1. Table 1.1 shows the valencies and formulae of some common ions.

		Valency		
		1	2	3
Positive ions (cations)	metals	sodium (Na^+) potassium (K^+) silver (Ag^+)	magnesium (Mg^{2+}) copper (Cu^{2+}) zinc (Zn^{2+}) iron (Fe^{2+})	aluminium (Al^{3+}) iron (Fe^{3+}) chromium (Cr^{3+})
	compound ions	ammonium (NH_4^+)		
Negative ions (anions)	non-metals	choride (Cl^-) bromide (Br^-) iodide (I^-)	oxide (O^{2-}) sulphide (S^{2-})	nitride (N^{3-})
	compound ions	nitrate (NO_3^-) hydroxide (OH^-)	carbonate (CO_3^{2-}) sulfate (SO_4^{2-})	phosphate (PO_4^{3-})

Use the information in the table to work out the formulae of the following ionic compounds:

a Copper oxide .....

b Sodium carbonate .....

c Zinc sulfate .....

d Silver nitrate .....

e Ammonium sulfate .....

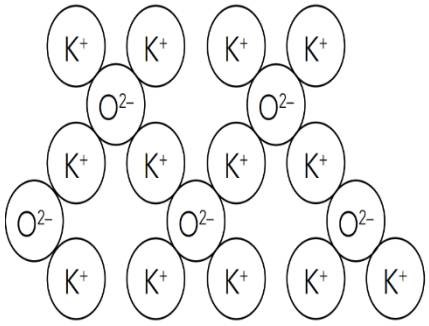
f Potassium phosphate .....

g Iron(III) hydroxide .....

TIP

When writing a formula of an ionic compound from a diagram of the structure, make sure you write the simplest ratio of the ions present.

2. Figure 2.2 is a representation of the structure of an ionic oxide.



a. What is the ratio of K+ ions to O2– ions?.....

b. What is the formula of this compound?.....

3. The table shows the numbers of atoms present in the formula of some compounds.

Which row is **not** correct?

	numbers of atoms	formula
A	1 × calcium, 1 × carbon, 3 × oxygen	$CaCO_3$
B	1 × carbon, 5 × hydrogen, 1 × oxygen	C_2H_5OH
C	1 × hydrogen, 1 × oxygen, 1 × sodium	NaOH
D	2 × hydrogen, 4 × oxygen, 1 × sulfur	H_2SO_4

4. A compound contains one atom of calcium, two atoms of hydrogen and two atoms of oxygen.

What is the correct chemical formula of the compound?

A CaO_2H_2 **B** HOCaOH **C** H_2CaO_2 **D** $Ca(OH)_2$

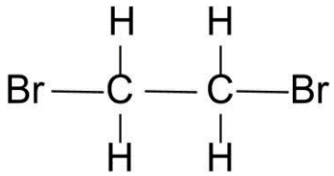
5. A compound contains 3 carbon atoms and 8 hydrogen atoms. Write the chemical formula of this compound.

……..

6. What is the chemical formula of sodium oxide, formed from Na+ and O2- ions? Show criss- cross/ratio method.

7. What is the chemical formula of magnesium hydroxide, formed from Mg2+ and OH- ions?

8. What is the formula for the compound shown in the diagram ?



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