

CCE SCIENCE AND HUMANITY PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	16

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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 the difference between biotic and abiotic factors?**
 - A. Biotic factors are genetic; abiotic factors are environmental
 - B. Biotic factors are living components; abiotic are non-living physical elements
 - C. Biotic factors are the sun; abiotic factors are water
 - D. Biotic factors are animals; abiotic factors are only minerals
- 2. What type of evidence in science is derived from sensory observations?**
 - A. Experimental
 - B. Theoretical
 - C. Empirical
 - D. Abstract
- 3. What occurs during cellular respiration?**
 - A. Cells convert carbon dioxide into glucose
 - B. Cells convert glucose and oxygen into energy, carbon dioxide, and water
 - C. Cells break down fatty acids for energy
 - D. Cells synthesize proteins from amino acids
- 4. Which of the following is a characteristic of igneous rocks?**
 - A. Formed from sediments
 - B. Formed from cooled magma or lava
 - C. Formed from heat and pressure
 - D. Formed by organic processes
- 5. What does designing an experiment in the scientific method mainly involve?**
 - A. Changing the dependent variable
 - B. Formulating an inductive hypothesis
 - C. Collecting qualitative data
 - D. Applying deductive reasoning
- 6. What is a mutation?**
 - A. A harmful environmental change
 - B. A change in the DNA sequence
 - C. A process of natural selection
 - D. A type of cellular respiration

- 7. What strategy is vital for protecting biodiversity hotspots?**
- A. Reducing pollution only
 - B. Strict enforcement of hunting regulations
 - C. Integrated conservation and sustainable practices
 - D. Promotion of tourism industries
- 8. Which statement best encapsulates the approach of science toward knowledge?**
- A. It relies solely on revealed knowledge
 - B. It embraces falsification as a critical component
 - C. It asserts that all knowledge is absolute
 - D. It is primarily concerned with philosophical inquiry
- 9. What does anecdotal evidence refer to in scientific discussions?**
- A. General statistics from relevant studies
 - B. Personal stories about specific incidents and experiences
 - C. Large-scale experimental data
 - D. Hypothetical scenarios based on theories
- 10. How is climate defined?**
- A. The average weather of a single day
 - B. The long-term average of weather conditions in a particular area
 - C. The immediate atmospheric conditions at a specific time
 - D. The seasonal variations in temperature and precipitation

Answers

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

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Explanations

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1. What is the difference between biotic and abiotic factors?

- A. Biotic factors are genetic; abiotic factors are environmental
- B. Biotic factors are living components; abiotic are non-living physical elements**
- C. Biotic factors are the sun; abiotic factors are water
- D. Biotic factors are animals; abiotic factors are only minerals

The distinction between biotic and abiotic factors is foundational in understanding ecosystems and ecological interactions. Biotic factors encompass all living components of an environment, which include animals, plants, fungi, and microorganisms. These living organisms interact with one another, contributing to the dynamics of ecosystems and influencing various processes such as food webs, competition, and symbiosis. On the other hand, abiotic factors refer to the non-living physical elements of an ecosystem. These factors include sunlight, water, air, temperature, and minerals, all of which shape the conditions in which living organisms exist. Abiotic factors significantly influence biological processes and the types of organisms that can thrive in a given environment. The correct choice reflects this clear separation: it emphasizes that biotic factors are composed of living entities, while abiotic factors consist of non-living elements, making it easy to understand their roles within ecological contexts.

2. What type of evidence in science is derived from sensory observations?

- A. Experimental
- B. Theoretical
- C. Empirical**
- D. Abstract

Empirical evidence is derived from sensory observations, which means it is based on what can be observed and measured in the natural world. This type of evidence is fundamental in the scientific method, as it allows researchers to gather data through experiments, observations, and experiences. Empirical evidence is the foundation upon which hypotheses are tested and scientific theories are built, ensuring that conclusions are grounded in observable phenomena. In the context of scientific inquiry, empirical evidence is crucial because it relies on direct observation and experimentation, making it objective and verifiable. It contrasts with theoretical or abstract evidence, which may rely more on ideas or models rather than direct measurement or experience. As such, when scientists propose a claim or theory, they often seek out empirical evidence to support it, solidifying their findings with data observed through the senses.

3. What occurs during cellular respiration?

- A. Cells convert carbon dioxide into glucose
- B. Cells convert glucose and oxygen into energy, carbon dioxide, and water**
- C. Cells break down fatty acids for energy
- D. Cells synthesize proteins from amino acids

During cellular respiration, the primary function is for cells to convert glucose and oxygen into energy. This process is essential for producing adenosine triphosphate (ATP), which cells use as a direct energy source for various metabolic activities. As glucose is broken down in the presence of oxygen, it undergoes a series of biochemical reactions that release energy, carbon dioxide, and water. The overall chemical equation for this process can be summarized as: $\text{Glucose} + \text{Oxygen} \rightarrow \text{Energy (ATP)} + \text{Carbon Dioxide} + \text{Water}$. This transformation is crucial for sustaining life, as it supports all cellular functions by providing energy. In contrast, the other options represent different biological processes. For instance, converting carbon dioxide into glucose pertains to photosynthesis, which predominantly occurs in plants, not cellular respiration. The breakdown of fatty acids for energy relates more to lipid metabolism than to the primary pathway of cellular respiration featuring glucose. Lastly, the synthesis of proteins from amino acids describes protein synthesis, a completely different process that involves ribosomes and other cellular mechanisms, rather than energy production through respiration.

4. Which of the following is a characteristic of igneous rocks?

- A. Formed from sediments
- B. Formed from cooled magma or lava**
- C. Formed from heat and pressure
- D. Formed by organic processes

Igneous rocks are characterized by their formation from the cooling and solidification of magma or lava. When magma, which is found beneath the Earth's surface, cools and crystallizes, it becomes intrusive igneous rock, such as granite. On the other hand, when lava, which is magma that has reached the surface, cools, it forms extrusive igneous rock, like basalt. This process results in unique textures and mineral compositions that are distinct to igneous rocks, and their formation is a fundamental aspect of the rock cycle. The other possibilities reflect different geological processes that form other types of rocks. For instance, sediments are involved in the formation of sedimentary rocks, while heat and pressure lead to the formation of metamorphic rocks. Organic processes can result in either sedimentary rocks like coal or biogenic materials but do not pertain to igneous rock formation. Thus, the correct answer emphasizes the unique origins of igneous rocks, which are directly linked to magma or lava.

5. What does designing an experiment in the scientific method mainly involve?

- A. Changing the dependent variable
- B. Formulating an inductive hypothesis
- C. Collecting qualitative data
- D. Applying deductive reasoning**

Designing an experiment in the scientific method primarily involves applying deductive reasoning. This process entails starting with a general principle or theory and then determining specific hypotheses that can be tested through experimentation. By using deductive reasoning, researchers can formulate predictions about what they expect to observe if their hypotheses are correct. This logical approach helps ensure that the experiment is structured to test these predictions systematically. In an experimental context, applying deductive reasoning allows scientists to establish clear cause-and-effect relationships by identifying independent and dependent variables and ensuring that the experiment is set up in a way that can effectively confirm or refute the initial hypotheses. This rigorous methodological framework is essential for producing reliable and valid results in scientific research. Other methods such as changing the dependent variable or collecting qualitative data are components of the experimental design but do not encompass the broader reasoning process required to formulate and structure an experiment. Similarly, formulating an inductive hypothesis is a different strategy that involves generating generalizations from specific observations, which is not the core focus of designing an experiment using the scientific method.

6. What is a mutation?

- A. A harmful environmental change
- B. A change in the DNA sequence**
- C. A process of natural selection
- D. A type of cellular respiration

A mutation refers to a change in the DNA sequence of an organism. This alteration can occur in various ways, such as substitutions, deletions, or insertions of nucleotides, and it can have a range of effects on the organism. Some mutations might lead to changes in the protein produced by a gene, potentially affecting the organism's traits, while others might be silent, having no impact on the functionality of the protein or the organism itself. Understanding mutations is crucial because they are the raw material for evolution. Mutations can introduce new genetic variation into a population, which is then subject to natural selection. This process can lead to the adaptation of species over time. In contrast to the other options, a harmful environmental change does not accurately capture the concept of a mutation, as mutations are specific alterations within the genetic material rather than external influences. The process of natural selection is a mechanism that acts on existing mutations rather than defining what a mutation is. Finally, cellular respiration is a biochemical process for energy production and is unrelated to the genetic changes that define mutations. Thus, acknowledging that a mutation is fundamentally a change in the DNA sequence clarifies its significance in genetics and evolutionary biology.

7. What strategy is vital for protecting biodiversity hotspots?

- A. Reducing pollution only
- B. Strict enforcement of hunting regulations
- C. Integrated conservation and sustainable practices**
- D. Promotion of tourism industries

The strategy centered on integrated conservation and sustainable practices is vital for protecting biodiversity hotspots because it recognizes the need to balance ecological health with human economic activities. Biodiversity hotspots are regions that are both rich in species and significantly threatened by human activities. To effectively protect these areas, a holistic approach is necessary that incorporates a variety of strategies. Integrated conservation involves not only the protection of habitats and species but also the consideration of the socio-economic aspects of the communities surrounding these areas. By implementing sustainable practices, such as responsible land use, sustainable agriculture, and eco-friendly tourism, local populations can benefit economically while simultaneously preserving the natural ecosystems. This approach helps to mitigate threats such as habitat destruction and resource depletion, ensuring that biodiversity is maintained for future generations. In contrast, focusing solely on reducing pollution, enforcing hunting regulations, or promoting tourism lacks the comprehensive framework needed to address the complex challenges facing biodiversity hotspots. These measures might be beneficial, but they do not encompass the multifaceted nature of biodiversity conservation that integrated practices provide. Hence, employing a strategy that combines multiple aspects of conservation and sustainability is crucial for the long-term protection of these valuable ecosystems.

8. Which statement best encapsulates the approach of science toward knowledge?

- A. It relies solely on revealed knowledge
- B. It embraces falsification as a critical component**
- C. It asserts that all knowledge is absolute
- D. It is primarily concerned with philosophical inquiry

The approach of science toward knowledge fundamentally emphasizes the importance of falsification, making the statement about embracing falsification as a critical component the most accurate representation of scientific methodology. In science, theories and hypotheses are subjected to testing and experimentation, and they remain valid only until proven false. This process of inquiry allows for continual refinement and improvement of scientific understanding, distinguishing it from belief systems that may rely on fixed truths or revealed knowledge. Falsification promotes critical thinking and skepticism, urging scientists to seek evidence that could potentially disprove a theory rather than merely confirming existing beliefs. This process is crucial in advancing knowledge, as it encourages an open-minded investigation of the natural world and prioritizes empirical evidence over dogma or absolute truth. Through this method, science can adapt and evolve, fostering a dynamic understanding of complex phenomena rather than settling for absolutes or philosophical speculation alone.

9. What does anecdotal evidence refer to in scientific discussions?

- A. General statistics from relevant studies
- B. Personal stories about specific incidents and experiences**
- C. Large-scale experimental data
- D. Hypothetical scenarios based on theories

Anecdotal evidence refers specifically to personal stories about specific incidents and experiences. This type of evidence originates from individual accounts or observations rather than systematic scientific research. It is often used to illustrate a point or provide insight based on personal experience, but it lacks the rigor and reliability of more formal scientific data. In scientific discussions, while anecdotal evidence can be compelling, it is important to note that it does not constitute strong evidence on its own due to its subjective nature and potential biases. Other options present forms of evidence that are more robust and systematic. General statistics from relevant studies, for example, rely on aggregated data and analysis, providing a more reliable foundation for scientific conclusions. Large-scale experimental data involves rigorous methodology and peer review to ensure findings are valid and reproducible. Hypothetical scenarios based on theories, while useful for exploring possibilities, do not reflect actual observations or outcomes. Thus, anecdotal evidence is distinct as it centers on individual narratives, which are valuable but should be interpreted cautiously within the broader context of scientific inquiry.

10. How is climate defined?

- A. The average weather of a single day
- B. The long-term average of weather conditions in a particular area**
- C. The immediate atmospheric conditions at a specific time
- D. The seasonal variations in temperature and precipitation

Climate is defined as the long-term average of weather conditions in a particular area. This understanding encompasses the collective patterns of temperature, humidity, wind, precipitation, and other factors established over extended periods, typically 30 years or more. This long-term perspective allows for a comprehensive view of what is considered "normal" for a region, distinguishing it clearly from weather, which represents short-term atmospheric conditions and can fluctuate dramatically from day to day. The distinction between climate and weather is fundamental in studying environmental science and understanding global changes. Climate encapsulates the trends and averages that can inform regional planning, agricultural practices, and ecological forecasts, making it essential for comprehending broader environmental systems and changes over time.

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://ccesciencehumanity.examzify.com>

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

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