

ABEKA CHEMISTRY TEST 7 PRACTICE (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE

<https://abekacchem7.examzify.com>



Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	15

SAMPLE

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

SAMPLE

- 1. What does sublimation refer to in a chemical process?**
 - A. The transition of a substance from liquid to gas phase
 - B. The transition of a substance directly from solid to gas phase
 - C. The process of a gas turning into a liquid
 - D. The change of state from solid to liquid
- 2. Which of the following describes the bond in H₂?**
 - A. It is an ionic bond
 - B. It is a covalent bond
 - C. It is a metallic bond
 - D. It involves no bonding
- 3. What type of bond results from the uneven sharing of electrons in polar molecules?**
 - A. Ionic bond
 - B. Covalent bond
 - C. Hydrogen bond
 - D. Polar covalent bond
- 4. What happens to the molecules in an exothermic reaction?**
 - A. The molecules absorb energy
 - B. The molecules release energy
 - C. The molecules undergo no change
 - D. The molecules only transform physically
- 5. What is the form of iron produced by direct iron reduction?**
 - A. Pig iron
 - B. Wrought iron
 - C. Cast iron
 - D. Steel
- 6. What forms on top of molten iron during the basic oxygen process?**
 - A. Steel alloy
 - B. Carbon residue
 - C. Impurity slag
 - D. Gaseous byproducts

7. Which mineral is often used as a pigment in paints and is composed of copper?
- A. Chalk
 - B. Malachite
 - C. Quartz
 - D. Talc
8. What do valence electrons determine in an atom?
- A. The mass of the atom
 - B. The ability to conduct electricity
 - C. The atom's chemical reactivity
 - D. The strength of the atomic nucleus
9. What distinguishes an alkali metal from an alkaline earth metal?
- A. Alkali metals are less reactive than alkaline earth metals
 - B. Alkali metals are found in group 2; alkaline earth metals in group 1
 - C. Alkali metals are highly reactive; alkaline earth metals are less reactive
 - D. Alkali metals do not conduct electricity
10. Which element is used in deep-sea diving mixtures and as a nonflammable lifting gas in airships?
- A. Helium
 - B. Hydrogen
 - C. Nitrogen
 - D. Argon

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What does sublimation refer to in a chemical process?

- A. The transition of a substance from liquid to gas phase
- B. The transition of a substance directly from solid to gas phase**
- C. The process of a gas turning into a liquid
- D. The change of state from solid to liquid

Sublimation is defined as the process in which a substance transitions directly from a solid state to a gaseous state without passing through the liquid phase. This phenomenon occurs under specific conditions, typically when the temperature and pressure are such that the solid does not become a liquid before turning into gas. Examples of sublimation can be seen in substances like dry ice (solid carbon dioxide) and iodine, which transition directly from solid to gas when exposed to certain temperatures. This process is significant in various applications, including freeze-drying and in certain chemical analysis methods. The other options provide descriptions of different state transitions: from liquid to gas, gas to liquid, and solid to liquid, but none accurately define sublimation.

2. Which of the following describes the bond in H₂?

- A. It is an ionic bond
- B. It is a covalent bond**
- C. It is a metallic bond
- D. It involves no bonding

In the hydrogen molecule (H₂), a covalent bond is formed when two hydrogen atoms share a pair of electrons. Each hydrogen atom has one electron, and by sharing these electrons, they achieve a more stable electronic configuration resembling that of the nearest noble gas, helium. This sharing of electrons is characteristic of covalent bonds, which typically occur between nonmetals. Covalent bonds are distinguished by the overlap of atomic orbitals to allow for shared electron pairs. In the case of H₂, the bond is particularly strong due to the effective sharing of the electrons, leading to a stable diatomic molecule. The other types of bonds, such as ionic and metallic bonds, do not apply to H₂. Ionic bonds typically involve the transfer of electrons from one atom to another, resulting in charged ions, while metallic bonds involve the pooling of electrons among a lattice of metal atoms. Additionally, claiming that there is no bonding would ignore the fundamental interaction that holds the hydrogen atoms together in H₂.

3. What type of bond results from the uneven sharing of electrons in polar molecules?

- A. Ionic bond
- B. Covalent bond
- C. Hydrogen bond
- D. Polar covalent bond**

The correct answer is the type of bond known as a polar covalent bond. In polar covalent bonds, electrons are shared unequally between two atoms with different electronegativities. This unequal sharing causes one atom to have a partial negative charge and the other to have a partial positive charge, leading to the polarity of the molecule. This phenomenon occurs because the atom with higher electronegativity pulls the shared electrons closer to itself, creating a dipole moment. An illustrative example of this can be seen in the water molecule (H₂O), where the oxygen atom is more electronegative than the hydrogen atoms, leading to a polar covalent bond. While an ionic bond involves the complete transfer of electrons from one atom to another, resulting in charged ions, and a hydrogen bond is a weak attraction between a hydrogen atom bonded to a highly electronegative atom and another electronegative atom, neither of these describes the uneven sharing characteristic of polar covalent bonds. Thus, the property of unequal electron sharing is what specifically defines a polar covalent bond.

4. What happens to the molecules in an exothermic reaction?

- A. The molecules absorb energy
- B. The molecules release energy**
- C. The molecules undergo no change
- D. The molecules only transform physically

In an exothermic reaction, the key characteristic is that the molecules release energy, typically in the form of heat. This means that during the reaction, the chemical bonds in the reactants are broken and new bonds in the products are formed, and the energy associated with the initial bonds is greater than that of the final products. The excess energy is released into the surroundings, making the environment warmer. This energy release can be observed in various reactions, such as combustion, where a substance like fuel combines with oxygen and releases energy as heat and light. The release of energy is a defining feature of exothermic reactions, distinguishing them from endothermic reactions, in which energy is absorbed from the surroundings.

5. What is the form of iron produced by direct iron reduction?

- A. Pig iron**
- B. Wrought iron
- C. Cast iron
- D. Steel

Direct iron reduction typically involves the process of converting iron ore into iron using a reducing agent, usually without passing through the molten state that is characteristic of other methods. The primary product of this process is pig iron. Pig iron is an intermediate product that contains a high carbon content along with varying amounts of silicon, manganese, and other elements. It is produced in a blast furnace and is often used as a raw material for further steel production or other iron products. In contrast, wrought iron is a purer form, produced by further refining pig iron, while cast iron is typically created by casting molten pig iron into molds. Steel, on the other hand, is an alloy of iron and carbon that is derived from pig iron through additional processing and refining to reduce the carbon content and increase desirable properties. These differences highlight why pig iron, as the direct product of iron reduction, stands as the correct answer in this context.

6. What forms on top of molten iron during the basic oxygen process?

- A. Steel alloy
- B. Carbon residue
- C. Impurity slag**
- D. Gaseous byproducts

During the basic oxygen process, which is primarily used in steelmaking, the primary goal is to convert molten iron from a blast furnace into steel by reducing carbon content and removing impurities. As molten iron is subjected to high-purity oxygen, several reactions occur that oxidize impurities such as carbon, silicon, phosphorus, and manganese. The oxidation of these impurities results in the formation of a byproduct known as slag. Slag is made up of various oxides and other compounds that are less dense than molten iron, allowing them to rise to the top of the molten metal. This layer of impurity slag is crucial because it not only carries away harmful elements but also helps to protect the molten iron from oxidation and contamination from the air. This process is vital for producing high-quality steel with the desired properties. The other options do not accurately represent what forms on top of the molten iron during this process. Steel alloy is the intended product but is not formed on top of the molten iron. Carbon residue would not remain in significant amounts due to the oxidation process, and while gaseous byproducts are produced from the reactions, they do not condense into a layer on top of the molten iron. Thus, impurity slag is the correct answer, as it

7. Which mineral is often used as a pigment in paints and is composed of copper?

- A. Chalk
- B. Malachite**
- C. Quartz
- D. Talc

Malachite is a mineral composed primarily of copper carbonate hydroxide and is known for its rich green color, which makes it an excellent pigment for use in paints. The unique properties of malachite, including its vibrant hue and ability to create a range of shades when processed, have made it a historical choice for artists and manufacturers seeking natural pigment sources. This mineral can be ground into a powder to produce a green paint, a practice that dates back to ancient civilizations. In contrast, chalk is primarily calcium carbonate, quartz is a crystalline form of silica, and talc is composed mainly of magnesium silicate; none of these have the characteristic color or copper content that makes malachite a suitable pigment.

8. What do valence electrons determine in an atom?

- A. The mass of the atom
- B. The ability to conduct electricity
- C. The atom's chemical reactivity**
- D. The strength of the atomic nucleus

Valence electrons play a crucial role in determining an atom's chemical reactivity. These are the electrons located in the outermost shell of an atom, and they are primarily responsible for the formation of bonds with other atoms. The number and arrangement of valence electrons dictate how an atom interacts with others, including whether it will gain, lose, or share electrons during chemical reactions. For example, atoms with a full outer shell (commonly referred to as noble gases) are typically inert, meaning they do not readily react with other elements. In contrast, atoms lacking a full set of valence electrons tend to be more reactive, as they seek to achieve stability by engaging in chemical reactions. This principle is fundamental to understanding the periodic trends in chemical behavior and the formation of compounds. In contrast, the other options relate to different properties influenced by other factors. The mass of an atom is determined by its protons and neutrons, while the ability to conduct electricity involves the movement of charged particles, which may include free electrons, not just valence electrons. The strength of the atomic nucleus pertains to the forces that hold protons and neutrons together, independent of the electrons.

9. What distinguishes an alkali metal from an alkaline earth metal?

- A. Alkali metals are less reactive than alkaline earth metals
- B. Alkali metals are found in group 2; alkaline earth metals in group 1
- C. Alkali metals are highly reactive; alkaline earth metals are less reactive**
- D. Alkali metals do not conduct electricity

Alkali metals and alkaline earth metals have distinct characteristics primarily due to their position in the periodic table and their reactivity. Alkali metals, which are located in group 1, have a single electron in their outermost shell, making them highly reactive. This high reactivity is attributed to their tendency to lose that one electron easily, forming positive ions. In contrast, alkaline earth metals, found in group 2, have two electrons in their outer shell. While these metals are reactive as well, they do not react as vigorously as alkali metals because they require more energy to lose two electrons compared to the one electron lost by alkali metals. The correct answer highlights this key difference: alkali metals are known for their high reactivity, while alkaline earth metals are generally less reactive, thus illustrating the contrasting chemical behavior of these two groups of elements.

10. Which element is used in deep-sea diving mixtures and as a nonflammable lifting gas in airships?

A. Helium

B. Hydrogen

C. Nitrogen

D. Argon

Helium is the correct choice because it is an inert gas that does not support combustion, making it safe for use in various applications, including deep-sea diving mixtures and as a lifting gas in airships. In diving, helium is often mixed with oxygen to create a breathing gas for deep dives because it reduces the risk of narcosis that can occur with nitrogen at high pressures. For airships, helium provides lift without the flammability risks associated with hydrogen, making it a preferred choice. Its low density and nonreactive nature make it ideal for these specific uses.

SAMPLE

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://abekacchem7.examzify.com>

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

SAMPLE