Question Number	Acceptable Answer	Additional guidance	Mark
6(a)	An answer that gives reference to the following • **(M1)** use of ethanol (as a solvent) **(1)** • **(M2)** use of silver nitrate (solution) **(1)** • **(M3)** equal amounts used of each halogenoalkane **(1)** • **(M4)** measure the time taken for precipitate to form **(1)** • **(M5)** use a water bath (to control a raised temperature) **(1)**	Allow "alcohol" Do not award ammoniacal silver nitrate Ignore use of nitric acid Allow equal volumes/equal stated volumes Allow "time for cross to disappear" Do not award for a colour to form. M4 dependent on M2 or near miss. If hydroxide (ions) used for hydrolysis then measuring the reaction is too quick, so no M4. The solution would need to be acidified before the addition of silver nitrate if M2 is to be awarded. If hydrochloric acid is used, then only M1, M3 and M5 can be scored	**(5)**

Question Number	Acceptable Answer	Additional guidance	Mark
6(b)	An explanation that makes reference to the following • the reaction rate is in the order 1-chlorobutane<1-bromobutane<1-iodobutane **(1)** • because the C-Cl bond is stronger than the C-Br bond which is stronger than the C-I bond **(1)**	Accept reverse arguments Incorrect trend scores (0) Allow 'the C-Cl bond is the strongest' Ignore any reasoning given Do not award if reference is made to the bonding of the halide (ion)	**(2)**