Question	Marking Guidance	Mark	Comments
5(a)	It has mobile ions / ions can move through it / free ions	1	Do not allow movement of electrons. Allow specific ions provided they are moving but do not react.
5(b)	Chloride ions react with copper ions / Cu^{2+} ***OR*** $[CuCl_4]^{2-}$ formed	1	If incorrect chemistry, mark = 0
5(c)	The Cu^{2+} ions / $CuSO_4$ in the left-hand electrode more concentrated So the reaction of Cu^{2+} with $2e^-$ will occur (in preference at) left-hand electrode / $Cu \rightarrow Cu^{2+}$ + electrons at right-hand electrode	1 1	Allow converse. Allow left-hand electrode positive / right-hand electrode negative. Also reduction at left-hand electrode / oxidation at right-hand electrode. Also left-hand electrode has oxidising agent / right-hand electrode has reducing agent. Allow *E* left-hand side > *E* right-hand side
5(d)	(Eventually) the copper ions / $CuSO_4$ in each electrode will be at the same concentration	1	
5(e)(i)	-3.05 (V)	1	Must have minus sign. -3.05 only.

5(e)(ii)	$LiMnO_2 \rightarrow Li + MnO_2$ correct equation Correct direction	1 1	Allow 1 for reverse equation. Allow multiples. If Li+ not cancelled but otherwise correct, max = 1 If electrons not cancelled, CE = 0 $LiMnO_2 \rightarrow Li + MnO_2$ scores 2 $Li^+ + LiMnO_2 \rightarrow Li^+ + Li + MnO_2$ scores 1 $Li + MnO_2 \rightarrow LiMnO_2$ scores 1

5(e)(iii)	Electricity for recharging the cell may come from power stations <u>burning</u> (fossil) fuel	1	Allow any reference to <u>burning</u> (of carbon-containing) fuels. Note combustion = burning.