

Western Governors University (WGU) SCIE1020 C165 Integrated Physical Sciences Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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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

- 1. What is the total energy in the particles of an object called?**
 - A. Kinetic energy**
 - B. Thermal energy**
 - C. Potential energy**
 - D. Mechanical energy**
- 2. What is the primary focus of physics as a scientific discipline?**
 - A. The study of substances and their reactions**
 - B. The study of the Earth's structure and processes**
 - C. The study of forces, energy, and motion**
 - D. The study of chemical compounds**
- 3. Which type of rocks are formed from magma or lava?**
 - A. Metamorphic rocks**
 - B. Cemented rocks**
 - C. Sedimentary rocks**
 - D. Igneous rocks**
- 4. What type of model is based on mathematical methods to treat physical objects or phenomena?**
 - A. Computer model**
 - B. Conceptual model**
 - C. Mathematical model**
 - D. Theoretical model**
- 5. During which weather pattern is it likely for temperatures to drop after a cold front passes?**
 - A. During a low pressure system**
 - B. After a warm front**
 - C. During a high pressure system**
 - D. After a cold front**

- 6. Which type of tectonic plate boundary is characterized by plates grinding past each other, leading to quakes with few or no volcanoes?**
- A. Transform boundary**
 - B. Divergent boundary**
 - C. Subduction zone**
 - D. Continental boundary**
- 7. What does energy refer to in a physical context?**
- A. The ability to create force**
 - B. The capacity to do work or cause change**
 - C. The total amount of mass in a system**
 - D. The potential to generate heat**
- 8. What defines a mineral?**
- A. A naturally occurring organic compound**
 - B. A naturally occurring, solid inorganic element or compound**
 - C. A man-made substance**
 - D. Any liquid found in nature**
- 9. Which geological layer encompasses 84% of the Earth's volume and is made of hot, solid rock?**
- A. Crust**
 - B. Outer Core**
 - C. Inner Core**
 - D. Mantle**
- 10. What is the main feature of a divergent boundary?**
- A. Plates colliding**
 - B. Plates moving towards each other**
 - C. Plates moving away from each other**
 - D. Plates forming earthquakes**

Answers

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

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Explanations

1. What is the total energy in the particles of an object called?

A. Kinetic energy

B. Thermal energy

C. Potential energy

D. Mechanical energy

The total energy in the particles of an object is referred to as thermal energy. This form of energy arises from the motion and interactions of particles within a substance. In essence, thermal energy is a measure of the kinetic energy of particles; as particles move faster or more vigorously, they possess greater thermal energy. When considering the nature of thermal energy, it is important to recognize that it is strongly tied to temperature—the warmer an object, the more thermal energy it has due to the increased speed of its molecules. This concept plays a critical role in various physical processes, such as heat transfer, phase changes, and the behavior of gases. Other types of energy mentioned, such as kinetic energy and potential energy, refer to specific forms of energy related to motion or position, rather than an accumulation of energy arising from all the particles in a material. Mechanical energy combines both kinetic and potential energy but does not encompass the total energy from the microscopic interactions within particles that thermal energy does. Therefore, it is clear that thermal energy is the most accurate descriptor of the total energy in the particles of an object.

2. What is the primary focus of physics as a scientific discipline?

A. The study of substances and their reactions

B. The study of the Earth's structure and processes

C. The study of forces, energy, and motion

D. The study of chemical compounds

Physics is predominantly concerned with the principles governing forces, energy, and motion. It aims to understand the fundamental laws that describe how matter interacts and behaves under various conditions. This includes concepts such as gravity, electromagnetism, thermodynamics, and mechanics, which are all vital to explaining the behavior of physical systems in the universe. In contrast, while the other disciplines mentioned focus on aspects of physical and chemical sciences, they are specialized branches and do not encompass the breadth of physics. For example, the study of substances and their reactions pertains to chemistry, and the study of the Earth's structure and processes falls under geology. Similarly, the exploration of chemical compounds is also the domain of chemistry. Therefore, the correct answer highlights the scope of physics as a foundational science that underpins many other fields.

3. Which type of rocks are formed from magma or lava?

- A. Metamorphic rocks
- B. Cemented rocks
- C. Sedimentary rocks
- D. Igneous rocks**

Igneous rocks are formed from the solidification of magma or lava. When magma cools and crystallizes below the Earth's surface, it creates intrusive igneous rocks, while lava that erupts onto the surface cools and solidifies to form extrusive igneous rocks. The characteristics of igneous rocks, such as their texture and mineral composition, depend on the cooling process. In contrast, metamorphic rocks are formed from the alteration of existing rocks (either igneous, sedimentary, or other metamorphic rocks) through heat, pressure, or chemically active fluids, which does not involve the direct cooling of magma or lava. Cemented rocks is an informal term that might refer to sedimentary rocks, which form from the compaction and cementation of sediments rather than the solidification of molten material. Sedimentary rocks themselves are generated through processes such as weathering, erosion, and deposition, not from magma or lava. Thus, the defining feature of igneous rocks as products of the cooling of molten material distinguishes them clearly in the context of rock formation.

4. What type of model is based on mathematical methods to treat physical objects or phenomena?

- A. Computer model
- B. Conceptual model
- C. Mathematical model**
- D. Theoretical model

The correct answer is the mathematical model, which is defined as a representation that uses mathematical language and equations to describe a system or phenomenon. This type of model quantifies relationships and patterns within physical objects or processes, allowing for predictions and analyses that are grounded in mathematical principles. For instance, mathematical models are essential in physics and engineering, where they can represent everything from the motion of planets to the forces acting on bridges. In contrast, computer models often involve simulations that are driven by mathematical equations, but they primarily focus on executing these equations using computational resources. Conceptual models provide a more abstract understanding, using simplified representations of ideas to facilitate comprehension, rather than specific mathematical formulations. Theoretical models focus more on frameworks and ideas that explain phenomena but may not always provide precise quantitative predictions. Thus, mathematical models serve as the foundation for rigorous analysis and quantitative exploration of physical phenomena.

5. During which weather pattern is it likely for temperatures to drop after a cold front passes?

- A. During a low pressure system**
- B. After a warm front**
- C. During a high pressure system**
- D. After a cold front**

The correct answer is after a cold front because cold fronts are associated with a sharp drop in temperature. When a cold front moves into an area, it replaces the warmer air mass that was previously in place. As the cold air moves in, it is denser than the warm air, leading to the displacement of the warmer air upwards. This rapid shift can result in a significant decrease in temperature. Additionally, cold fronts are often associated with shifts in weather conditions, including increased wind, precipitation, and clear skies following the passage of the front, which further contributes to the noticeable drop in temperature. In contrast, the other options focus on different atmospheric conditions that do not typically cause a drop in temperature in the same manner. Low pressure systems can bring varied weather patterns, including storms, but they do not guarantee a temperature drop immediately. Warm fronts usually result in a gradual rise in temperature as they bring warmer air into an area. High pressure systems typically bring stable and clear weather, often associated with warmer temperatures, rather than causing a drop in temperature. Therefore, after a cold front is the most accurate scenario for experiencing a noticeable drop in temperatures.

6. Which type of tectonic plate boundary is characterized by plates grinding past each other, leading to quakes with few or no volcanoes?

- A. Transform boundary**
- B. Divergent boundary**
- C. Subduction zone**
- D. Continental boundary**

The type of tectonic plate boundary characterized by plates grinding past each other is known as a transform boundary. In this scenario, the movement of tectonic plates occurs horizontally against one another. This lateral movement does not create or destroy crust; rather, it primarily results in the buildup of stress along fault lines, which is released in the form of earthquakes. Transform boundaries are particularly known for generating seismic activity, with earthquakes often occurring as the plates suddenly slip. However, the absence of significant volcanic activity at these boundaries is due to the lack of subduction or seafloor spreading processes that would typically allow magma to rise to the surface, which is common in divergent and subduction zone boundaries. Understanding the nature of these boundaries helps clarify why transform boundaries are primarily associated with seismic events rather than volcanic ones, making this the correct answer.

7. What does energy refer to in a physical context?

- A. The ability to create force
- B. The capacity to do work or cause change**
- C. The total amount of mass in a system
- D. The potential to generate heat

In a physical context, energy is defined as the capacity to do work or cause change. This concept is central to understanding various scientific processes and the behavior of systems within physics and chemistry. Energy can be converted from one form to another; for example, kinetic energy can be transformed into potential energy and vice versa. It plays a critical role in countless phenomena, including mechanical motion, thermal processes, electrical currents, and chemical reactions. Understanding energy as the ability to perform work encapsulates its dynamic nature—it is not merely a static quantity but a force for action. Whether it's moving an object, generating heat, or initiating a reaction, energy is at the core of these transformations, underscoring its significance in both theoretical and applied sciences.

8. What defines a mineral?

- A. A naturally occurring organic compound
- B. A naturally occurring, solid inorganic element or compound**
- C. A man-made substance
- D. Any liquid found in nature

The definition of a mineral encompasses several key characteristics, making the chosen answer accurate. A mineral is a naturally occurring substance, meaning it forms through natural geological processes without human intervention. It is solid, which distinguishes minerals from liquids and gases, and exhibits a crystalline structure, where atoms are arranged in a specific, repeating pattern. Moreover, minerals are inorganic, meaning they are not derived from living organisms. This point excludes organic compounds, which are typically associated with biological processes. By being an inorganic element or compound, minerals can include various types of chemical substances, such as silicates, carbonates, oxides, and so forth, reflecting their diversity in composition. The other choices involve misconceptions about what constitutes a mineral. The first option refers to organic compounds, which do not fit the inorganic requirement. The third option mentions man-made substances, which cannot be classified as minerals due to their artificial origin. The fourth option discusses liquids, which lack the solid state necessary to be considered minerals. Thus, the definition of a mineral as a naturally occurring, solid inorganic element or compound aligns with the established scientific criteria that identify minerals.

9. Which geological layer encompasses 84% of the Earth's volume and is made of hot, solid rock?

- A. Crust**
- B. Outer Core**
- C. Inner Core**
- D. Mantle**

The mantle is indeed the geological layer that encompasses 84% of the Earth's total volume and is made primarily of hot, solid rock. Located between the crust above it and the outer core below, the mantle exhibits a fascinating characteristic known as plasticity, which allows it to flow slowly over geological timescales. This slow movement is crucial for tectonic processes, influencing phenomena such as earthquakes, volcanic activity, and continental drift. Composed mainly of silicate minerals rich in magnesium and iron, the mantle is significantly denser compared to the crust, which is the outermost layer of the Earth. The immense volume of the mantle plays a pivotal role in Earth's geology, as it acts as the source of magma that can lead to volcanic eruptions when it rises towards the surface. Understanding the properties and behavior of the mantle is essential for geologists studying the dynamics of the Earth and its internal processes.

10. What is the main feature of a divergent boundary?

- A. Plates colliding**
- B. Plates moving towards each other**
- C. Plates moving away from each other**
- D. Plates forming earthquakes**

The main feature of a divergent boundary is that plates are moving away from each other. This separation occurs in locations where tectonic plates are spreading apart, such as at mid-ocean ridges. As the plates drift apart, magma rises from beneath the Earth's crust to fill the gap, creating new oceanic crust. This process is responsible for the formation of new geological features, like ocean ridges and rift valleys. Divergent boundaries are often associated with volcanic activity and the generation of new seafloor, playing a crucial role in the plate tectonics theory by contributing to the overall movement of Earth's lithosphere.

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://wgu-scie1020-c165.examzify.com>

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