ABEKA SCIENCE MATTER AND ENERGY TEST 7 PRACTICE (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 phase changes release energy?

A. Freezing, condensation, and deposition release energy.

B. Melting, vaporization, and sublimation release energy.

C. All phase changes release energy.

D. None release energy.

2. What is a crystal lattice?

A. A random arrangement of atoms in a liquid.

B. The surface boundary between a solid and its surroundings.

C. A regular, repeating arrangement of atoms in a solid that gives it shape and structure.

D. A type of chemical bond in molecules.

3. Which statement best describes energy in a closed system during transformations?

A. Energy can be created.

B. Energy can be destroyed.

C. Energy can be converted, but the total amount may not stay the same.

D. The total energy remains constant; energy is conserved.

4. Which of the following is the SI unit of electric current?

A. Ampere

B. Volt

C. Joule

D. Ohm

5. What is volume?

A. The amount of space an object occupies.

B. The weight of an object.

C. The speed of an object.

D. The temperature of an object.

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6. Which of the following is an example of a chemical change?

A. Ice melting.

B. Iron rusting.

C. Boiling water.

D. Dissolving sugar in water.

7. What term describes a substance that has several unpaired electrons per atom and is strongly attracted to magnets?

A. Ferromagnetic

B. Paramagnetic

C. Nonmagnetic

D. Diamagnetic

8. In an electric circuit, how do series and parallel circuits differ?

A. In series, voltage is the same across each component; in parallel, current is the same through each component.

B. In series, components share the same current; in parallel, components share the same voltage and current can vary.

C. In series, resistance decreases when more components are added; in parallel, resistance changes with number of paths.

D. In series, current increases with more components; in parallel, current decreases.

9. Which term describes energy due to motion?

A. Kinetic Energy

B. Potential Energy

C. Thermal Energy

D. Chemical Energy

10. In a sand and water mixture, which component passes through the filter?

A. Water (the solvent) passes through.

B. Sand (the solute) passes through.

C. Neither passes through.

D. Both pass through.

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Answers

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

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Explanations

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1. Which phase changes release energy?

A. Freezing, condensation, and deposition release energy.

B. Melting, vaporization, and sublimation release energy.

C. All phase changes release energy.

D. None release energy.

Energy is released when a substance moves to a more ordered, lower-energy state. Freezing, condensation, and deposition all end up in solid or more ordered forms: liquid to solid, gas to liquid, and gas to solid. In each case, the particles lose energy and that energy leaves as heat to the surroundings, which is why these phase changes release energy. By contrast, melting, vaporization, and sublimation require adding energy to overcome intermolecular forces. So freezing, condensation, and deposition release energy.

2. What is a crystal lattice?

A. A random arrangement of atoms in a liquid.

B. The surface boundary between a solid and its surroundings.

C. A regular, repeating arrangement of atoms in a solid that gives it shape and structure.

D. A type of chemical bond in molecules.

A crystal lattice is a regular, repeating arrangement of atoms in a solid that gives it shape and structure. In a crystal lattice, atoms occupy specific positions and the pattern repeats in all directions, building a three-dimensional framework that produces the crystal's flat faces and well-defined angles. This orderly arrangement also influences properties like hardness and melting point. The other ideas don't fit: a random arrangement of atoms in a liquid describes a liquid, not a solid lattice; the surface boundary is just the interface between solid and surroundings; and a chemical bond is about how atoms connect, not the overall repeating pattern inside the solid.

3. Which statement best describes energy in a closed system during transformations?

A. Energy can be created.

B. Energy can be destroyed.

C. Energy can be converted, but the total amount may not stay the same.

D. The total energy remains constant; energy is conserved.

The main idea is energy conservation in a closed system: energy can shift between forms, but the total amount stays the same. In a closed system, energy can transform from kinetic to potential, chemical to thermal, and so on, yet the sum of all forms stays constant. For example, when friction converts some mechanical energy into heat, the mechanical energy decreases while heat increases, and the total energy remains constant. That's why saying the total energy remains constant and energy is conserved is the best description. The other ideas aren't accurate because energy isn't created or destroyed in a closed system; it can be converted, but the total amount does not change.

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4. Which of the following is the SI unit of electric current?

A. Ampere

B. Volt

C. Joule

D. Ohm

Electric current is the rate at which electric charges flow through a point in a circuit. The SI unit for this rate is the ampere, defined as one coulomb of charge passing a point every second. This directly ties to the idea of flow: current tells you how much charge moves per unit time. The ampere name comes from a scientist, and it relates to the fundamental units of charge (coulomb) and time (second). The other units measure different things—volt is potential difference (the push that drives charges), joule is energy, and ohm is resistance. So the ampere is the correct unit for electric current.

5. What is volume?

A. The amount of space an object occupies.

B. The weight of an object.

C. The speed of an object.

D. The temperature of an object.

Volume is the amount of space an object occupies. This helps us distinguish volume from weight (how heavy something is under gravity), from speed (how fast something moves), and from temperature (how hot or cold something is). We measure volume in cubic units for solids, like cubic centimeters or cubic meters, and in liters or milliliters for liquids. For regular-shaped objects, you can find volume by multiplying dimensions such as length × width × height, while for irregular shapes you can use the water-displacement method—submerge the object in a graduated cylinder and watch the water rise to see how much space it takes up.

6. Which of the following is an example of a chemical change?

A. Ice melting.

B. Iron rusting.

C. Boiling water.

D. Dissolving sugar in water.

Chemical changes happen when substances react to form new substances with different properties. Rusting is a classic example because iron reacts with oxygen (and water) to form iron oxide, a material with a different chemical composition and characteristics than the original iron. This isn't just a change in appearance; a new substance with new bonds is created. The other options are physical changes: melting ice and boiling water involve changing state, not composition, and dissolving sugar in water keeps the sugar as the same substance, just dispersed. So the example of a chemical change is iron rusting.

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7. What term describes a substance that has several unpaired electrons per atom and is strongly attracted to magnets?

A. Ferromagnetic

B. Paramagnetic

C. Nonmagnetic

D. Diamagnetic

When a material has several unpaired electrons per atom, those tiny magnetic moments can interact strongly with each other and align in the same direction across many atoms. This creates a large, collective magnetic field, so the substance is pulled very strongly toward a magnet and can even become magnetized on its own. That behavior is called ferromagnetic. In contrast, materials with unpaired electrons but weaker interactions only show a tiny attraction that disappears when the external field is removed (paramagnetic). Materials with all electrons paired have little to no net magnetic moment, so they are not attracted to magnets (diamagnetic or nonmagnetic).

8. In an electric circuit, how do series and parallel circuits differ?

A. In series, voltage is the same across each component; in parallel, current is the same through each component.

B. In series, components share the same current; in parallel, components share the same voltage and current can vary.

C. In series, resistance decreases when more components are added; in parallel, resistance changes with number of paths.

D. In series, current increases with more components; in parallel, current decreases.

The main idea is how current and voltage are distributed in series versus parallel circuits. In a series circuit there's only one path for the current, so the same current flows through every component. The voltages across the individual components add up to the total supply voltage. In a parallel circuit, each component is connected directly across the same voltage source, so each branch has the same voltage across it, but the currents in the branches can vary depending on each path's resistance. The total current drawn from the source is the sum of all branch currents. That's why the correct description says the same current flows through all parts in series, while in parallel the voltage is the same across each component and the branch currents can differ. The other statements mix up these relationships: in series adding components does not decrease resistance, it increases it; in parallel adding paths typically lowers total resistance; and current is not inherently forced to increase or decrease with more components in series.

9. Which term describes energy due to motion?

A. Kinetic Energy

B. Potential Energy

C. Thermal Energy

D. Chemical Energy

Energy that is due to motion is called kinetic energy. This type of energy depends on how fast something is moving and how heavy it is—the faster and heavier, the more kinetic energy it has. When a moving object slows down or stops, that kinetic energy is transformed into other forms of energy, like heat or sound. Other terms describe different ideas: potential energy is stored energy due to position, thermal energy comes from the microscopic motion of particles and relates to temperature, and chemical energy is stored in chemical bonds. A moving ball or car shows kinetic energy because its motion represents energy in action.

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10. In a sand and water mixture, which component passes through the filter?

A. Water (the solvent) passes through.

B. Sand (the solute) passes through.

C. Neither passes through.

D. Both pass through.

Filtration separates solids from liquids based on particle size. The filter blocks larger solid particles while allowing the liquid to pass through. In a sand and water mixture, sand is the solid and is kept on the filter, while water—being the liquid—flows through and becomes the filtrate.

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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://abekasciencematterenergy7.examzify.com

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

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