

WESTERN GOVERNORS UNIVERSITY (WGU) SCIE1020 C165 INTEGRATED PHYSICAL SCIENCES PRACTICE EXAM (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. What characterizes a homogeneous mixture?

- A. Substances are visibly distinct
- B. Substances are unevenly distributed
- C. All components are evenly distributed
- D. Only one phase present

2. What does the principle of crosscutting relationships imply?

- A. Rocks at the surface are the oldest
- B. Any geological feature that cuts across another is younger than the feature it cuts
- C. All volcanic rocks are older than sedimentary rocks
- D. Rock layers form in parallel lines

3. What is primarily responsible for the seasonal weather changes we experience on Earth?

- A. Distance from the sun
- B. Earth's tilt on its axis
- C. Atmospheric pressure
- D. Ocean currents

4. Which small, rocky bodies orbit the sun?

- A. Comets
- B. Asteroids
- C. Meteorites
- D. Planets

5. What is the term for the state to which an oscillating object eventually returns?

- A. Frequency
- B. Amplitude
- C. Equilibrium
- D. Waveform

- 6. What is defined as a front along which a warm air mass moves over a mass of cooler air?**
- A. Cold front
 - B. Warm front
 - C. Stationary front
 - D. Occluded front
- 7. What is the outermost layer of Earth's atmosphere called?**
- A. Exosphere
 - B. Thermosphere
 - C. Mesosphere
 - D. Stratosphere
- 8. Which process involves hydrogen and other nuclei fusing together into larger nuclei?**
- A. Nuclear fusion
 - B. Fission
 - C. Radioactive decay
 - D. Combustion
- 9. Which convergent boundary features a seafloor plate and a continental plate, resulting in deep ocean trenches and volcanic mountain ranges?**
- A. Continental to continental boundary
 - B. Oceanic to continental boundary
 - C. Oceanic to oceanic boundary
 - D. Divergent boundary
- 10. What is the lowest layer of Earth's atmosphere, where weather occurs?**
- A. Stratosphere
 - B. Troposphere
 - C. Mesosphere
 - D. Thermosphere

Answers

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

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Explanations

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1. What characterizes a homogeneous mixture?

- A. Substances are visibly distinct
- B. Substances are unevenly distributed
- C. All components are evenly distributed**
- D. Only one phase present

A homogeneous mixture is characterized by the even distribution of its components throughout the mixture. This means that the different substances are blended together in such a way that the composition is uniform, and any sample taken from the mixture will have the same proportion of the components as any other sample. For example, when salt is dissolved in water, it forms a single-phase solution where the salt is completely dissolved and indistinguishable from the water. The definition of a homogeneous mixture also implies that it appears as a single phase to the naked eye, making it difficult to distinguish the individual components within it. This characteristic aligns with options that mention uniformity and a single phase. In contrast, mixtures that are visibly distinct or unevenly distributed are categorized as heterogeneous mixtures, where the components can be easily distinguished from one another and may not be uniformly mixed.

2. What does the principle of crosscutting relationships imply?

- A. Rocks at the surface are the oldest
- B. Any geological feature that cuts across another is younger than the feature it cuts**
- C. All volcanic rocks are older than sedimentary rocks
- D. Rock layers form in parallel lines

The principle of crosscutting relationships is a fundamental concept in geology that helps determine the relative ages of geological features. This principle states that if one geological feature cuts across another, the feature that has been cut is older than the feature that has done the cutting. Therefore, when evaluating geological formations, observing which rock strata or structures are intersecting provides insight into their relative ages. For example, if a fault line breaks through a series of rock layers, it indicates that the fault is younger than the layers it disrupts. This principle is crucial for constructing geological history because it allows geologists to piece together the sequence of events that have shaped the Earth's crust over time. Understanding this principle helps identify not just the age of geological formations but also the processes that have affected them.

3. What is primarily responsible for the seasonal weather changes we experience on Earth?

- A. Distance from the sun
- B. Earth's tilt on its axis**
- C. Atmospheric pressure
- D. Ocean currents

The primary reason for the seasonal weather changes experienced on Earth is the tilt of the Earth on its axis. This axial tilt, at an angle of approximately 23.5 degrees, causes different parts of the Earth to receive varying amounts of sunlight throughout the year. As the Earth orbits the Sun, this tilt results in the changing seasons. During summer in the northern hemisphere, that hemisphere is tilted towards the Sun, leading to longer days and more direct sunlight, which causes warmer temperatures. Conversely, during winter, the northern hemisphere is tilted away from the Sun, resulting in shorter days and less direct sunlight, leading to cooler temperatures. The opposite occurs in the southern hemisphere. While other factors like distance from the Sun, atmospheric pressure, and ocean currents play important roles in weather patterns and climate, it is the axial tilt that primarily dictates the seasonal variations we observe.

4. Which small, rocky bodies orbit the sun?

- A. Comets
- B. Asteroids**
- C. Meteorites
- D. Planets

Asteroids are small, rocky bodies that orbit the sun, primarily found in the asteroid belt between Mars and Jupiter. They vary in size and shape but generally are remnants from the early solar system that never coalesced into a planet. While comets are icy bodies that also orbit the sun, their primary composition and behavior differ significantly from asteroids. Meteorites, on the other hand, are fragments of asteroids or comets that have entered Earth's atmosphere and landed on its surface. Planets are much larger celestial bodies that orbit the sun and do not fit the definition of "small" or "rocky" single entities that asteroids encompass. Therefore, the classification of asteroids as small, rocky bodies completing orbits around the sun makes this option the correct response.

5. What is the term for the state to which an oscillating object eventually returns?

- A. Frequency
- B. Amplitude
- C. Equilibrium**
- D. Waveform

The term that describes the state to which an oscillating object eventually returns is equilibrium. In the context of oscillating systems, equilibrium refers to a stable state where the forces acting on the system are balanced, and the object does not experience any net force that would cause it to move away from this position. When an oscillating object, such as a pendulum or a mass on a spring, moves away from its equilibrium position, it experiences restoring forces that act to bring it back to this state. As a result, after oscillating around this point, the system will settle back to equilibrium if no external forces or energy inputs disturb it. Understanding the concept of equilibrium is crucial in physics because it helps to explain the behavior of various systems, from simple mechanical oscillations to more complex wave phenomena.

6. What is defined as a front along which a warm air mass moves over a mass of cooler air?

- A. Cold front
- B. Warm front**
- C. Stationary front
- D. Occluded front

A warm front is defined as a boundary along which a warm air mass moves over a cooler air mass. This phenomenon occurs when a warmer, less dense air mass ascends over a denser, cooler air mass. As the warm air rises, it cools, which can lead to cloud formation and precipitation. This process often results in a gradual transition in weather, with typically steady rain or drizzle preceding the front and, after it passes, a rise in temperatures and humidity. In contrast, a cold front involves a cold air mass moving into an area occupied by a warmer air mass, causing the warmer air to lift rapidly, which can result in thunderstorms. A stationary front occurs when neither air mass is advancing, leading to prolonged weather patterns without significant movement of either air mass. An occluded front happens when a cold front catches up to a warm front, leading to complex weather patterns. Understanding these distinctions is essential in meteorology and helps in forecasting weather based on the behavior of different air masses.

7. What is the outermost layer of Earth's atmosphere called?

- A. Exosphere
- B. Thermosphere
- C. Mesosphere
- D. Stratosphere

The outermost layer of Earth's atmosphere is known as the exosphere. This layer extends from the upper boundary of the thermosphere out into space. In the exosphere, the atmospheric density is extremely low, meaning that the distance between individual gas molecules is quite large compared to layers below. This layer is characterized by the presence of very few particles, and those that are present can reach high velocities. The exosphere gradually fades into the vacuum of space and does not have a distinct upper boundary. In contrast, the thermosphere lies beneath the exosphere and is notable for its dramatic temperature increase with altitude due to the absorption of high-energy solar radiation. The mesosphere is located below the thermosphere and is characterized by decreasing temperatures with height, while the stratosphere lies further down and contains the ozone layer, which absorbs and scatters ultraviolet solar radiation. Understanding these layers helps to illustrate the complex structure of Earth's atmosphere and the different conditions that exist at various altitudes.

8. Which process involves hydrogen and other nuclei fusing together into larger nuclei?

- A. Nuclear fusion
- B. Fission
- C. Radioactive decay
- D. Combustion

The process that involves hydrogen and other nuclei fusing together into larger nuclei is nuclear fusion. This phenomenon occurs under extremely high temperatures and pressures, such as those found in the cores of stars, including the sun. During fusion, lighter atomic nuclei, like hydrogen, combine to form heavier nuclei, releasing a significant amount of energy in the process. Nuclear fusion is the energy source that powers stars and produces elements heavier than hydrogen. For example, in the sun, hydrogen nuclei (protons) fuse to create helium, along with the release of energy that we receive as sunlight. Other processes mentioned do not involve the combination of atomic nuclei in the same way. Fission refers to the splitting of a heavy nucleus into lighter nuclei, radioactive decay is the process by which an unstable nucleus emits particles or radiation to become more stable, and combustion is a chemical reaction involving oxygen that primarily produces heat and light but does not involve changes in the atomic nuclei at the nuclear level.

9. Which convergent boundary features a seafloor plate and a continental plate, resulting in deep ocean trenches and volcanic mountain ranges?

- A. Continental to continental boundary
- B. Oceanic to continental boundary**
- C. Oceanic to oceanic boundary
- D. Divergent boundary

The scenario described pertains specifically to an oceanic to continental boundary. In this type of convergent boundary, an oceanic plate, which is denser, is subducted beneath a continental plate, which is less dense. This process leads to the formation of key geological features. As the oceanic plate descends into the mantle, it creates a trench in the ocean floor—this is the deep ocean trench associated with these boundaries. The subduction process causes intense pressure and melting of the oceanic plate, resulting in magma formation. This magma can ascend through the continental plate, leading to the formation of volcanic mountain ranges along the continent. Examples of this type of boundary include the interaction between the Nazca Plate and the South American Plate, which has contributed to the Andes Mountain Range and the Peru-Chile Trench. In contrast, other types of boundaries have different characteristics: continental to continental boundaries result in mountain ranges but not volcanic activity, oceanic to oceanic boundaries primarily create island arcs and also deep trenches, while divergent boundaries involve plates moving apart, leading to new crust formation instead of subduction-related features.

10. What is the lowest layer of Earth's atmosphere, where weather occurs?

- A. Stratosphere
- B. Troposphere**
- C. Mesosphere
- D. Thermosphere

The lowest layer of Earth's atmosphere, where weather phenomena such as clouds, rain, and storms occur, is the troposphere. This layer extends from the Earth's surface up to about 8 to 15 kilometers (5 to 9 miles) high, depending on geographic location and weather conditions. The troposphere contains most of the atmosphere's mass, including water vapor and aerosols, which are crucial for weather formation. In this layer, temperature generally decreases with altitude, leading to the development of weather systems as warm air rises and interacts with cooler air. This is where processes like convection, condensation, and precipitation take place, making it essential for understanding meteorological phenomena. The other layers mentioned have different characteristics and functions. The stratosphere lies above the troposphere, where temperature increases with altitude due to the presence of the ozone layer, but it is not where weather occurs. The mesosphere is higher still and is characterized by decreasing temperatures and fewer gas molecules. Finally, the thermosphere is the highest layer mentioned, known for its high temperatures and the presence of ions but does not play a role in weather formation. Therefore, the troposphere is indeed the correct answer.

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!

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