Question	Marking Guidance	Mark	Comments
6(a)	$2MnO_4^- + 16H^+ + 5C_2O_4^{2-} \rightarrow 2Mn^{2+} + 8H_2O + 10CO_2$	1 1	For all species correct / moles and species correct but charge incorrect For balanced equation including all charges (also scores first mark)
6(b)	Manganate(VII) ions are coloured (purple) All other reactants and products are **not** coloured (or too faintly coloured to detect)	1 1	 Allow (all) other species are colourless Allow Mn^{2+} are colourless / becomes colourless / pale pink
6(c)	The catalyst for the reaction is a reaction product Reaction starts off slowly / gradient shallow Then gets faster/rate increases / gradient increases	1 1 1	 Allow concentration of MnO_4^- decreases faster / falls rapidly
6(d)	Mn^{2+} ions	1	Allow Mn^{3+} ions
6(e)	$MnO_4^- + 8H^+ + 4Mn^{2+} \rightarrow 5Mn^{3+} + 4H_2O$ $2Mn^{3+} + C_2O_4^{2-} \rightarrow 2Mn^{2+} + 2CO_2$	1 1	Allow multiples