

- M1.** (a) A shared electron pair or a covalent bond **(1)**
 Both electrons from one atom **(1)**
OR when a Lewis base reacts with a Lewis acid
Mark points separately 2
- (b) *Brønsted-Lowry acid*: A proton or H^+ donor **(1)**
Not H_3O^+
Lewis acid: A lone or electron pair acceptor **(1)** 2
- (c) Two atoms or two points of attachment **(1)**
 Each donating a lone electron pair **(1)**
OR forms 2 (1) co-ordinate bonds (1)
OR donates two (1) pairs of electrons (1) 2
- (d) *Change in co-ordination number*: 6 to 4 **(1)**
Reason for change: chloride ligands are larger than water ligands **(1)** 2
OR greater repulsion between chloride ligands
DO NOT allow chlorine or Cl
- (e) Same number **(1)**, and same type of bonds **(1)**, broken and made 2
- (f) $C_2H_{10}N_2Cl_2$ **(1)**
OR $(NH_3CH_2CH_2NH_3)^{2+} 2Cl^-$
Allow $C_2H_{10}N_2Cl_2$ and $NH_3ClCH_2CH_2NH_3Cl$ 1

[11]

M2.D

[1]

M3.A

[1]