

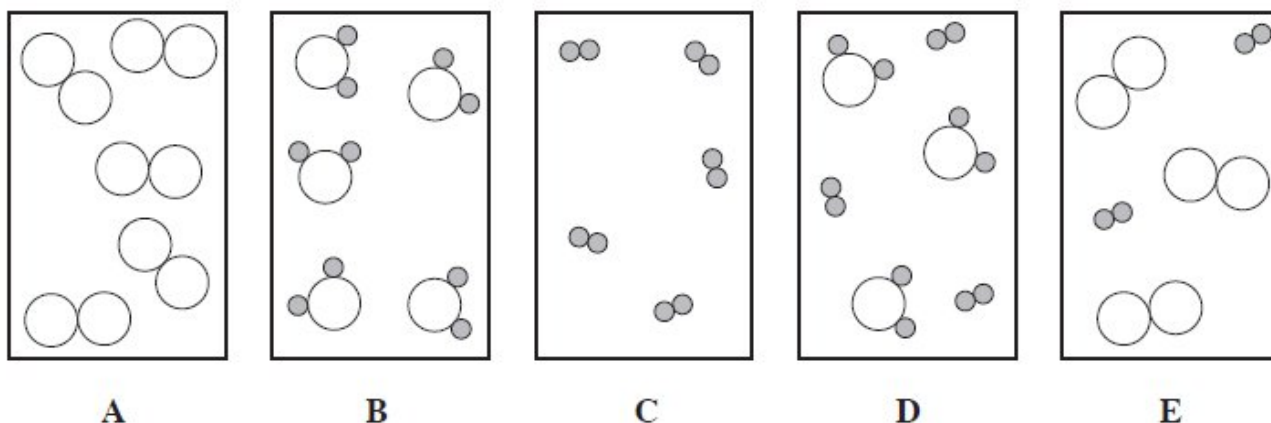


1) The diagrams below, labelled **A**, **B**, **C**, **D** and **E**, represent particles of some chemicals. Atoms of different elements are represented by  and .



Give the letter of a box which contains a) only an element .....[1]f

b) a mixture of an element and a compound..... [1]f

c) only water vapour, H<sub>2</sub>O..... [1]f

2) The table to the right shows some compounds and their formulae. **Use this information, along with your Periodic Table**, to answer the following questions;

<i>Name of compound</i>	<i>Formula</i>
water	H <sub>2</sub> O
methane	CH <sub>4</sub>
carbon dioxide	CO <sub>2</sub>
ammonia	NH <sub>3</sub>
hydrogen chloride	HCl

a) **Name** the compound that consists of the elements

i) carbon and oxygen.....[1]f

ii) carbon and hydrogen.....[1]f

iii) nitrogen and hydrogen.....[1]f

b) **Name** the elements present in a molecule of

i) water .....[1]f

ii) hydrogen chloride..... [1]f

3) "Compounds are formed when two or more different elements join together. Every compound has its own formula. Some compounds, such as iron oxide,  $\text{Fe}_2\text{O}_3$ , and sodium chloride,  $\text{NaCl}$ , are used as raw materials by the chemical industry. Iron oxide is used to make iron,  $\text{Fe}$ . Sodium chloride is used to make hydrogen,  $\text{H}_2$ , chlorine,  $\text{Cl}_2$ , and sodium hydroxide,  $\text{NaOH}$ . The chemical industry makes many useful compounds such as sulphuric acid,  $\text{H}_2\text{SO}_4$  and ammonia,  $\text{NH}_3$ ."

**Use the information above, along with your Periodic Table, to answer the following questions.** a) Give an example of

i) a compound..... [1]f

ii) an element.....[1]f

b) State how compounds are formed.....  
..... [1]f

c) Name the three elements present in sulphuric acid,  $\text{H}_2\text{SO}_4$ .....  
.....[1]f

d) Give the **total** number of atoms shown in the formula

i)  $\text{NaOH}$  .....[1]f    ii)  $\text{NH}_3$  .....[1]f

iii)  $\text{H}_2\text{SO}_4$  .....[1]f

4) The key below represents atoms of some elements



carbon, C



hydrogen, H



nitrogen, N

a) Methane gas has the formula  $\text{CH}_4$ . Choose the **letter** of the diagram below that best represents a molecule of methane

..... [1]f



A



B



C



D

b) **Using the same key**, draw diagrams representing the molecules

i) hydrogen,  $\text{H}_2$     [1]f

ii) ammonia,  $\text{NH}_3$     [1]f

5) a) Fizzy drinks, such as lemonade, contain carbonic acid. Each molecule of carbonic acid contains two atoms of hydrogen, one atom of carbon and three atoms of oxygen. Give the formula of carbonic acid

..... [2]f

b) Cola drinks also contain phosphoric acid. Each molecule contains three atoms of hydrogen, one atom of phosphorus and four atoms of oxygen. Give the formula of phosphoric acid

..... [2]f

6) a) Complete the table below

[12]f/h

<b>Name of compound</b>	<b>Metal ion present</b>	<b>Non-metal ion present</b>	<b>Formula</b>
Sodium chloride	Na <sup>+</sup>	Cl <sup>-</sup>	NaCl
Potassium fluoride	K <sup>+</sup>	F <sup>-</sup>	
Lithium oxide	Li <sup>+</sup>	O <sup>2-</sup>	
Barium oxide	Ba <sup>2+</sup>	O <sup>2-</sup>	
Silver iodide	Ag <sup>+</sup>	I <sup>-</sup>	
Magnesium bromide	Mg <sup>2+</sup>	Br <sup>-</sup>	
Calcium hydroxide	Ca <sup>2+</sup>	OH <sup>-</sup>	
Potassium nitrate	K <sup>+</sup>	NO <sub>3</sub> <sup>-</sup>	
Magnesium carbonate			MgCO <sub>3</sub>
Sodium sulphate	Na <sup>+</sup>	SO <sub>4</sub> <sup>2-</sup>	
Copper(II) nitrate	Cu <sup>2+</sup>	NO <sub>3</sub> <sup>-</sup>	
			Al <sub>2</sub> O <sub>3</sub>

b) What name is given to the type of compounds shown in the table above?

.....

[1]f

c) What is transferred from metal atoms to non-metal atoms in order to form the positively charged metal ions and negatively charged non-metal ions?

.....

[1]h

7) The diagram below represents the chemical reaction between hydrogen and oxygen



a) State two things you notice about the **atoms** in the diagram, which would also be true for any chemical reaction. [2]h

1.....

2.....

b) Write a balanced symbol equation for the reaction shown in the diagram [2]h