WJEC GCSE CHEMISTRY PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. Which particle is found in the nucleus with no electric charge?

A. Proton

B. Neutron

C. Electron

D. Positron

2. What is the charge of a proton?

A. Negative

B. Positive

C. Neutral

D. Depends on isotope

3. How would you test for chloride, sulfate, and carbonate ions in a solution?

A. Chloride: add nitric acid then silver nitrate (white precipitate AgCl); Sulfate: add barium chloride (white $BaSO_4$ precipitate); Carbonate: add acid to produce CO_2 bubbles.

B. Chloride: add sodium hydroxide; Sulfate: add hydrochloric acid; Carbonate: heat to observe changes.

C. Chloride: flame test; Sulfate: precipitate with lead nitrate; Carbonate: boil and observe.

D. Chloride: add silver nitrate; Sulfate: add calcium chloride; Carbonate: add acid to produce CO_2.

4. In an exothermic reaction, how does the energy of products compare to the energy of reactants?

A. Energy of products is higher than that of reactants.

B. Energy of products is the same as that of reactants.

C. In an exothermic reaction, the energy of products is lower than that of reactants.

D. Cannot be determined from given information.

5. Which boundary occurs when plates move away from each other?

A. Convergent Boundary

B. Transform Boundary

C. Divergent Boundary

D. Conservative Boundary

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6. To determine empirical formula from percent composition, which data is essential?

A. Relative atomic masses

B. Molar volume

C. Boiling point

D. Density

7. Which statement defines a covalent bond?

A. A bond formed by transfer of electrons between atoms.

B. A bond formed by sharing electrons between atoms.

C. A bond formed by magnetic attraction.

D. A bond formed by completely removing electrons from both atoms.

8. Which particle is outside the nucleus and primarily involved in chemical reactions?

A. Proton

B. Neutron

C. Deuteron

D. Electron

9. Why are ionic compounds typically solid at room temperature?

A. Because they are always liquids at room temperature.

B. Because they form covalent bonds.

C. Because strong electrostatic attractions between oppositely charged ions give high melting points.

D. Because they have weak interparticle forces.

10. Which list contains the three particles found in an atom?

A. Quark, Lepton, Gluon

B. Proton, Neutron, Electron

C. Atom, Nucleus, Electron

D. Proton, Electron, Neutron

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Answers

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

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Explanations

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1. Which particle is found in the nucleus with no electric charge?

A. Proton

B. Neutron

C. Electron

D. Positron

The nucleus is made of protons and neutrons. Protons have a positive charge, while neutrons have no electric charge. Electrons are outside the nucleus in orbit around it. So the particle found in the nucleus with no electric charge is the neutron. Neutrons help hold the nucleus together via the strong nuclear force without adding electrical repulsion between protons. Protons are charged, electrons are outside the nucleus, and a positron is a positively charged antiparticle not normally located in the nucleus.

2. What is the charge of a proton?

A. Negative

B. Positive

C. Neutral

D. Depends on isotope

Protons have a positive electric charge. This positive charge is the same for every proton, equal in magnitude to one elementary charge. Isotopes differ only in the number of neutrons, not in the number of protons, so the charge of a proton is not changed by which isotope you have. In atoms, protons (positive) balance with electrons (negative) to give neutral atoms when the numbers are equal, while neutrons are electrically neutral. So the correct idea is that a proton is positively charged.

3. How would you test for chloride, sulfate, and carbonate ions in a solution?

A. Chloride: add nitric acid then silver nitrate (white precipitate AgCl); Sulfate: add barium chloride (white $BaSO_4$ precipitate); Carbonate: add acid to produce CO_2 bubbles.

B. Chloride: add sodium hydroxide; Sulfate: add hydrochloric acid; Carbonate: heat to observe changes.

C. Chloride: flame test; Sulfate: precipitate with lead nitrate; Carbonate: boil and observe.

D. Chloride: add silver nitrate; Sulfate: add calcium chloride; Carbonate: add acid to produce CO_2.

Testing for ions in solution relies on reactions that give a clear, observable change for each ion. To identify chloride, sulfate and carbonate distinctly, use three straightforward and selective tests. For chloride, first acidify the solution with nitric acid and then add silver nitrate. A white precipitate of silver chloride forms if chloride is present. The acid step is important because it removes carbonate interference, which could otherwise react and confuse the result. For sulfate, add barium chloride. A white, insoluble precipitate of barium sulfate appears if sulfate ions are present, giving a reliable, easily recognizable signal. For carbonate, add an acid to the solution. The carbonate reacts with the acid to produce carbon dioxide gas, which is visible as bubbling. These three tests are specific and produce clear results, whereas the other suggested methods can be unreliable or non-specific for identifying these ions.

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4. In an exothermic reaction, how does the energy of products compare to the energy of reactants?

A. Energy of products is higher than that of reactants.

B. Energy of products is the same as that of reactants.

C. In an exothermic reaction, the energy of products is lower than that of reactants.

D. Cannot be determined from given information.

In an exothermic reaction, energy is released to the surroundings, so the products end up with less stored energy than the reactants. The bonds formed in the products store less energy than the bonds broken in the reactants, and the excess energy is emitted as heat, which is why the surroundings often get warmer. That's why the correct statement is that the energy of the products is lower than the energy of the reactants. If the products had higher energy, that would mean energy was absorbed from the surroundings, which describes an endothermic process. If the energies were the same, there would be no energy change at all, contradicting the exothermic nature. If nothing could be determined, we wouldn't have a definite statement about the energy change in an exothermic reaction.

5. Which boundary occurs when plates move away from each other?

A. Convergent Boundary

B. Transform Boundary

C. Divergent Boundary

D. Conservative Boundary

When plates move apart, a divergent boundary is formed. The space created between the separating plates allows magma from the mantle to rise up and fill the gap, cooling to form new crust. This process is known as sea-floor spreading at mid-ocean ridges and explains why new crust appears at these boundaries. Convergent boundaries involve plates colliding, leading to subduction or mountain-building. Transform boundaries involve plates sliding past each other horizontally, often causing earthquakes. Conservative boundary is another term sometimes used for transform boundaries, describing no net creation or destruction of crust. These do not describe the plates moving away from each other, so they're not the correct type in this situation.

6. To determine empirical formula from percent composition, which data is essential?

A. Relative atomic masses

B. Molar volume

C. Boiling point

D. Density

From percent composition you have masses of each element in a sample. To turn that into an empirical formula you must compare how many moles of each element are present, not just their masses. This requires converting the masses to moles, which is done by dividing each mass by the element's relative atomic mass. Once you have the mole amounts, you find the smallest whole-number ratio to get the empirical formula. So, relative atomic masses are essential because they let you convert mass to moles. Molar volume, boiling point, and density don't provide the needed mole information from percent composition, so they aren't used to determine the empirical formula.

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7. Which statement defines a covalent bond?

A. A bond formed by transfer of electrons between atoms.

B. A bond formed by sharing electrons between atoms.

C. A bond formed by magnetic attraction.

D. A bond formed by completely removing electrons from both atoms.

Sharing electrons to fill outer electron shells is how a covalent bond forms. When two non-metal atoms come together, they can share one or more pairs of electrons so that each atom effectively has access to a complete outer shell. The shared electrons spend time in the region between the two nuclei and are attracted to both, which holds the atoms together as a molecule. This is different from transferring electrons to make ions, which creates an electrostatic attraction between positively and negatively charged ions (an ionic bond). Magnetic attraction isn't the mechanism behind chemical bonds, and removing electrons from both atoms would produce ions rather than a bonded molecule. A simple example is the hydrogen molecule, where two hydrogen atoms share one electron each to form a single covalent bond. Covalent bonding can involve single, double, or triple bonds depending on how many electron pairs are shared, and it's most common between non-metals.

8. Which particle is outside the nucleus and primarily involved in chemical reactions?

A. Proton

B. Neutron

C. Deuteron

D. Electron

Chemical reactions involve electrons in the outer shells, not particles inside the nucleus. Electrons are the negatively charged pieces that can be shared or transferred between atoms to form bonds, so they rearrange to create new substances. Protons and neutrons stay inside the nucleus and mainly determine the identity and mass of an atom; they aren't involved in bonding during ordinary chemical reactions. A deuteron is a nucleus made of a proton and neutron, also inside the nucleus, so it doesn't participate in chemical bonding. Therefore, the particle outside the nucleus and primarily involved in chemical reactions is the electron.

9. Why are ionic compounds typically solid at room temperature?

A. Because they are always liquids at room temperature.

B. Because they form covalent bonds.

C. Because strong electrostatic attractions between oppositely charged ions give high melting points.

D. Because they have weak interparticle forces.

The main idea is that strong electrostatic attractions between oppositely charged ions create a crystal lattice that takes a lot of energy to break apart. In an ionic solid, every ion is held in place by numerous strong Coulomb forces from neighboring ions throughout the lattice. To melt the substance, you must supply enough energy to overcome these attractions for many ions at once, which means a high melting point. At room temperature, the thermal energy available to the particles is not enough to overcome those forces, so ionic compounds stay solid. The other statements aren't correct because ionic solids aren't formed by covalent bonds, they aren't inherently liquids at room temperature, and the forces between ions in the lattice are not weak.

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10. Which list contains the three particles found in an atom?

A. Quark, Lepton, Gluon

B. Proton, Neutron, Electron

C. Atom, Nucleus, Electron

D. Proton, Electron, Neutron

Atoms are made of three main subatomic particles: protons, neutrons and electrons. Protons and neutrons stay in the tiny nucleus at the center, while electrons whizz around outside the nucleus in regions called electron shells. This combination—proton, neutron and electron—are the fundamental constituents you learn about when describing what an atom is built from. The other options either mention particles not listed as the atom's basic components (like quarks or gluons) or mix in terms that aren't particles (like "Atom" or "Nucleus"). If you see the same three particles in a different order, you're still naming the same building blocks of an atom.

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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:

https://wjecgcsechemistry.examzify.com

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

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