



Chemical Analysis

Multiple Choice Questions

Set 5 (Chemistry Only)

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

Tick **one** box.

1. In a flame test, what colour flame would you expect to observe for a compound containing lithium ions?

- A. crimson
- B. lilac
- C. orange-red
- D. yellow

2. A student carried out a flame test on a substance labelled as W. A green flame was observed. What can the student conclude?

- A. W contains Cu^{2+} ions
- B. W contains Fe^{2+} ions
- C. W contains Na^+ ions
- D. W contains SO_4^{2-} ions

3. When a small amount of sodium hydroxide is added to a colourless solution, a white precipitate forms. When excess sodium hydroxide is added, the precipitate dissolves. Which of the following cations could be present in the solution?

- A. Al^{3+}
- B. Ca^{2+}
- C. Fe^{3+}
- D. Na^+

4. Which statement about flame emission spectroscopy is **not** true?

- A. the concentration of the sample can be measured
- B. the line spectrum produced can be used to identify metal ions in the sample
- C. the sample is placed into a flame
- D. the sample needs to be solid

5. That is one advantage of using instrumental methods to identify elements and compounds?

- A. they are accurate
- B. they are expensive
- C. they are insensitive
- D. they take longer than simple chemical tests



6. What is the correct balanced equation for the reaction between magnesium chloride solution and sodium hydroxide solution?
- A. $\text{MgCl}_2 (\text{aq}) + \text{NaOH} (\text{aq}) \longrightarrow \text{Mg}(\text{OH})_2 (\text{s}) + \text{NaCl} (\text{aq})$
- B. $\text{MgCl}_2 (\text{aq}) + 2\text{NaOH} (\text{aq}) \longrightarrow \text{Mg}(\text{OH})_2 (\text{s}) + 2\text{NaCl} (\text{aq})$
- C. $\text{MgCl} (\text{aq}) + \text{NaOH} (\text{aq}) \longrightarrow \text{MgOH} (\text{s}) + \text{NaCl} (\text{aq})$
- D. $2\text{MgCl} (\text{aq}) + \text{NaOH} (\text{aq}) \longrightarrow 2\text{MgOH} (\text{s}) + \text{NaCl} (\text{aq})$
7. A student has made sodium chloride crystals in the laboratory. How could they test the purity of their product?
- A. analyse its flame emission spectrum
- B. carry out a flame test
- C. determine the melting point of the crystals
- D. observe the crystals under a microscope
8. Which of the following indicates a positive result when testing for carbon dioxide gas?
- A. a burning splint produces a squeaky pop
- B. a glowing splint relights
- C. damp litmus paper is bleached
- D. limewater turns milky (cloudy)
9. Which compound forms a yellow precipitate when silver nitrate and nitric acid are added to it in solution and produces a yellow flame in a flame test?
- A. calcium bromide
- B. calcium iodide
- C. sodium bromide
- D. sodium iodide
10. Which method could be used to determine the number of compounds in a mixture?
- A. chromatography
- B. flame test
- C. melting point analysis
- D. titration