

ARIZONA STATE UNIVERSITY (ASU) CHM 113 INTRODUCTORY CHEMISTRY EXAM 1 PRACTICE (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. Which element has the symbol Be?

- A. Hydrogen
- B. Sodium
- C. Beryllium
- D. Magnesium

2. Which prefix corresponds to 10^{-9} ?

- A. Kilo
- B. Giga
- C. Micro
- D. Nano

3. Which symbol represents Chlorine?

- A. Chlorine
- B. Argon
- C. Krypton
- D. Bromine

4. Which element has the symbol Copper?

- A. Calcium
- B. Iron
- C. Copper
- D. Nickel

5. Which value represents Avogadro's number?

- A. 6.022×10^{23}
- B. 6.022×10^{24}
- C. 6.022×10^{23}
- D. 6.022×10^{25}

6. Which symbol represents Calcium?

- A. Ca
- B. Sc
- C. Ti
- D. V

7. Which symbol represents Boron?

- A. Al
- B. N
- C. Ga
- D. B

8. Which symbol represents Beryllium?

- A. H
- B. Mg
- C. Be
- D. Na

9. Molecular Weight is defined as

- A. The sum of the atomic weights of the atoms in a molecule.
- B. The mass of the molecule's ions.
- C. The mass of one mole of the substance.
- D. The percentage of an element in the compound.

10. Which statement describes a physical property?

- A. Measured without changing the substance
- B. Describes how a substance reacts to form new substances
- C. Indicates the substance can be converted into a different substance
- D. Requires a chemical reaction to observe

Answers

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

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Explanations

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1. Which element has the symbol Be?

- A. Hydrogen
- B. Sodium
- C. Beryllium
- D. Magnesium

Element symbols are standardized abbreviations used to identify elements. Be is the symbol for the element Beryllium, formed from the first two letters of its name. Hydrogen's symbol is H, Sodium's is Na, and Magnesium's is Mg, so Be uniquely points to Beryllium.

2. Which prefix corresponds to 10^{-9} ?

- A. Kilo
- B. Giga
- C. Micro
- D. Nano

Understanding SI prefixes helps you read measurements across scales. The prefix nano stands for 10^{-9} , one billionth of a unit. So 1 nanometer is 1×10^{-9} meters, which shows how tiny this scale is. Nano is smaller than micro (10^{-6}) by a factor of 1000, since 1 nm equals 0.001 micrometers. This nanoscale is common in chemistry for describing particles, bonds, and other very small dimensions. Therefore, the prefix for 10^{-9} is nano.

3. Which symbol represents Chlorine?

- A. Chlorine
- B. Argon
- C. Krypton
- D. Bromine

Chemical symbols are one- or two-letter abbreviations used to represent elements in formulas. Chlorine's symbol is Cl, with a capital C followed by a lowercase l. The other options correspond to Argon (Ar), Krypton (Kr), and Bromine (Br). So the symbol that represents Chlorine is Cl. The choices shown list the element names rather than their symbols, so none of them directly shows Cl; this reflects a mismatch between the prompt and the standard symbol format.

4. Which element has the symbol Copper?

- A. Calcium
- B. Iron
- C. Copper
- D. Nickel

Elements are identified by unique two-letter (or one- or two-letter) symbols, usually tied to their names. Calcium is Ca, Iron is Fe, and Nickel is Ni. Copper's symbol is Cu, and the element whose name is Copper is the one you'd choose if asked to pick the element named Copper. The other options correspond to different elements, so they don't match Copper.

5. Which value represents Avogadro's number?

- A. 6.022×10^{23}
- B. 6.022×10^{24}
- C. 6.022×10^{23}
- D. 6.022×10^{25}

Avogadro's number tells you how many particles are in one mole. It is a fixed constant equal to 6.022×10^{23} particles per mole, which is what bridges the microscopic world of atoms and molecules with the macroscopic measurements we make in the lab. This means that when you have a certain number of moles, you can find the number of particles by multiplying by 6.022×10^{23} , and conversely, you can find how many moles you have by dividing the number of particles by this same constant. The value 6.022×10^{23} is the standard definition of a mole, so any other exponent would imply a different, incorrect scale for a mole.

6. Which symbol represents Calcium?

- A. Ca
- B. Sc
- C. Ti
- D. V

Symbols on the periodic table are the shorthand for elements, usually taken from their English or Latin names. Calcium is represented by the symbol Ca, with an uppercase C and a lowercase a. This distinguishes it from other elements: Sc stands for Scandium, Ti for Titanium, and V for Vanadium. So Ca is the correct symbol for Calcium.

7. Which symbol represents Boron?

- A. Al
- B. N
- C. Ga
- D. B

Symbols for elements are shorthand representations of their names. They're written with the first letter capitalized, and sometimes a second letter in lowercase. Boron is represented by the single-letter symbol B, derived from its name. Aluminum is Al, nitrogen is N, and gallium is Ga. So the symbol that represents Boron is B.

8. Which symbol represents Beryllium?

- A. H
- B. Mg
- C. Be
- D. Na

Symbols are the shorthand used for elements on the periodic table. They are typically one or two letters, with the first letter capitalized and a possible second letter in lowercase. Beryllium is identified by the symbol Be, which uses the first two letters of its name with the correct capitalization. For comparison, hydrogen is H, magnesium is Mg, and sodium is Na, so Be uniquely corresponds to Beryllium.

9. Molecular Weight is defined as

- A. The sum of the atomic weights of the atoms in a molecule.
- B. The mass of the molecule's ions.
- C. The mass of one mole of the substance.
- D. The percentage of an element in the compound.

Molecular weight is found by adding together the atomic weights of all the atoms in a molecule. This sum gives the mass of the molecule in atomic mass units (amu). For example, water has two hydrogens and one oxygen, so its molecular weight is about $2 \times 1.008 + 16.00 \approx 18.02$ amu. In many contexts that number is numerically the same as the molar mass when expressed in g/mol, but the concepts differ in units. The other ideas refer to different things: the mass of ions is not the general definition; the mass of one mole describes molar mass; and percent composition is the fraction of each element by mass in the compound. So the defining idea is the sum of the atomic weights of the atoms in the molecule.

10. Which statement describes a physical property?

- A. Measured without changing the substance
- B. Describes how a substance reacts to form new substances
- C. Indicates the substance can be converted into a different substance
- D. Requires a chemical reaction to observe

Physical properties are characteristics you can observe or measure without changing the substance's identity. The statement that it is measured without changing the substance fits this idea, since you can determine properties like density, melting point, or color while the substance remains the same. In contrast, describing how a substance reacts to form new substances or that it can be converted into a different substance refers to chemical properties that involve chemical changes. So measuring without altering the substance is the correct description of a physical property.

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://asu-chm113exam1.examzify.com>

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

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