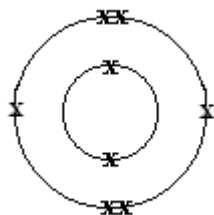


Structure and bonding

Mark scheme

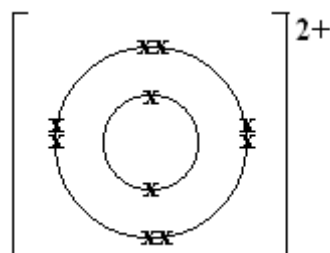
1. (a) $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ 1
 accept correct multiples / fractions

(b) 1



electrons do not need to be paired
 accept dots / circles / e instead of crosses
 do **not** allow 2.6 without diagram

(c) 1



electrons do not need to be paired
 allow without bracket s/ must have the charge
 accept dots / circles / e instead of crosses
 ignore extra empty outer shells
 ignore nucleus
 do **not** allow $[2.8]^{2+}$ without diagram

(d) oppositely charged (ions / atoms) 1
 allow positive and negative(ions / atoms)

(they) attract 1
 must be in correct context
 accept held by electrostatic forces
 ignore ionic bonding
maximum 1 if they refer to intermolecular forces / attractions / covalent bonds

(e) magnesium chloride 1
 accept MgCl_2 (if correctly written)

			[6]
2.	(a) CH ₄	1	
	<i>4 should be below halfway up H / tail of 4 below the dotted line</i>		
	(b) molecule	1	
	(c) covalent	1	
			[3]
3.	(i) can be from diagram chlorine (2.8).7.	1	
	<i>accept chlorine needs one more electron</i>		
	can be from diagram shares <u>a pair</u> of electrons	1	
	shared pair of electrons is a covalent bond	1	
	<i>do not accept ionic bond</i>		
	(ii) can be from diagram and appropriately annotated sodium (2.8). 1. and chlorine (2.8).7	1	
	sodium loses one electron and chlorine gains one electron	1	
	Na ⁺ and Cl ⁻ formed	1	
	bond formed between oppositely charged ions or ionic bond is formed	1	
	<i>do not accept covalent bond</i>		
			[7]