

IGCSE C10 CHEMISTRY PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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.

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!

Questions

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- 1. What is a major environmental impact of increased methane levels?**
 - A. Increases biodiversity
 - B. Increases global warming leading to climate change
 - C. Enhances soil fertility
 - D. Reduces atmospheric pressure
- 2. Which gas is predominantly emitted during the combustion of fossil fuels containing sulfur?**
 - A. Methane
 - B. Carbon dioxide
 - C. Water vapor
 - D. Sulfur dioxide
- 3. What is the primary function of chlorination in water treatment?**
 - A. To remove impurities
 - B. To enhance flavor
 - C. To kill microbes
 - D. To soften water
- 4. What makes carbon monoxide particularly dangerous?**
 - A. It causes immediate skin burns
 - B. It binds to haemoglobin, preventing oxygen transport
 - C. It releases toxic ammonia
 - D. It lowers blood sugar levels
- 5. What change occurs to anhydrous copper(II) sulfate when it is mixed with water?**
 - A. Turns pink
 - B. Turns blue
 - C. Turns green
 - D. Turns yellow

- 6. How do greenhouse gases contribute to global warming?**
- A. By reflecting sunlight back into space
 - B. By absorbing infrared radiation and trapping heat
 - C. By filtering harmful UV rays
 - D. By increasing cloud formation
- 7. Why do oxides of nitrogen form in car engines?**
- A. Excess fuel raises combustion temperatures
 - B. High temperatures cause nitrogen and oxygen to react
 - C. Fuel additives change the combustion process
 - D. Vacuum conditions in the engine promote their formation
- 8. In what way do trees help combat climate change?**
- A. They release carbon dioxide
 - B. They absorb carbon dioxide through photosynthesis
 - C. They increase soil erosion
 - D. They produce methane
- 9. How does temperature generally affect the rate of chemical reactions?**
- A. It decreases the rate of reactions
 - B. It has no effect on the rate of reactions
 - C. It increases the rate of reactions
 - D. It only affects specific types of reactions
- 10. Why is distilled water preferred over tap water in practical chemistry?**
- A. It is cheaper
 - B. It has a higher boiling point
 - C. It contains fewer impurities
 - D. It is easier to obtain

Answers

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

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Explanations

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1. What is a major environmental impact of increased methane levels?

- A. Increases biodiversity
- B. Increases global warming leading to climate change**
- C. Enhances soil fertility
- D. Reduces atmospheric pressure

Increased levels of methane in the atmosphere significantly contribute to global warming, which is a primary driver of climate change. Methane is a potent greenhouse gas, with a global warming potential many times greater than that of carbon dioxide over a short time frame. It traps heat in the atmosphere, leading to rising temperatures which can cause alterations in weather patterns, more frequent and severe weather events, and disruptions to various ecosystems. The impact of global warming on climate is vast, affecting everything from polar ice melt to ocean levels, agriculture, and biodiversity. While methane can arise from natural processes, human activities such as agriculture, landfills, and fossil fuel extraction have greatly increased its concentration in the atmosphere. This makes understanding its effects crucial in the conversation about climate change mitigation and environmental protection.

2. Which gas is predominantly emitted during the combustion of fossil fuels containing sulfur?

- A. Methane
- B. Carbon dioxide
- C. Water vapor
- D. Sulfur dioxide**

The predominant gas emitted during the combustion of fossil fuels containing sulfur is sulfur dioxide. When fossil fuels such as coal, oil, or natural gas are burned, they undergo a chemical reaction that produces energy, carbon dioxide, water vapor, and various other compounds. In the case of fuels that contain sulfur, the sulfur component reacts with oxygen during combustion to form sulfur dioxide. This is a significant concern because sulfur dioxide is an air pollutant that can lead to acid rain and has detrimental effects on the environment and human health. While carbon dioxide and water vapor are common byproducts of combustion, they do not specifically relate to the sulfur content in fuels. Methane is not a product of the combustion of fossil fuels containing sulfur; rather, it is a fossil fuel itself. Therefore, sulfur dioxide is the correct answer, as it directly results from the burning of sulfur-containing fossil fuels.

3. What is the primary function of chlorination in water treatment?

- A. To remove impurities
- B. To enhance flavor
- C. To kill microbes**
- D. To soften water

The primary function of chlorination in water treatment is to kill microbes. Chlorination is a widely used method for disinfection that involves adding chlorine to water. The chlorine acts as a powerful antimicrobial agent, effectively targeting bacteria, viruses, and other pathogens that can pose serious health risks if consumed. By introducing chlorine into the water supply, the treatment process ensures that harmful microorganisms are eliminated, making the water safer for human consumption. This practice is crucial in maintaining public health, especially in areas where water sources may be contaminated or during outbreaks of waterborne diseases. While removing impurities and softening water are also important aspects of water treatment, they are achieved through different processes, such as filtration and ion exchange. Enhancing flavor is not a primary concern in the chlorination process; rather, the focus is squarely on disinfection to ensure water safety.

4. What makes carbon monoxide particularly dangerous?

- A. It causes immediate skin burns
- B. It binds to haemoglobin, preventing oxygen transport**
- C. It releases toxic ammonia
- D. It lowers blood sugar levels

Carbon monoxide is particularly dangerous because it has a strong affinity for hemoglobin—the protein in red blood cells responsible for transporting oxygen throughout the body. When carbon monoxide enters the bloodstream, it binds with hemoglobin to form carboxyhemoglobin, which significantly reduces the amount of hemoglobin available for oxygen transport. As a result, tissues and organs are deprived of oxygen, leading to symptoms that can range from headaches and dizziness to loss of consciousness and even death in severe cases. In contrast, the other options do not accurately describe the primary dangers of carbon monoxide. It does not cause immediate skin burns, nor does it release toxic ammonia or lower blood sugar levels. Understanding this mechanism of carbon monoxide helps emphasize its high toxicity and why it poses a serious risk, especially in poorly ventilated spaces where it can accumulate.

5. What change occurs to anhydrous copper(II) sulfate when it is mixed with water?

- A. Turns pink
- B. Turns blue**
- C. Turns green
- D. Turns yellow

When anhydrous copper(II) sulfate is mixed with water, it undergoes a physical change called hydration. This process results in the formation of hydrated copper(II) sulfate, which is typically known as copper(II) sulfate pentahydrate. The key visual change that accompanies this process is the transformation from a white or greyish-white solid to a vibrant blue solution. The blue color is indicative of the presence of water molecules coordinated to the copper(II) ions, which alters the electronic structure of the compound. The interaction between the water molecules and the copper ions causes a change in the way light is absorbed and reflected, leading to the distinct blue coloration. This characteristic blue color serves as an important indicator in many chemical applications, demonstrating the process of hydration effectively. The other color options provided do not accurately represent the change that occurs during the hydration of anhydrous copper(II) sulfate.

6. How do greenhouse gases contribute to global warming?

- A. By reflecting sunlight back into space
- B. By absorbing infrared radiation and trapping heat**
- C. By filtering harmful UV rays
- D. By increasing cloud formation

Greenhouse gases play a crucial role in global warming by absorbing infrared radiation and trapping heat in the Earth's atmosphere. When sunlight reaches the Earth, a portion of it is reflected back into space, while the rest is absorbed by the surface, warming it. The Earth then emits this energy in the form of infrared radiation. Greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, have molecular structures that allow them to absorb this infrared radiation effectively. After absorption, they re-radiate the energy in all directions, including back towards the Earth's surface. This process creates a "greenhouse effect," effectively insulating the planet and leading to an increase in average global temperatures. As for the other options, while reflecting sunlight back into space plays a role in regulating temperatures, it is not the mechanism behind global warming. Filtering harmful UV rays primarily relates to ozone and does not cause warming. Furthermore, increased cloud formation can have complex effects on temperature, sometimes cooling the planet, but it does not directly cause global warming like the greenhouse effect does. Therefore, the absorption of infrared radiation by greenhouse gases is the primary reason for the warming of the Earth's atmosphere.

7. Why do oxides of nitrogen form in car engines?

- A. Excess fuel raises combustion temperatures
- B. High temperatures cause nitrogen and oxygen to react**
- C. Fuel additives change the combustion process
- D. Vacuum conditions in the engine promote their formation

Oxides of nitrogen are formed in car engines primarily due to the high temperatures present during the combustion process. Under these extreme conditions, nitrogen and oxygen, which are normally quite stable and do not readily react under standard atmospheric conditions, can combine to form various nitrogen oxides, such as nitric oxide (NO) and nitrogen dioxide (NO₂). The temperatures in a car engine can exceed 1,000 degrees Celsius, providing the necessary energy to overcome the activation energy barrier for this reaction. This formation of nitrogen oxides is a significant concern as they contribute to air pollution and acid rain. Other factors, like fuel composition and the presence of additives, do influence combustion characteristics, but the formation of nitrogen oxides is fundamentally driven by the reaction of nitrogen and oxygen at elevated temperatures during combustion.

8. In what way do trees help combat climate change?

- A. They release carbon dioxide
- B. They absorb carbon dioxide through photosynthesis**
- C. They increase soil erosion
- D. They produce methane

Trees play a crucial role in combating climate change primarily by absorbing carbon dioxide through the process of photosynthesis. During photosynthesis, trees take in carbon dioxide from the atmosphere, using sunlight to convert it into glucose, which serves as food for the plant. As a result, trees act as carbon sinks, storing carbon in their biomass (trunks, branches, leaves, and roots) and thus reducing the concentration of greenhouse gases in the atmosphere. This reduction of carbon dioxide is particularly important because high levels of this greenhouse gas contribute to global warming. By removing carbon dioxide from the air, trees not only help mitigate climate change but also promote a healthier ecosystem and improve air quality. The interaction between trees and carbon dioxide is central to strategies aimed at reducing the impacts of climate change, highlighting the significance of forests in global efforts for sustainability. In contrast, the other options do not contribute positively to combating climate change. The release of carbon dioxide and methane would exacerbate the greenhouse effect, while increasing soil erosion does not have any beneficial impact on reducing atmospheric carbon levels. Therefore, the ability of trees to absorb carbon dioxide through photosynthesis makes their role in fighting climate change vital.

9. How does temperature generally affect the rate of chemical reactions?

- A. It decreases the rate of reactions
- B. It has no effect on the rate of reactions
- C. It increases the rate of reactions**
- D. It only affects specific types of reactions

Temperature has a significant impact on the rate of chemical reactions, primarily because it influences the kinetic energy of the reacting molecules. When the temperature is increased, the molecules gain energy and move faster. This increased movement leads to more frequent and effective collisions between the reactant particles, which in turn enhances the likelihood of overcoming the activation energy barrier required for the reaction to occur. As a result, with a higher temperature, not only do the reaction rates increase due to more collisions, but a larger proportion of these collisions have enough energy to result in a reaction. This is aligned with the collision theory, which states that for a reaction to occur, the reacting particles must collide with sufficient energy and proper orientation. Therefore, the response that temperature generally increases the rate of chemical reactions accurately reflects the relationship between temperature and reaction kinetics. In contrast, other options suggest that temperature either decreases the rate or has no effect, which does not align with fundamental chemical principles. Additionally, the notion that temperature only affects specific types of reactions fails to acknowledge that the general trend of increased temperature leading to increased reaction rates is applicable across a wide range of chemical reactions.

10. Why is distilled water preferred over tap water in practical chemistry?

- A. It is cheaper
- B. It has a higher boiling point
- C. It contains fewer impurities**
- D. It is easier to obtain

Distilled water is preferred in practical chemistry primarily because it contains fewer impurities compared to tap water. When water is distilled, it undergoes a process of boiling and condensation that removes most salts, minerals, organic compounds, and other contaminants. This high level of purity is crucial in laboratory settings where the presence of impurities could interfere with experiments, alter reactions, or lead to inconsistent results. For many chemical analyses and reactions, the introduction of foreign substances can significantly affect the outcome. Using distilled water helps ensure that experimental conditions remain controlled and replicable, which is a fundamental aspect of scientific inquiry. In contrast, tap water may contain chlorine, minerals like calcium and magnesium, and other organic or inorganic compounds that could impact chemical reactions. Therefore, the attribute of having fewer impurities solidifies distilled water's status as the preferred choice for accuracy and reliability in chemistry.

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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