

9 The molecular formulae of four compounds are listed.

- 1 CH₄
- 2 C₂H₆
- 3 C₃H₈
- 4 C₃H₆

Which molecular formulae are also the empirical formulae for the compounds?

- A** 1 and 2 **B** 1 and 3 **C** 2 and 4 **D** 3 and 4

11 A compound contains 40.0% carbon, 6.7% hydrogen and 53.3% oxygen only.

The relative molecular mass, M_r , of the compound is 60.

Which row shows the empirical formula and the molecular formula of the compound?

	empirical formula	molecular formula
A	CH ₂ O	CH ₂ O
B	CH ₂ O	C ₂ H ₄ O ₂
C	C ₃ H ₇ O ₃	C ₃ H ₇ O ₃
D	C ₃ H ₈ O	C ₃ H ₈ O

9 Which compound has an empirical formula that is the same as its molecular formula?

- A** butane
B but-1-ene
C butanoic acid
D butan-1-ol

10 Which row identifies the charge on the chromium ion and on the sulfate ion in Cr₂(SO₄)₃?

	Cr	SO ₄
A	2+	3–
B	2–	3+
C	3+	2–
D	3–	2+

8 Three organic molecules are described.

- The molecular formula of propanoic acid is $\text{CH}_3\text{CH}_2\text{COOH}$.
- The molecular formula of lactic acid is $\text{CH}_3\text{CH}(\text{OH})\text{COOH}$.
- A glucose molecule consists of 6 carbon atoms, 6 oxygen atoms and 12 hydrogen atoms only.

Which molecules have the same empirical formula?

- A** propanoic acid, lactic acid and glucose
- B** propanoic acid and lactic acid only
- C** propanoic acid and glucose only
- D** lactic acid and glucose only

IGCSE Chemistry: **s25 22**

8 Aluminium reacts with iron(III) oxide to form aluminium oxide and iron.

Which chemical equation for the reaction between aluminium and iron(III) oxide is correct?

- A** $\text{Al} + \text{FeO} \rightarrow \text{AlO} + \text{Fe}$
- B** $2\text{Al} + \text{Fe}_2\text{O} \rightarrow \text{Al}_2\text{O} + 2\text{Fe}$
- C** $\text{Al} + \text{Fe}_2\text{O}_3 \rightarrow \text{Al}_2\text{O}_3 + \text{Fe}$
- D** $2\text{Al} + \text{Fe}_2\text{O}_3 \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$

IGCSE Chemistry: **s25 23**

8 A compound is analysed and found to contain 85.7% carbon and 14.3% hydrogen only.

What is its empirical formula?

- A** CH
- B** CH_2
- C** C_2H_4
- D** C_6H

IGCSE Chemistry: **m25 22**

9 Which formula for the named compound is correct?

- A** calcium oxide, CaO
- B** cobalt(II) chloride, Co_2Cl
- C** sulfur dioxide, S_2O_2
- D** anhydrous copper(II) sulfate, $\text{Cu}(\text{SO}_4)_2$

11 An organic compound, Q, contains carbon, hydrogen and oxygen only.

Q contains 40.0% carbon and 6.7% hydrogen by mass.

What is the empirical formula of Q?

A CHO

B CH₂O

C C₂HO₂

D C₃H₆O₃