \rightarrow 2H_2O + 2e^-$ $2H_2 + O_2 \rightarrow 2H_2O$	1 1	
3	(e)		Increases the surface area (so reaction faster)	1	
3	(f)		Overall reaction is the same ($2H_2 + O_2 \rightarrow 2H_2O$)	1	Or shows e.m.f. is the same
3	(g)		Hydrogen and oxygen supplied continuously ***OR*** Can be operated without stopping to recharge	1	Or can be refuelled quickly Allow any one mark
3	(h)		Hydrogen may need to be made using an energy source that is not 'carbon neutral'	1	