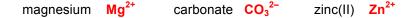


1 Give the formula of the following ions.



2 Give the formula of the following ionic compounds.

sodium oxide	Na ₂ O	aluminium sulfide	Al_2S_3
calcium hydroxide	Ca(OH) ₂	ammonium sulfate	(NH ₄) ₂ SO ₄

3 Identify the structure type of the following substances.

name	propane	diamond	buckminster -fullerene	potassium bromide	bromine	argon	copper oxide	zinc
formula	C₃H₀	С	C ₆₀	KBr	Br ₂	Ar	CuO	Zn
giant covalent		✓						
ionic				✓			✓	
metallic								<
molecular	✓		✓		✓			
monatomic						✓		

- 4 This question is about some different forms (allotropes) of the element carbon.
 - **a** Explain why diamond, graphite and graphene have high melting points.

have giant covalent structures need to break covalent bonds to melt covalent bonds are strong

b Explain why graphite and graphene conduct electricity.

has some delocalised electrons (one from each atom) so can carry charge through the substance

c Explain why diamond is hard but graphite is soft.

diamond: each C atom makes 4 covalent bonds in rigid 3D-network graphite: each C atom makes 3 covalent bonds forming layers; weak forces between layers