

SDI INTRODUCTION TO PHYSICAL SCIENCE (SC1-101) 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. Which human sense provides the most information about the external world first?

- A. Taste
- B. Hearing
- C. Touch
- D. Sight

2. What does conduction refer to?

- A. The transfer of heat through direct contact between materials
- B. The transfer of heat through fluid movement
- C. The radiation of energy through space
- D. The process of heat retention in solids

3. What is static electricity?

- A. An excess of thermal energy in a material
- B. An imbalance of electric charges within or on the surface of a material
- C. The flow of electric current
- D. A type of electrical circuit

4. What distinguishes a physical change from a chemical change?

- A. A physical change alters the form of a substance without changing its chemical composition, while a chemical change results in the formation of new substances
- B. A physical change always involves a change in state, whereas chemical changes do not
- C. A physical change is reversible, while a chemical change is permanent
- D. A physical change changes the chemical properties of a substance

5. Mass is a measure of what property of an object?

- A. Weight
- B. Energy
- C. Volume
- D. Inertia

- 6. Which quantity changes the state of motion of an object?**
- A. Force
 - B. Energy
 - C. Distance
 - D. Momentum
- 7. Which is regarded as the most fundamental of the physical sciences?**
- A. Chemistry
 - B. Biology
 - C. Physics
 - D. Astronomy
- 8. When a pair of electrons is shared by two atoms, what type of bond exists between them?**
- A. Covalent
 - B. Ionic
 - C. Hydrogen
 - D. Metallic
- 9. Which of the following best describes a photon?**
- A. A particle that carries electric charge
 - B. An elementary particle of light or electromagnetic radiation
 - C. A gaseous substance
 - D. A waveform in a vacuum
- 10. Which of the following is not considered a physical property of matter?**
- A. Density
 - B. Melting Point
 - C. Flammability
 - D. Boiling Point

Answers

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

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Explanations

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1. Which human sense provides the most information about the external world first?

- A. Taste
- B. Hearing
- C. Touch
- D. Sight**

The sense that provides the most information about the external world first is sight. This is because vision allows humans to take in a broad spectrum of information and stimuli almost instantaneously. Our eyes can detect light and color, enabling us to perceive our surroundings, recognize objects, assess distances, and respond to changes in the environment rapidly. When it comes to survival and navigation, sight plays a critical role. For example, being able to see potential hazards or opportunities in our environment allows for quick decision-making and responses. While hearing, touch, and taste are important senses that contribute to our understanding of the world, they typically provide information that is more contextual or detailed rather than the immediate broad overview that vision offers. Therefore, sight is generally considered the primary sense through which we assess and interact with our environment first.

2. What does conduction refer to?

- A. The transfer of heat through direct contact between materials**
- B. The transfer of heat through fluid movement
- C. The radiation of energy through space
- D. The process of heat retention in solids

Conduction refers to the transfer of heat through direct contact between materials. This process occurs at the molecular level, where kinetic energy is passed from one molecule to another when they are in contact. For instance, when one end of a metal rod is heated, the molecules at that end begin to vibrate more rapidly. These vibrations are transmitted through the rod as neighboring molecules collide with each other, effectively transferring heat along the length of the rod. This mechanism is distinct from other forms of heat transfer. Convection, for example, involves the movement of fluids (liquids or gases) and does not occur via direct contact, as it relies on the bulk movement of the fluid itself to distribute heat. Radiation, meanwhile, is the transfer of energy in the form of electromagnetic waves and does not require a medium, allowing heat to be transferred through the vacuum of space. The concept of heat retention in solids speaks to the ability of a material to hold or store thermal energy, but it does not define the process of conduction itself. Understanding conduction is essential in various applications, from cooking to materials science, where heat transfer plays a critical role.

3. What is static electricity?

- A. An excess of thermal energy in a material
- B. An imbalance of electric charges within or on the surface of a material**
- C. The flow of electric current
- D. A type of electrical circuit

Static electricity refers to the situation where there is an imbalance of electric charges either within or on the surface of a material. This imbalance results from the accumulation of excess charges, which can happen through processes such as friction, which can cause electrons to be transferred from one material to another. This build-up of charges can lead to various phenomena, such as the attraction or repulsion of objects, and can also cause electric shocks when a discharge occurs. In contrast, thermal energy and electric current relate to different concepts. Thermal energy involves heat within a material rather than charge imbalance, while the flow of electric current specifically describes the movement of electric charges, which is dynamic rather than static. Furthermore, a type of electrical circuit primarily involves a closed loop that allows current to flow, which does not encapsulate the concept of static electricity. Therefore, the correct definition pertaining to static electricity is indeed that it is an imbalance of electric charges.

4. What distinguishes a physical change from a chemical change?

- A. A physical change alters the form of a substance without changing its chemical composition, while a chemical change results in the formation of new substances**
- B. A physical change always involves a change in state, whereas chemical changes do not
- C. A physical change is reversible, while a chemical change is permanent
- D. A physical change changes the chemical properties of a substance

The distinction between a physical change and a chemical change is fundamentally based on whether the substance's chemical composition is altered. A physical change involves alterations in the form or appearance of a substance—such as phase changes (like melting, freezing, or boiling)—without affecting the underlying chemical identity. For example, when ice melts into water, the molecules remain H₂O, merely transitioning from one state to another. In contrast, a chemical change involves a transformation that results in the formation of one or more new substances, which have different chemical properties. An example of this is when iron rusts; it reacts with oxygen to form iron oxide, which has distinct properties compared to the original metal. Understanding this distinction is crucial, as it helps in identifying processes taking place in various scientific fields, from chemistry to materials science. Therefore, recognizing that physical changes affect form but not composition, while chemical changes create entirely new substances, clarifies why the correct statement is centered on the alteration of substance identity.

5. Mass is a measure of what property of an object?

- A. Weight
- B. Energy
- C. Volume
- D. Inertia**

Mass is a measure of an object's inertia, which is the resistance of an object to any change in its state of motion. This means that a more massive object requires more force to change its velocity compared to a less massive object. Inertia is fundamentally tied to mass; the greater the mass, the greater the inertia, making it more difficult to start moving or to stop. In contrast, weight is the force exerted by gravity on an object, which is dependent on both mass and the acceleration due to gravity. Energy and volume are related to an object's physical properties but do not directly describe mass. Understanding mass in terms of inertia helps explain the behavior of objects in motion and is a foundational concept in physics.

6. Which quantity changes the state of motion of an object?

- A. Force**
- B. Energy
- C. Distance
- D. Momentum

The quantity that changes the state of motion of an object is force. According to Newton's laws of motion, specifically the second law, when a force is applied to an object, it causes the object to accelerate in the direction of the force. This acceleration represents a change in the object's velocity, which is directly related to its state of motion. Therefore, applying a force can increase, decrease, or change the direction of an object's motion. Energy, while crucial in understanding the behavior of objects, does not directly change the state of motion by itself. Instead, it is often the result of doing work on an object, which involves applying force over a distance. Distance measures the space covered by an object during its motion, but does not inherently change that motion. Momentum is a property of moving objects, related to both their mass and velocity, but simply having momentum does not signify a change in motion; changes in momentum occur as a result of applied forces. Thus, force is the fundamental quantity responsible for altering an object's state of motion.

7. Which is regarded as the most fundamental of the physical sciences?

- A. Chemistry
- B. Biology
- C. Physics**
- D. Astronomy

Physics is regarded as the most fundamental of the physical sciences because it serves as the foundational basis for understanding the principles governing the natural phenomena of the universe. Physics explores the laws of matter and energy, motion, force, and the fundamental interactions between particles, which are essential concepts that influence all other branches of science. Chemistry is often seen as a more specialized field that builds upon the principles of physics. It focuses on chemical reactions, molecular structures, and the interactions of atoms and molecules. While biology studies living organisms and their processes, it too relies on physical principles for understanding mechanisms at a cellular and molecular level. Astronomy, though a significant field that examines celestial bodies and the universe at large, draws on principles established in physics to interpret the behavior and interactions of galaxies, stars, planets, and other cosmic phenomena. Thus, since physics lays the groundwork for understanding all these scientific domains, it is considered the most fundamental of the physical sciences.

8. When a pair of electrons is shared by two atoms, what type of bond exists between them?

A. Covalent

B. Ionic

C. Hydrogen

D. Metallic

When a pair of electrons is shared between two atoms, this creates a covalent bond. Covalent bonding typically occurs between nonmetals and involves the mutual sharing of one or more pairs of electrons to achieve a full outer electron shell for each atom, thus stabilizing both. This sharing allows each atom to gain the electron configuration similar to that of noble gases, which is a more stable state. Covalent bonds can vary in strength and length depending on the number of shared electron pairs. For example, a single covalent bond involves one shared pair of electrons, a double bond involves two pairs, and a triple bond involves three pairs. This characteristic distinguishes covalent bonds from other types of bonds, such as ionic, which involve the transfer of electrons from one atom to another rather than sharing, and metallic, which involve a 'sea of electrons' that are free to move around metal atoms. Hydrogen bonds, while a significant intermolecular force, are not true bonds in the strict sense; they arise from the attraction between a hydrogen atom covalently bonded to a highly electronegative atom (like oxygen or nitrogen) and another electronegative atom. This underlines the unique nature of covalent bonding as the direct sharing of electrons.

9. Which of the following best describes a photon?

A. A particle that carries electric charge

B. An elementary particle of light or electromagnetic radiation

C. A gaseous substance

D. A waveform in a vacuum

A photon is best described as an elementary particle of light or electromagnetic radiation. This definition captures its fundamental role in quantum physics, where photons are considered the basic units that carry electromagnetic force. They are massless particles that move at the speed of light and exhibit both wave-like and particle-like properties, a duality that is central to quantum mechanics. Photons are responsible for the transmission of light and other forms of electromagnetic radiation, ranging from radio waves to gamma rays. This is significant in understanding how energy moves through space and how electromagnetic interactions take place. The other options do not accurately characterize a photon: for example, while some particles carry electric charge, photons do not have any charge. The notion of a gaseous substance does not apply to photons as they are not made up of atoms or molecules. Additionally, while photons do exhibit wave characteristics, the description of a waveform in a vacuum is overly simplistic and does not acknowledge the particle nature of a photon. Thus, identifying a photon as an elementary particle of light encapsulates its properties and role in physics succinctly and effectively.

10. Which of the following is not considered a physical property of matter?

- A. Density
- B. Melting Point
- C. Flammability
- D. Boiling Point

Flammability is classified as a chemical property of matter. It describes how a substance reacts with oxygen and the conditions under which it can ignite, which involves a change in the substance's chemical composition. In contrast, the other options—density, melting point, and boiling point—are all physical properties. Physical properties are characteristics that can be observed or measured without altering the substance's chemical identity. Density refers to the mass per unit volume of a substance, while melting point is the temperature at which a solid becomes a liquid, and boiling point is the temperature at which a liquid becomes a gas. All these properties can be observed or measured without changing the material itself, highlighting why flammability stands apart in this classification.

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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://sdisc1101.examzify.com>

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

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