SDI INTRODUCTION TO PHYSICAL SCIENCE (SC1-101) PRACTICE TEST (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. What process transfers energy via electromagnetic waves?

A. Conduction

B. Convection

C. Radiation

D. Conduction and Radiation

2. 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

3. What is the charge of a proton?

A. Negative

B. No charge

C. Neutral

D. Positive

4. What happens to the wavelength of a wave if the frequency is increased while keeping the speed constant?

A. The wavelength increases.

B. The wavelength decreases.

C. The wavelength remains the same.

D. The wavelength fluctuates unpredictably.

5. How does a solid differ from a liquid?

A. Solids have a definite shape and volume, while liquids have a definite volume but take the shape of their container

B. Solids are always heavier than liquids

C. Solids can flow, while liquids cannot

D. Liquids are composed of molecules that are tightly packed, unlike solids

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6. Which metric prefix signifies "thousandth"?

A. Kilo

B. Deci

C. Centi

D. Milli

7. Which term describes a substance made of only one type of atom?

A. Compound

B. Homogeneous mixture

C. Element

D. Solution

8. In water, energy is propagated in media as _____.

A. Particles

B. Light

C. Thermal energy

D. Waves

9. Which principle explains why objects float or sink in a fluid?

A. Pascal's Principle

B. Archimedes' Principle

C. Bernoulli's Principle

D. Newton's Principle

10. What does a magnetic field affect?

A. All forms of energy

B. Only materials made of plastic

C. Magnetic forces around a magnet

D. Electric currents with no relation to magnetism

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Answers

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

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Explanations

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1. What process transfers energy via electromagnetic waves?

A. Conduction

B. Convection

C. Radiation

D. Conduction and Radiation

The correct answer is C, radiation, because it specifically refers to the transfer of energy through electromagnetic waves. This form of energy transfer doesn't require a medium, meaning it can occur through a vacuum, such as the energy from the Sun traveling through space to reach Earth. Electromagnetic waves encompass a variety of radiation types, including visible light, infrared, and ultraviolet light. Conduction, on the other hand, is the transfer of energy through direct contact, while convection involves the transfer of heat through the movement of fluids (liquids or gases) due to differences in density. Both conduction and convection require a medium to facilitate energy transfer, which is not the case with radiation. Thus, radiation is uniquely characterized by its ability to transmit energy across empty spaces, making it the correct choice for this question.

2. 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.

3. What is the charge of a proton?

A. Negative

B. No charge

C. Neutral

D. Positive

The charge of a proton is positive, which is why option D is the correct answer. In atomic structure, protons are positively charged particles found in the nucleus of an atom, and they play a crucial role in determining the element's identity and its chemical properties. The positive charge of a proton is equal in magnitude but opposite in sign to that of an electron, which is negatively charged. This balance of charges in an atom contributes to its overall electrical neutrality when the number of protons equals the number of electrons. Understanding this basic concept is fundamental in physical science, as it lays the groundwork for exploring atomic structure, chemical bonding, and the behavior of matter.

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4. What happens to the wavelength of a wave if the frequency is increased while keeping the speed constant?

A. The wavelength increases.

B. The wavelength decreases.

C. The wavelength remains the same.

D. The wavelength fluctuates unpredictably.

When the frequency of a wave is increased while the speed of the wave remains constant, the wavelength decreases. This relationship can be understood through the wave equation, which states that the speed of a wave (v) is equal to the frequency (f) multiplied by the wavelength (λ): $v = f * \lambda$. If the speed (v) is constant and the frequency (f) increases, the wavelength (λ) must decrease in order to maintain the equality of the equation. This is because, if you consider an increase in frequency meaning more cycles occur in a given time frame, each cycle must take up less distance—thus leading to a shorter wavelength. Understanding this relationship is crucial in many scientific applications, such as in telecommunications, where signal frequency and wavelength play significant roles in transmission capacity and range.

5. How does a solid differ from a liquid?

A. Solids have a definite shape and volume, while liquids have a definite volume but take the shape of their container

B. Solids are always heavier than liquids

C. Solids can flow, while liquids cannot

D. Liquids are composed of molecules that are tightly packed, unlike solids

The distinction between solids and liquids fundamentally lies in their arrangement and behavior of particles. Solids possess a definite shape and volume because their particles are tightly packed in a fixed formation, allowing them to maintain their shape without the influence of external forces. On the other hand, while liquids also have a definite volume, their particles are less tightly packed and can move more freely. This flexibility allows liquids to adapt to the shape of their container, resulting in the characteristic behavior of flowing to fill the available space. The other choices do not accurately represent the fundamental differences. For example, weight comparisons between solids and liquids can vary widely depending on the materials being compared, making the idea that solids are always heavier inaccurate. The notion that solids can flow like liquids is also incorrect, as it is liquids that exhibit this property. Lastly, the statement about molecular composition mischaracterizes the arrangement; while both solid and liquid molecules can be close together, it is the fixed arrangement in solids that defines their shape, not the mere proximity of particles.

6. Which metric prefix signifies "thousandth"?

A. Kilo

B. Deci

C. Centi

D. Milli

The metric prefix that signifies "thousandth" is "milli." Milli indicates a factor of one-thousandth, or 0.001 of the base unit. For example, one millimeter (mm) is equal to one-thousandth of a meter. This prefix is commonly used in scientific measurements, particularly in contexts where small quantities are involved, like in laboratory measurements or when dealing with scale in physical science. In contrast, the other prefixes either represent larger or different quantities: "kilo" signifies one thousand, "deci" indicates one-tenth, and "centi" denotes one-hundredth. Understanding these prefixes is crucial in the metric system, as they help convey the scale of measurements used in physical sciences.

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7. Which term describes a substance made of only one type of atom?

A. Compound

B. Homogeneous mixture

C. Element

D. Solution

The term that describes a substance made of only one type of atom is "element." An element is a pure substance that cannot be broken down into simpler substances by chemical means. Each element is defined by the number of protons in its atomic nucleus, which is referred to as the atomic number. Elements are the fundamental building blocks of all matter and are represented on the periodic table. In contrast, a compound consists of two or more different types of atoms chemically bonded together, forming a new substance with properties different from the individual elements that compose it. A homogeneous mixture consists of two or more substances that are uniformly distributed throughout, meaning the composition is consistent but not made from a single type of atom. A solution is a specific type of homogeneous mixture where one substance (solute) is dissolved in another (solvent).

8. In water, energy is propagated in media as _____.

A. Particles

B. Light

C. Thermal energy

D. Waves

In water, energy is propagated as waves. This is because waves are disturbances that transfer energy through a medium without permanently displacing the particles of the medium. In the case of water, waves can be mechanical vibrations that travel through the liquid, such as surface waves caused by wind or pressure waves that move through the water. When energy is imparted to water, it creates fluctuations in the positions of the water molecules, which then transmit energy from one molecule to another, creating wave motion. This can be seen in ocean waves, where the energy from wind action causes the water to move up and down, producing visible wave patterns. Additionally, waves can also encompass sound waves traveling through water, which are vibrations of water molecules that also illustrate the wave concept. The other options, such as particles, light, and thermal energy, may describe different forms of energy propagation, but they do not accurately represent the primary mechanism by which energy travels in water, which is through wave motion.

9. Which principle explains why objects float or sink in a fluid?

A. Pascal's Principle

B. Archimedes' Principle

C. Bernoulli's Principle

D. Newton's Principle

Archimedes' Principle provides the fundamental understanding of buoyancy, explaining why objects either float or sink when placed in a fluid. This principle states that an object submerged in a fluid experiences an upward buoyant force that is equal to the weight of the fluid displaced by the object. When the upward buoyant force is greater than the weight of the object, the object will float. Conversely, if the object's weight exceeds the buoyant force, it will sink. This principle relates directly to the concepts of density and displacement. An object with a density lower than that of the fluid will displace a volume of fluid equal to its weight before it is fully submerged, leading it to float. In contrast, an object with a higher density than the fluid will displace less fluid than its own weight, thus sinking. Understanding Archimedes' Principle is essential for analyzing various phenomena involving buoyancy in different fluids, making it a key concept in physical science.

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10. What does a magnetic field affect?

A. All forms of energy

B. Only materials made of plastic

C. Magnetic forces around a magnet

D. Electric currents with no relation to magnetism

A magnetic field affects the magnetic forces surrounding a magnet. This is because magnetic fields are produced by magnets and electric currents, and they exert forces on other magnets, magnetic materials, and electric currents passing through conductors within the field. When we refer to the magnetic forces around a magnet, it relates to the ability of the magnetic field to attract or repel other magnetic objects, which is a fundamental characteristic of magnetism. The interaction described is critical in many applications, such as in motors, generators, and magnetic storage devices, where the effect of the magnetic field on materials and currents plays a significant role in their operation. Understanding the influence of magnetic fields helps to explain a wide range of physical phenomena and technological applications related to electromagnetism.

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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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