# ASSESSMENT AND QUALIFICATIONS ALLIANCE (AQA) GCSE CHEMISTRY PAPER 1 PRACTICE EXAM (SAMPLE)

## STUDY GUIDE



## SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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https://aqa-gcse-chemistrypaper1.examzify.com

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# Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

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# How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

### 1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

### 2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

### 3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

### 4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

### 5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

### 6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

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# Questions

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1. **What should you do if you see excess solid at the bottom after stirring?**

   A. Discard the entire solution

   B. Filter out the solid

   C. Stir more vigorously

   D. Add more acid

2. **What describes the common charge of halogen ions after they react with metals?**

   A. Positive charge

   B. Negative charge

   C. Neutral charge

   D. Variable charge

3. **During paper chromatography, what occurs if a dye in the ink is insoluble in the solvent used?**

   A. It cannot be separated

   B. It will stay on the baseline

   C. It will dissolve quickly

   D. It will evaporate instantly

4. **What type of ions do metals typically form?**

   A. Negative ions

   B. Neutral ions

   C. Positive ions

   D. Radioactive ions

5. **What is a characteristic of transition metals compared to Group 1 metals?**

   A. Lower relative atomic mass

   B. Higher density

   C. Lower melting points

   D. Higher reactivity

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**6. Which of the following is a disadvantage of using batteries over fuel cells?**

A. They last indefinitely

B. They cannot be recharged

C. They are less polluting overall

D. They have a limited number of recharge cycles

**7. Why are metals solid at room temperature?**

A. They have weak interatomic forces

B. They have strong covalent bonds

C. They have strong electrostatic forces between metal atoms

D. They form gas at room temperature

**8. What does the percentage mass of an element in a compound depend on?**

A. Relative Atomic Mass and Relative Formula Mass

B. Number of particles and Volume of the substance

C. Number of moles and Temperature of the reaction

D. Mass of reactants and Products formed

**9. For every decrease of 1 on the pH scale, how is the concentration of positive hydrogen ions affected?**

A. It decreases by a factor of 10.

B. It increases by a factor of 10.

C. It increases by a factor of 5.

D. It remains the same.

**10. What describes chlorine?**

A. A non-reactive gas

B. A fairly reactive, poisonous dense green gas

C. A volatile red liquid

D. A solid at room temperature

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# Answers

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1. B
2. B
3. B
4. C
5. B
6. D
7. C
8. A
9. B
10. B

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# Explanations

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## 1. What should you do if you see excess solid at the bottom after stirring?

A. Discard the entire solution

B. Filter out the solid

C. Stir more vigorously

D. Add more acid

*When there is excess solid at the bottom of a solution after stirring, it indicates that the solution has reached its saturation point and that not all of the solid has dissolved. The presence of undissolved solids suggests that the solution contains more solute than can be accommodated in the solvent at that specific concentration or temperature. Filtering out the solid is the appropriate action because it allows you to separate the excess undissolved solute from the saturated solution. This process results in a clear solution that contains only the dissolved solute and the solvent, which can be useful for further experimentation or analysis. By filtering, you ensure that any measurements taken or subsequent processes conducted will be based on the correct composition of the solution. In contrast, simply discarding the solution would mean losing potentially useful dissolved solutes. Stirring more vigorously might not have any effect on the solid material that has already settled and may just introduce air bubbles, which can complicate measurements. Adding more acid could also lead to additional undissolved solids if the solution is already saturated and may not resolve the issue of excess solute.*

## 2. What describes the common charge of halogen ions after they react with metals?

A. Positive charge

B. Negative charge

C. Neutral charge

D. Variable charge

*Halogens typically gain electrons when they react with metals, resulting in the formation of halide ions. This process occurs due to the halogens' high electronegativity and their tendency to achieve a stable electronic configuration, often resembling that of noble gases. When a halogen atom gains an electron, it becomes negatively charged because the number of electrons now exceeds the number of protons in its nucleus. For example, chlorine gains an electron to form a chloride ion ($Cl^-$), which has a negative charge. Therefore, the common charge of halogen ions after they react with metals is negative. This behavior is fundamental to understanding ionic bonding, as metals typically lose electrons to become positively charged cations, while nonmetals like halogens gain electrons to form anions.*

## 3. During paper chromatography, what occurs if a dye in the ink is insoluble in the solvent used?

A. It cannot be separated

B. It will stay on the baseline

C. It will dissolve quickly

D. It will evaporate instantly

*When a dye in the ink is insoluble in the solvent used during paper chromatography, it will indeed remain on the baseline. This is because the fundamental principle of chromatography relies on the differential solubility of the components in a mixture in the chosen solvent. If a component is insoluble, it cannot migrate up the chromatography paper because it does not interact with the solvent. Thus, this dye will not be carried along with the mobile phase and will instead stay at the point where it was originally applied—the baseline. This characteristic helps in identifying which components are present in the mixture based on their solubility and movement on the chromatography medium.*

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## 4. What type of ions do metals typically form?

A. Negative ions

B. Neutral ions

C. Positive ions

D. Radioactive ions

*Metals typically form positive ions, which are known as cations. This occurs because metals have few electrons in their outer shell and tend to lose those electrons to achieve a stable electron configuration, similar to that of noble gases. By losing electrons, metal atoms become positively charged since the number of protons in the nucleus exceeds the number of electrons surrounding it. This property is fundamental in various chemical reactions, particularly in ionic bonding, where metals react with nonmetals (which generally form negative ions, or anions) to form compounds. The process of metals losing electrons makes them effective conductors of electricity, as the flow of electrons is what facilitates electrical current. This characteristic is also pivotal in applications like electroplating and galvanization, where metal ions are deposited onto surfaces. Understanding that metals form positive ions allows us to appreciate their behavior in chemical reactions and their roles in forming ionic compounds.*

## 5. What is a characteristic of transition metals compared to Group 1 metals?

A. Lower relative atomic mass

B. Higher density

C. Lower melting points

D. Higher reactivity

*Transition metals are characterized by their higher density compared to Group 1 metals. This distinction arises because transition metals have a more complex electron arrangement, which contributes to greater atomic mass and closely packed atomic structure. Consequently, the heavier atoms essentially make the overall material denser. In contrast, Group 1 metals, known as alkali metals, tend to be less dense, often leading to them being able to float on water. This property stems from their larger atomic radii and the relatively weaker metallic bonding compared to transition metals. Additionally, transition metals typically have a wider range of properties, which also includes varying densities, versus the generally lighter and less dense alkali metals in Group 1. Understanding these differences is key in highlighting the varied characteristics of each group in the periodic table.*

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## 6. Which of the following is a disadvantage of using batteries over fuel cells?

A. They last indefinitely

B. They cannot be recharged

C. They are less polluting overall

D. They have a limited number of recharge cycles

*The choice indicating that batteries have a limited number of recharge cycles accurately reflects a key disadvantage of using batteries compared to fuel cells. Each time a battery is charged and discharged, there is a gradual decline in its ability to hold a charge due to chemical degradation processes occurring within the battery. This limits the number of times a battery can be effectively recharged before it needs to be replaced, making it less sustainable for long-term use compared to fuel cells, which can operate continuously as long as they have a constant supply of fuel. In contrast to this, the other choices present characteristics that are either advantages of batteries or things that don't accurately represent the limitations of battery technology. For example, the statement concerning lasting indefinitely is not true for batteries, as they have a finite lifespan. Similarly, the assertion about being unable to recharge also does not hold, since many types of batteries are designed to be rechargeably used multiple times within their lifespan. The claim regarding pollution is more favorable towards fuel cells, as they typically result in lower emissions than batteries, especially considering the production and disposal impacts associated with battery materials.*

## 7. Why are metals solid at room temperature?

A. They have weak interatomic forces

B. They have strong covalent bonds

C. They have strong electrostatic forces between metal atoms

D. They form gas at room temperature

*Metals are solid at room temperature primarily because they are held together by strong electrostatic forces between metal atoms. In metallic bonding, atoms in a metal lose some of their electrons, which become delocalized and create a 'sea of electrons' around positively charged metal ions. This arrangement allows for a strong attraction between the metal ions and the delocalized electrons, resulting in a stable structure that remains solid at room temperature. The presence of these strong electrostatic forces provides the metal with structural integrity, preventing the atoms from moving freely and maintaining a solid state. This characteristic is a defining trait of metals, contributing to their physical properties such as malleability, ductility, and high melting points. Other options do not accurately describe the properties of metals. Weak interatomic forces would not be sufficient to keep the metal solid. Strong covalent bonds are particular to certain non-metals and do not apply to the bonding characteristics of metals. The statement about metals forming gas at room temperature contradicts the well-known fact that most metals are solid at this temperature. Therefore, the role of strong electrostatic forces in maintaining the solid state of metals is essential for understanding their behavior at room temperature.*

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## 8. What does the percentage mass of an element in a compound depend on?

A. Relative Atomic Mass and Relative Formula Mass

B. Number of particles and Volume of the substance

C. Number of moles and Temperature of the reaction

D. Mass of reactants and Products formed

*The percentage mass of an element in a compound is determined by the ratio of the relative atomic mass of that specific element to the relative formula mass of the entire compound. To calculate the percentage mass, you would use the formula: $$\text{Percentage mass of element} = \left( \frac{\text{Relative atomic mass of element}}{\text{Relative formula mass of compound}} \right) \times 100$$ This relationship is fundamental in chemistry as it allows for understanding the composition of compounds and aids in stoichiometric calculations. For instance, if you are analyzing the molecular structure of a compound, knowing the individual atomic masses and how they contribute to the overall mass provides insight into the elemental composition. The other options do not adequately address the specific relationship between the atomic and formula masses needed to determine the percentage mass of an element in a compound. While concepts like moles, temperature, and the mass of reactants and products are important in different contexts of chemical reactions, they do not directly relate to the calculation of percentage mass within a single compound.*

## 9. For every decrease of 1 on the pH scale, how is the concentration of positive hydrogen ions affected?

A. It decreases by a factor of 10.

B. It increases by a factor of 10.

C. It increases by a factor of 5.

D. It remains the same.

*The correct response indicates that for every decrease of 1 on the pH scale, the concentration of positive hydrogen ions indeed increases by a factor of 10. This relationship arises from the definition of pH, which is a logarithmic scale that measures the concentration of hydrogen ions in a solution. The pH scale is defined as: $$\text{pH} = -\log[H^+]$$ Where $[H^+]$ represents the concentration of hydrogen ions in moles per liter (mol/L). A decrease of 1 in pH corresponds to an increase in the hydrogen ion concentration by a power of ten because the logarithm is a base 10 logarithm. For instance, if the pH changes from 7 to 6, it signifies that the concentration of hydrogen ions has increased from $1 \times 10^{-7}$ mol/L to $1 \times 10^{-6}$ mol/L. The factor by which the concentration increases is $$\frac{1 \times 10^{-6}}{1 \times 10^{-7}} = 10.$$ This logarithmic nature of the pH scale explains why the concentration of hydrogen ions grows by a*

## 10. What describes chlorine?

A. A non-reactive gas

B. A fairly reactive, poisonous dense green gas

C. A volatile red liquid

D. A solid at room temperature

*Chlorine is best described as a fairly reactive, poisonous dense green gas. This characterization is accurate because chlorine exists as a diatomic molecule ($Cl_2$) and is known for its reactivity, particularly with metals and nonmetals, forming various compounds such as chlorides. Its greenish-yellow color and pungent odor, along with its toxic nature, further support this description. Chlorine is commonly utilized in water treatment and sanitation due to its strong disinfecting properties. In contrast, other options do not correctly depict the properties of chlorine. For instance, while some gases may be non-reactive, chlorine's reactivity is one of its key characteristics. Additionally, chlorine is not a volatile red liquid; it does not have the physical state of a solid at room temperature, as it exists in gaseous form under standard conditions.*

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# Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

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We wish you the very best on your exam journey. You've got this!

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