

Ionic compounds

Mark scheme

1. (a) positive *for 1 mark* 1
- (b) any reference to loss of electrons 2
for 1 mark
- reference to charge being +2 (in (a)) or to loss of 2 electrons (in (b))
for 1 mark
- [3]
2. (i) two *or 2* 1
- (ii) magnesium **and** chloride 1
either order; not positive / negative; ;do not credit 'chlorine'
*accept Mg⁺⁺ **and** Cl; do not credit just Mg and Cl*
*accept cation(s) **and** anion(s)*
- (iii) 2 1
- (iv) electrons *accept charges* 1
- (v) any **three** from 3
- (is a) giant structure/lattice structure
 - crystalline / hard *accept just 'crystals(s)'*
 - high melting point / solid
 - high boiling point
 - conductor (of electricity) when dissolved **in** water
or conductor (of electricity) when ions are free to move
 - conductor (of electricity) when molten
 - soluble in water
- [7]
3. (a) $2 \text{ Na} + \text{Cl}_2 \rightarrow 2 \text{ NaCl}$ *allow 2 Na⁺ Cl⁻* 1
for 1 mark (allow Na + 1/2 Cl₂ → Na Cl)
- (b) (i) idea that 1
- it has strong (attractive) forces/bonds between ions / charged particles
for 1 mark
- (not '..it has a rigid structure'- this defines a solid or '...particles close together' - they are in a liquid)*
- (ii) ideas that 2
- there is increased vibration of ions / particles on heating
 - ions have sufficient energy to overcome attractive forces / to break out of the rigid structure / to move about
- (must be in terms of increased energy of particles ions) each for 1 mark*
- (iii) ions can go to electrodes / ions are free to move 1
for 1 mark [do not credit 'ions carry charges']
- [5]