

**IGCSE CHEMISTRY P1V2
KEY**

Objective Section

Marks: 25

1. D
2. D
3. A
4. C
5. B
6. C
7. D
8. A
9. B
10. A
11. B
12. A
13. A
14. B
15. D
16. B
17. D
18. B
19. A
20. C
21. A
22. C
23. B
24. B
25. A

Theoretical Portion**Total Marks: 45****1.**

(a) Potassium chloride.

(b) $2\text{H}^+(\text{aq}) + 2\text{OH}^-(\text{aq}) \rightarrow 2\text{H}_2\text{O}(\text{l}) + 2\text{K}^+(\text{aq}) + 2\text{Cl}^-(\text{aq})$.

(c) Copper oxide and copper carbonate.

(d) Step 2: Heating promotes faster reaction kinetics, increasing the rate of magnesium oxide dissolution.

Step 5: Ensures complete reaction between magnesium oxide and sulfuric acid.

Step 6: Removes undissolved impurities, yielding a clear solution for crystallization.

(e) The filtrate should be gently evaporated using a controlled heat source to avoid splattering and ensure gradual solution concentration until crystals form.

(f) Volume of chlorine = 9 dm^3 .

2.

(a) Flame emission spectroscopy and flame assay.

(b) White.

(c) Barium chloride solution and sulfate ions.

(d) Mass (3 significant figures) = 206 g.

3.

(a) Liquid, Gas.

(b) Boiling points increase down the group due to stronger van der Waals forces.

(c) The boiling point is a bulk property, not for individual molecules.

(d) Conducting in a fume hood prevents the release of harmful gases.

(e) Reactivity decreases due to increased atomic size and decreased electronegativity.

(f) Moles ratio: Iron atoms = 1, Chlorine atoms = 3.

Equation: $\text{Fe} + 3\text{Cl}_2 \rightarrow \text{FeCl}_3$

4.

(a) Hydrocarbon B: C_4H_{10} .

(b) Ratio = 2 : 4.

(c) Hydrocarbon D.

(d) Hydrocarbon A.

(e) Carbon dioxide and Water.

(f) Relative formula mass (M_r) = 58.

Practical Portion

Marks 30

Q1:

- (a) Increase water temperature.
- (b) Filter after decantation.
- (c) Wear safety gear.
- (d) A: Evaporation; B: Condensation.

Temperature: 100°C.

Q2:

Procedure:

1. Mix copper carbonate with dilute sulfuric acid in a round-bottom flask.
2. Attach reflux condenser.
3. Heat gently using a Bunsen burner.
4. Allow to cool after reaction.
5. Filter mixture.
6. Wash copper sulfate crystals with water.
7. Evaporate water from crystals in an evaporating dish.
8. Collect pure copper sulfate crystals.

Q3: a)

- Labeled with 'Pure Water' at the collection flask outlet.
- Labeled with 'Salt Solution' at the salt solution's flask.

b)

Purity test: Conduct a conductivity test.

Anticipated outcome: Pure water will exhibit low conductivity, indicating its high purity, as it lacks ions or impurities that conduct electricity.

Q4: White to blue.

Q5:

- (a) Endothermic.
- (b) 1. Blue color appears.
2. Solution formation.