

UPCAT SCIENCE 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. What is defined as an opening in the Earth's crust through which molten lava, ash, and gases are ejected?**
 - A. Earthquake
 - B. Volcano
 - C. Fault
 - D. Trench

- 2. How is temperature calculated when converting Celsius to Kelvin?**
 - A. $K = C + 100$
 - B. $K = C + 250$
 - C. $K = C + 273.15$
 - D. $K = C + 0.15$

- 3. What is the defining feature of a shield volcano?**
 - A. Very viscous lava with steep sides
 - B. Gently sloping sides with fluid, basaltic lava
 - C. Layered structure of ash and lava
 - D. High altitude and explosive eruptions

- 4. Which type of energy resource is derived from the ancient remains of plants and animals?**
 - A. Non-renewable Resources
 - B. Alternative Resources
 - C. Fossil Fuels
 - D. Geothermal Resources

- 5. What term is used to describe the density of an object?**
 - A. Mass per unit area
 - B. Mass per unit volume
 - C. Volume per unit weight
 - D. Volume per unit area

- 6. What is the density of water in grams per cubic centimeter?**
- A. 0.5 g/cc
 - B. 1 g/cc
 - C. 1.5 g/cc
 - D. 2 g/cc
- 7. What do you call an inclined plane wrapped around a central cylinder to form a spiral?**
- A. Spiral Ramp
 - B. Cylinder
 - C. Screw
 - D. Helix
- 8. What is the process called that breaks down and carries away rock, sand, and soil?**
- A. Glaciation
 - B. Compacting
 - C. Erosion
 - D. Desposition
- 9. Oceanography primarily deals with which subject?**
- A. Prehistoric life
 - B. The atmosphere and climate
 - C. The oceans and oceanic phenomena
 - D. The composition of planets
- 10. Which type of data presentation is best for showing patterns of data?**
- A. Tables
 - B. Graphs
 - C. Bullet points
 - D. Text descriptions

Answers

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

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Explanations

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1. What is defined as an opening in the Earth's crust through which molten lava, ash, and gases are ejected?

- A. Earthquake
- B. Volcano**
- C. Fault
- D. Trench

A volcano is a geological feature defined as an opening in the Earth's crust that allows for the eruption of molten lava, ash, and gases from beneath the Earth's surface. This process occurs when there is a buildup of pressure from magma in the Earth's mantle, which can eventually force its way through fissures or openings in the crust. When the magma reaches the surface, it erupts, leading to volcanic activity characterized by the release of various materials. The other options represent different geological phenomena. An earthquake pertains to the shaking of the ground caused by the movement of tectonic plates, typically along faults, which are fractures in the Earth's crust where blocks of rock have moved past each other. A fault itself is a specific type of geological structure where these movements occur but does not involve the material ejection associated with volcanism. A trench typically refers to a deep, elongated depression in the ocean floor, often associated with tectonic plate boundaries where one plate is subducted beneath another, and does not relate to the ejection of lava or gases. Thus, the definition of a volcano distinctly aligns it with the described processes of molten material eruption, making it the correct answer.

2. How is temperature calculated when converting Celsius to Kelvin?

- A. $K = C + 100$
- B. $K = C + 250$
- C. $K = C + 273.15$**
- D. $K = C + 0.15$

To convert temperature from degrees Celsius to Kelvin, the correct formula is to add 273.15 to the Celsius temperature. This is because the Kelvin scale is an absolute temperature scale that starts at absolute zero, which is 0 K. In the Celsius scale, absolute zero is equivalent to -273.15°C . Therefore, to find the Kelvin value, you need to offset the Celsius temperature by this amount. Using the formula $K = C + 273.15$ ensures that you are properly adjusting the temperature measurement to align with the Kelvin scale, which is commonly used in scientific contexts for its absolute nature. This method allows for calculations involving temperature that require an absolute reference point, essential for thermodynamic equations and other scientific applications.

3. What is the defining feature of a shield volcano?

- A. Very viscous lava with steep sides
- B. Gently sloping sides with fluid, basaltic lava**
- C. Layered structure of ash and lava
- D. High altitude and explosive eruptions

A shield volcano is characterized by its gently sloping sides and the type of lava it produces. The defining feature of shield volcanoes is their formation from low-viscosity, basaltic lava flows that can travel long distances. This fluid lava allows the volcano to spread out over a wide area, creating the characteristic broad and gently sloping profile. Unlike stratovolcanoes, which have steep sides due to thicker, more viscous lava that does not travel far, shield volcanoes promote the smooth, gradual buildup of their shapes. The fluid nature of basaltic lava contributes to the gentle slopes, as each eruption can produce extensive layers of thin, flowing lava rather than explosive eruptions that create significant ash deposits or steep-sided structures.

4. Which type of energy resource is derived from the ancient remains of plants and animals?

- A. Non-renewable Resources
- B. Alternative Resources
- C. Fossil Fuels**
- D. Geothermal Resources

The chosen answer highlights fossil fuels as energy resources derived from the ancient remains of plants and animals, which is accurate. Fossil fuels, including coal, oil, and natural gas, were formed over millions of years from the decomposed organic material of plants and animals buried and subjected to heat and pressure in the Earth's crust. This biological process transforms the remains into energy-rich substances that we extract and use today. Fossil fuels play a significant role in global energy production because they are highly efficient sources of energy. However, they are also non-renewable resources, as their formation takes millions of years and cannot be replenished on a human timescale. Understanding the origin of fossil fuels is crucial for comprehending their environmental impact, including carbon emissions and contributing to climate change, as well as the urgency for transitioning to more sustainable energy sources. While non-renewable resources encompass fossil fuels, renewable alternatives are derived from resources that can be replenished naturally, such as solar or wind energy. Geothermal resources utilize the Earth's internal heat to generate energy, which is distinct from the biological origins of fossil fuels. Alternative resources typically refer to energy forms that are not extracted from fossil fuels, further differentiating from the ancient biological processes that create fossil fuels.

5. What term is used to describe the density of an object?

- A. Mass per unit area
- B. Mass per unit volume**
- C. Volume per unit weight
- D. Volume per unit area

The term that describes the density of an object is defined as mass per unit volume. This means that density quantifies how much mass is contained in a specific volume of a substance, which is typically expressed in units such as grams per cubic centimeter (g/cm^3) or kilograms per cubic meter (kg/m^3). The formula for density is given by the equation: $\text{Density } (\rho) = \text{Mass } (m) / \text{Volume } (V)$. This relationship is fundamental in physics and engineering as it helps in understanding how different materials behave, how they compare to one another, and how they will interact in various environments. The other options do not accurately represent the definition of density. Mass per unit area refers to surface density rather than the three-dimensional aspect that density encompasses. Volume per unit weight and volume per unit area do not correctly define density in any conventional terms used in science.

6. What is the density of water in grams per cubic centimeter?

- A. 0.5 g/cc
- B. 1 g/cc**
- C. 1.5 g/cc
- D. 2 g/cc

The density of water is commonly accepted to be 1 gram per cubic centimeter at standard temperature and pressure, typically measured at 4 degrees Celsius, where water reaches its maximum density. This measurement indicates that for every cubic centimeter of water, the mass is precisely 1 gram. Understanding the significance of this density value is essential in various scientific contexts, including chemistry and physics, where it serves as a reference point for comparing the densities of other substances. Many liquids that are less dense than water will float on its surface, while those with greater densities will sink. In contrast, the other values presented do not reflect the actual density of water. Specifically, densities of 0.5 g/cc, 1.5 g/cc, and 2 g/cc misrepresent the properties of water. A density of 0.5 g/cc suggests an extremely light liquid, comparable to certain gases, which is not applicable here. Meanwhile, densities of 1.5 g/cc and 2 g/cc pertain to much heavier substances, such as certain metal liquids or concentrated solutions, making them unsuitable for a liquid as commonly known and tested as water.

7. What do you call an inclined plane wrapped around a central cylinder to form a spiral?

- A. Spiral Ramp
- B. Cylinder
- C. Screw**
- D. Helix

An inclined plane wrapped around a central cylinder to form a spiral is called a screw. This structure is a classic example of a simple machine that converts rotational motion into linear motion. The inclined plane allows for a gradual increase in height with less force needed compared to lifting a load straight up, making it easier to move objects vertically. The geometry of a screw consists of a helical ridge, which is essentially the inclined plane that spirals around the cylinder. As the screw turns, the inclined surface pushes the object upward along the height of the cylinder. This is not just limited to woodworking screws; it also applies to various tools and machinery that utilize screws for lifting or fastening purposes. While terms like spiral ramp, cylinder, and helix describe different concepts, they do not specifically represent the combination of an inclined plane and a central cylinder working together in the manner a screw does. The term "spiral ramp" might suggest a similar concept but does not encompass the mechanics of a screw. A cylinder refers merely to the shape, while a helix describes a three-dimensional spiral but lacks the function associated with a screw.

8. What is the process called that breaks down and carries away rock, sand, and soil?

- A. Glaciation
- B. Compacting
- C. Erosion**
- D. Deposition

The process that breaks down and carries away rock, sand, and soil is known as erosion. Erosion involves the movement of materials from one location to another, typically due to the action of water, wind, or ice. During this process, rock and soil are worn away, often leading to the formation of new landscapes and altering existing ones. For example, a river can erode its banks as it flows, thereby transporting sediments downstream. Understanding erosion is crucial because it plays a significant role in shaping the Earth's surface and can dramatically affect ecosystems and human activities. In contrast, glaciation refers to periods when extensive ice sheets cover significant portions of the Earth, while compacting pertains to the process of soil particles being pressed together, typically increasing soil density. Deposition, on the other hand, is the subsequent process where the materials carried away by erosion settle in a new location, forming new landforms but is distinct from the movement process itself.

9. Oceanography primarily deals with which subject?

- A. Prehistoric life
- B. The atmosphere and climate
- C. The oceans and oceanic phenomena**
- D. The composition of planets

Oceanography is the scientific study of the oceans, encompassing various aspects such as marine organisms, ocean currents, waves, tides, and the ocean's chemical and physical properties. This field is crucial for understanding how oceans interact with and influence climate, weather patterns, and marine ecosystems. By examining oceanic phenomena, oceanographers can investigate vital processes that affect all life on Earth, including nutrient cycling and energy flow within marine environments. The other subjects mentioned in the choices, such as prehistoric life, the atmosphere and climate, and the composition of planets, belong to different realms of scientific inquiry. Prehistoric life aligns with paleontology, which studies ancient organisms and their environments. The atmosphere and climate connect more closely with atmospheric science and meteorology, which focus on weather patterns, climate systems, and air composition. The composition of planets pertains to planetary science and geology, examining the structure and formation of celestial bodies rather than ocean-specific studies.

10. Which type of data presentation is best for showing patterns of data?

- A. Tables
- B. Graphs**
- C. Bullet points
- D. Text descriptions

Graphs are particularly effective for showing patterns in data because they visually represent numerical information and allow for quick comparisons and trends to be observed. When data points are plotted on a graph, relationships between variables become apparent, making it easier to identify increases, decreases, correlations, or any cyclical behaviors. For instance, a line graph can clearly illustrate trends over time, revealing whether data is rising or falling, while bar graphs can effectively compare different categories at a glance. This visual format transcends complex numbers and allows viewers to grasp overall patterns intuitively and rapidly. Other types of data presentation, such as tables, while useful for providing detailed information, often require more time to interpret and can be overwhelming when trying to discern broader trends. Bullet points and text descriptions may summarize data, but they do not inherently provide the visual clarity needed to highlight patterns. Overall, graphs are the optimal choice for showcasing patterns due to their ability to simplify complex data through visual representation.

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://upcatscience.examzify.com>

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

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