

Chemical Analysis

Multiple Choice Questions

Set 4 (Chemistry Only)

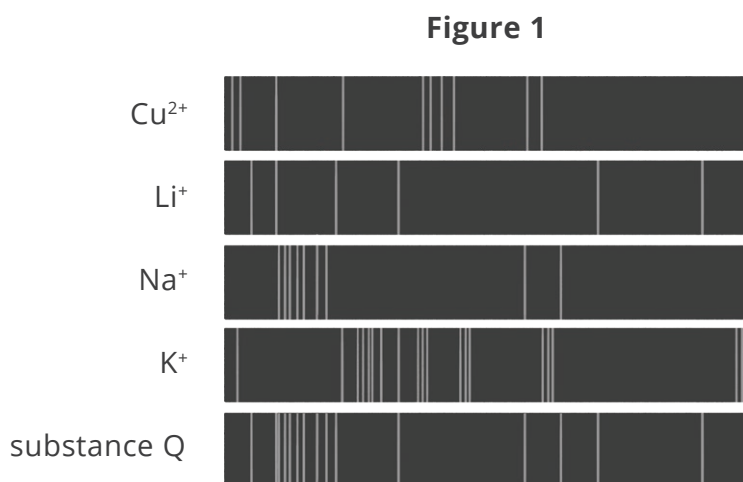
You may use a periodic table to help you answer these questions.

Tick **one** box.

1. Which of these is **not** an advantage of using instrumental methods to identify substances?

- A. they are accurate ☐
- B. they are cheap ☐
- C. they are rapid ☐
- D. they are sensitive ☐

Figure 1 shows the flame emission spectra of substance Q and some common ions.



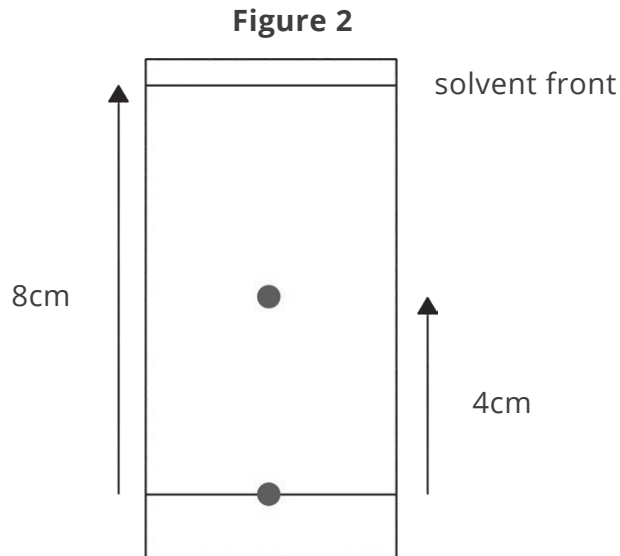
2. Which ions does substance Q contain?

- A. Cu^{2+} and Na^+ ions ☐
- B. K^+ ions only ☐
- C. K^+ and Li^+ ions ☐
- D. Na^+ and Li^+ ions ☐

3. A student placed a glowing splint at the opening of a test tube containing an unknown gas. The glowing splint relit. Which gas did the test tube contain?

- A. hydrogen ☐
- B. oxygen ☐
- C. carbon dioxide ☐
- D. chlorine ☐

Figure 2 shows a chromatogram of a sample of red ink.



4. What is the R_f value for the red ink in **Figure 2**?

- A. 0.5 ☐
- B. 2 ☐
- C. 12 ☐
- D. 32 ☐

5. A dairy farmer sells the milk from their cows without adding anything to it. The bottle describes the milk as 'pure'. Can the milk accurately be described as pure?

- A. No, because the milk contains only one element. ☐
- B. No, because milk is never pure. ☐
- C. Yes, because, in everyday language, pure means nothing has been added to the milk. ☐
- D. Yes, because the milk contains only one compound. ☐

6. What is a formulation?

- A. a mixture that has been designed as a useful product ☐
- B. an equation to calculate the amount of a component in a mixture ☐
- C. any mixture ☐
- D. a pure substance ☐

A student carried out the chemical tests for some common anions on four unknown white compounds labelled A, B, C and D. Their observations are recorded in **Table 1**.

Table 1

Compound	Anion Test		
	dilute acid	barium chloride solution and dilute hydrochloric acid	silver nitrate solution and dilute nitric acid
A	no change	formed a white precipitate	no change
B	no change	no change	formed a white precipitate
C	produced a gas which turned limewater cloudy	no change	no change
D	no change	no change	formed a yellow precipitate

7. Which substance could be potassium sulfate, K_2SO_4 ?

- A. A ☐
- B. B ☐
- C. C ☐
- D. D ☐

8. Which substance could be calcium carbonate, $CaCO_3$?

- A. A ☐
- B. B ☐
- C. C ☐
- D. D ☐

9. Which substance contains chloride ions?

- A. A ☐
- B. B ☐
- C. C ☐
- D. D ☐

10. Which colour flame test would indicate that the compound containing chloride ions was likely to be potassium chloride?

- A. crimson ☐
- B. green ☐
- C. lilac ☐
- D. yellow ☐