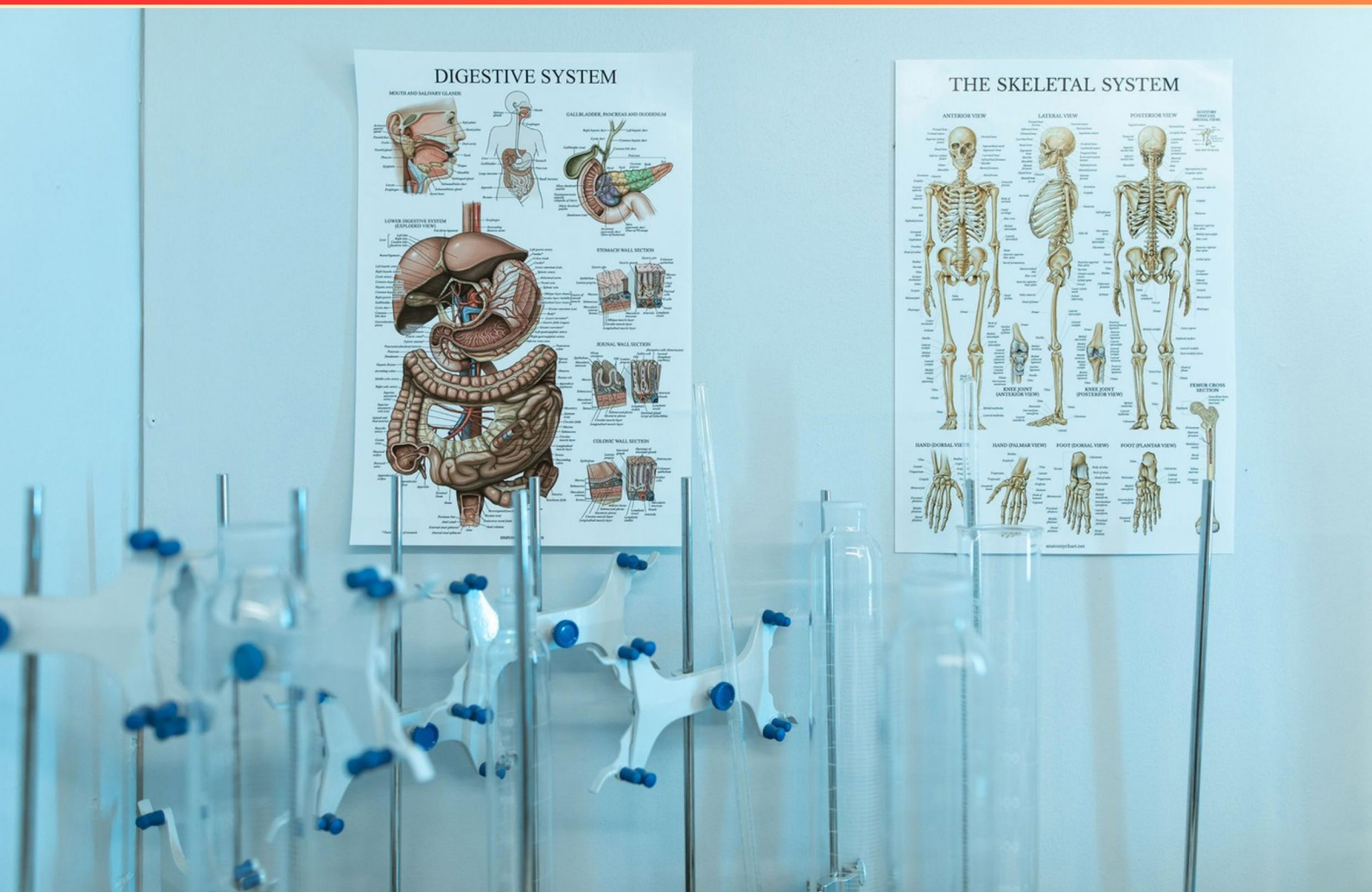


ABEKA SCIENCE MATTER AND ENERGY TEST 7 PRACTICE (SAMPLE)

STUDY GUIDE



Prepare with structure. Pass with confidence



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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 statement correctly describes the three classic states of matter and a key property of each?**
 - A. Solids have definite shape and volume; liquids have definite volume but take the shape of their container; gases have neither definite shape nor volume.
 - B. Solids have no definite shape; liquids have no definite volume; gases have definite shape.
 - C. Solids flow easily; liquids are rigid; gases are incompressible.
 - D. All states have the same shape and volume.
- 2. What determines the pitch of a sound?**
 - A. The frequency of the vibrating source; higher frequency means higher pitch
 - B. The amplitude of the vibration
 - C. The medium through which the sound travels
 - D. The distance from the source
- 3. Which property would you use to identify a substance by its boiling behavior?**
 - A. Melting Point
 - B. Boiling Point
 - C. Density
 - D. Conductivity
- 4. What circuit-protection device uses a narrow strip of metal to prevent excessive current through a circuit?**
 - A. Fuse
 - B. Circuit breaker
 - C. Resistor
 - D. Switch
- 5. How much power does a hair dryer use if it draws 15 A of current at 100 V?**
 - A. 1500 W
 - B. 150 W
 - C. 15 W
 - D. 15000 W

- 6. In a parallel circuit, which statement is true about the voltage across each branch?**
- A. The current through each branch is the same
 - B. The voltage across each branch is the same
 - C. The total current is fixed regardless of branches
 - D. The resistance of the circuit equals the resistance of a single branch
- 7. Which term refers to the amount of matter in an object?**
- A. Weight
 - B. Volume
 - C. Mass
 - D. Density
- 8. A positively charged rod touches the top of an uncharged electroscope. Describe the leaves' movement when a negatively charged rod is brought near to the top of this electroscope.**
- A. The leaves move closer together.
 - B. The leaves move apart.
 - C. The leaves stay the same.
 - D. The leaves disappear.
- 9. Why do objects appear colored?**
- A. They emit light of all wavelengths
 - B. They absorb all light
 - C. They reflect certain wavelengths while absorbing others
 - D. They transmit all wavelengths
- 10. Which phase changes require energy input, and which release energy?**
- A. Melting, vaporization, and sublimation release energy; freezing, condensation, and deposition require energy.
 - B. Melting, vaporization, and sublimation require energy input; freezing, condensation, and deposition release energy.
 - C. All phase changes release energy.
 - D. None involve energy changes.

Answers

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

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Explanations

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1. Which statement correctly describes the three classic states of matter and a key property of each?

- A. Solids have definite shape and volume; liquids have definite volume but take the shape of their container; gases have neither definite shape nor volume.**
- B. Solids have no definite shape; liquids have no definite volume; gases have definite shape.
- C. Solids flow easily; liquids are rigid; gases are incompressible.
- D. All states have the same shape and volume.

States of matter differ by how tightly their particles are arranged and how freely they move, which determines shape and volume. In a solid, particles are tightly packed and can only vibrate in place, giving a definite shape and a definite volume. In a liquid, particles are less tightly held and can slide past one another, so it has a definite volume but takes the shape of its container. In a gas, particles are far apart and move freely, so there is no fixed shape or volume; it expands to fill the space available. The other statements mix up these ideas: liquids do have a definite volume, gases do not have a definite shape, and solids aren't the ones that flow or fill space indiscriminately.

2. What determines the pitch of a sound?

- A. The frequency of the vibrating source; higher frequency means higher pitch**
- B. The amplitude of the vibration
- C. The medium through which the sound travels
- D. The distance from the source

Pitch is determined by how fast the source vibrates—the frequency. When something vibrates more quickly, it makes more cycles per second, and we hear a higher note. That's why tightening a guitar string or shortening it raises the pitch—the vibration frequency increases. The amplitude tells how loud the sound is, not how high it sounds. The medium mainly affects how fast sound travels and can influence tone quality, while distance from the source changes loudness with distance but not the pitch in normal conditions.

3. Which property would you use to identify a substance by its boiling behavior?

- A. Melting Point
- B. Boiling Point**
- C. Density
- D. Conductivity

Boiling point is the temperature at which a liquid's vapor pressure equals the surrounding pressure, causing it to boil. This temperature is a distinctive property for a pure substance at a fixed pressure, so you can use how it boils to help identify it. At standard atmospheric pressure, a pure substance will boil at a specific temperature, and observing that boiling behavior provides a reliable clue about what the substance is. When heating, the liquid stays at the same temperature while it boils, then the temperature rises again once it has fully turned into gas. That makes boiling point the key property for identifying substances by their boiling behavior. Melting point tells you when a solid becomes a liquid, not when a liquid boils; density is about mass per volume and doesn't describe a phase change; conductivity relates to how well a material conducts electricity, which is unrelated to boiling.

4. What circuit-protection device uses a narrow strip of metal to prevent excessive current through a circuit?

A. Fuse

B. Circuit breaker

C. Resistor

D. Switch

A fuse protects a circuit by interrupting current when it overheats due to too much current. Inside is a very narrow strip of metal that conducts normally, but when the current exceeds the fuse's rating, heat from the current melts the strip and opens the circuit, stopping the current flow. Because the strip melts, a fuse is a one time protection device and must be replaced after it blows. Other devices handle protection differently: a circuit breaker trips and can be reset, a resistor only limits current, and a switch simply opens or closes the circuit.

5. How much power does a hair dryer use if it draws 15 A of current at 100 V?

A. 1500 W

B. 150 W

C. 15 W

D. 15000 W

Power in an electrical circuit is found by multiplying the voltage by the current ($P = V \times I$). If a hair dryer operates at 100 volts and draws 15 amperes, its power is $100 \times 15 = 1500$ watts. So the correct amount is 1500 W (about 1.5 kilowatts). The other numbers don't fit because they would require different combinations of voltage and current than 100 V and 15 A. Real-world hair dryers around 1.5 kW match this calculation.

6. In a parallel circuit, which statement is true about the voltage across each branch?

A. The current through each branch is the same

B. The voltage across each branch is the same

C. The total current is fixed regardless of branches

D. The resistance of the circuit equals the resistance of a single branch

In a parallel circuit, all branches are connected across the same two points, so the voltage across each branch is the same. That means each branch has the full source voltage, even if their resistances differ. The current in each branch depends on that branch's resistance via $I_{\text{branch}} = V/R_{\text{branch}}$, so currents can be different while the voltage stays equal. The total current drawn from the source is the sum of the branch currents, and the overall (equivalent) resistance is less than any individual branch, since $1/R_{\text{eq}} = \sum(1/R_i)$. So the statement that the voltage across each branch is the same is the correct description.

7. Which term refers to the amount of matter in an object?

- A. Weight
- B. Volume
- C. Mass
- D. Density

Mass is the amount of matter in an object. This makes mass an intrinsic quantity that doesn't change with location or gravity, so it stays the same whether you're on Earth or the Moon. It's measured with a balance and expressed in units like grams or kilograms. Weight, by contrast, is the force of gravity acting on that mass and can vary with gravity. Volume is the amount of space the object occupies, and density is how much mass is packed into that volume (mass per unit volume). Since the question focuses on the amount of matter, the term that fits best is mass.

8. A positively charged rod touches the top of an uncharged electroscope. Describe the leaves' movement when a negatively charged rod is brought near to the top of this electroscope.

- A. The leaves move closer together.
- B. The leaves move apart.
- C. The leaves stay the same.
- D. The leaves disappear.

When a charged conductor is near another charge, the charges inside rearrange without the objects touching. A negatively charged rod near the top of a positively charged electroscope causes induction: the region at the top facing the rod becomes more positive (electrons are pushed away from that area). This redistribution reduces the amount of like charge on the leaves. With less repulsion between the leaves, they move toward each other. The overall charge stays positive, since there's no contact, but the leaves' repulsion weakens due to the induction. That's why the leaves come closer.

9. Why do objects appear colored?

- A. They emit light of all wavelengths
- B. They absorb all light
- C. They reflect certain wavelengths while absorbing others
- D. They transmit all wavelengths

When light shines on an object, the color you see comes from the wavelengths that are not absorbed by the object's surface. The surface's pigments absorb some colors and reflect others. The reflected wavelengths enter your eyes and give you the color you perceive. So a surface that reflects only red light while absorbing the rest looks red, a surface that absorbs all wavelengths would look black, and a surface that simply transmits or emits all light would not show the characteristic color of reflected light. This is why a green leaf looks green: it reflects green wavelengths and absorbs red and blue.

10. Which phase changes require energy input, and which release energy?

- A. Melting, vaporization, and sublimation release energy; freezing, condensation, and deposition require energy.
- B. Melting, vaporization, and sublimation require energy input; freezing, condensation, and deposition release energy.**
- C. All phase changes release energy.
- D. None involve energy changes.

Phase changes involve energy flow in or out as molecules rearrange. To melt a solid into a liquid, energy must be absorbed to weaken and break the attractions holding the particles in a rigid structure. The same idea applies to vaporization, where a liquid becomes a gas, and to sublimation, where a solid goes straight to gas; all of these require energy input, making them endothermic. On the other hand, when a liquid freezes into a solid, a gas condenses into a liquid, or a gas deposits into a solid, energy is released as the new bonds form, so these are exothermic processes. At a given pressure, the temperature remains constant during these phase changes while the energy goes into changing the state rather than increasing temperature.

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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