

PRAXIS II SCIENCE (7814) 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 an example of a physical change?**
 - A. Rust forming on metal
 - B. Burning wood
 - C. Melting ice
 - D. Digestion of food
- 2. What fundamental particle carries a positive charge?**
 - A. Neutron
 - B. Electron
 - C. Proton
 - D. Nucleus
- 3. What is the definition of a shadow?**
 - A. A light that is obstructed by an object
 - B. A dark area or shape produced by a body blocking light
 - C. Darkness created within a confined space
 - D. A reflection of an object on a surface
- 4. What is the main function of the immune system?**
 - A. Regulating metabolism
 - B. Defending against pathogens
 - C. Transporting hormones
 - D. Digesting nutrients
- 5. Which type of selection would promote two or more extreme traits in a population?**
 - A. Stabilizing selection
 - B. Directional selection
 - C. Disruptive selection
 - D. Artificial selection

- 6. Which of the following best describes the role of oxygen in aerobic respiration?**
- A. It is a byproduct of glucose breakdown
 - B. It acts as the final electron acceptor in the electron transport chain
 - C. It is unnecessary for ATP production
 - D. It inhibits the process of respiration
- 7. What is the primary defining characteristic of the scientific community?**
- A. A network of scientists and researchers who share knowledge
 - B. A group focused solely on theoretical research
 - C. An organization that regulates scientific research practices
 - D. A collective that operates independently without collaboration
- 8. What steps can humans take to minimize environmental damage?**
- A. Promoting deforestation for urban development
 - B. Reusing paper and recycling materials
 - C. Increasing plastic production
 - D. All of the above
- 9. What is an example of energy transfer in a food chain?**
- A. Air moving through tree leaves
 - B. A predator eating its prey
 - C. Sunlight hitting the ground
 - D. Water evaporating from the ground
- 10. Which type of tissue is primarily responsible for movement in the human body?**
- A. Epithelial tissue
 - B. Muscle tissue
 - C. Connective tissue
 - D. Nervous tissue

Answers

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

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Explanations

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1. What is an example of a physical change?

- A. Rust forming on metal
- B. Burning wood
- C. Melting ice**
- D. Digestion of food

The correct answer is an example of melting ice, which is a physical change because it involves a transition from a solid state to a liquid state without altering the chemical composition of the substance. When ice melts, it changes from solid water (ice) to liquid water, but both forms are still water (H₂O) at the molecular level. This illustrates how physical changes are typically reversible and do not create new substances. In contrast, rust forming on metal is a chemical change because it involves a reaction between iron, oxygen, and moisture that results in iron oxide, a new compound. Burning wood is also a chemical change as it results in the formation of ash, gases, and other substances through combustion. Lastly, digestion of food represents a series of chemical changes that break down complex food molecules into their simpler forms, resulting in new substances that can be absorbed by the body. All of these processes involve changes at the molecular level that create new materials, which distinguishes them from physical changes like melting ice.

2. What fundamental particle carries a positive charge?

- A. Neutron
- B. Electron
- C. Proton**
- D. Nucleus

The fundamental particle that carries a positive charge is the proton. Protons are subatomic particles found in the nucleus of an atom, and they play a crucial role in determining the atomic number, which defines the identity of the element. Each proton has a charge of +1 elementary charge, which is essential in balancing the negative charge of electrons in an atom, thus contributing to the overall charge neutrality of most atoms. Neutrons, in contrast, are neutral particles that do not carry any charge, while electrons carry a negative charge. The nucleus itself is not a particle but rather the central core of an atom that contains protons and neutrons. Therefore, in the context of this question, the proton is the only particle listed that carries a positive charge.

3. What is the definition of a shadow?

- A. A light that is obstructed by an object
- B. A dark area or shape produced by a body blocking light**
- C. Darkness created within a confined space
- D. A reflection of an object on a surface

A shadow is defined as a dark area or shape produced when a body blocks light. This occurs because light travels in straight lines, and when an object obstructs this path, it prevents light from reaching certain areas behind it, resulting in a shadow. The characteristics of shadows can vary in size, shape, and intensity depending on the light source, the object's distance from the surface where the shadow is cast, and the object's transparency and opacity. Other choices do not accurately capture the essence of a shadow. For example, the first choice discusses light obstruction but lacks the necessary context of a resulting dark area. The third choice refers to darkness within a confined space, which can occur without the involvement of light obstruction. The final option describes a reflection instead of a shadow, as reflections involve the bouncing of light off surfaces rather than blocking it.

4. What is the main function of the immune system?

- A. Regulating metabolism
- B. Defending against pathogens**
- C. Transporting hormones
- D. Digesting nutrients

The main function of the immune system is to defend against pathogens, which includes viruses, bacteria, fungi, and parasites that can cause disease. This system is composed of various cells, tissues, and organs that work together to identify and eliminate these harmful invaders. The immune response can be either innate, providing immediate but general protection, or adaptive, which develops a targeted response based on specific pathogens and involves the production of antibodies for future defense. The other options focus on different biological functions that are not related to the immune system. For instance, regulating metabolism pertains to the processes that convert food into energy, transport hormones involves the circulatory system distributing hormonal signals throughout the body, and digesting nutrients is a function of the digestive system that breaks down food into absorbable components. Understanding the immune system's critical role in maintaining health helps highlight its importance in protecting the body from disease.

5. Which type of selection would promote two or more extreme traits in a population?

- A. Stabilizing selection
- B. Directional selection
- C. Disruptive selection**
- D. Artificial selection

Disruptive selection is the type of natural selection that promotes two or more extreme traits in a population. This occurs when individuals at both extremes of a trait distribution have higher fitness than those with intermediate traits. As a result, disruptive selection can lead to a bimodal distribution of traits, effectively encouraging the prevalence of extreme variations within a population. An example of disruptive selection might be seen in a population of birds where those with very large beaks can efficiently crack large seeds, and those with very small beaks can exploit small seeds, while birds with medium-sized beaks may not be as efficient at either task. Over time, this can lead to the divergence of the population into two distinct forms with specialized traits. In contrast, stabilizing selection would favor average traits and reduce variation, and directional selection would favor one extreme trait over another, leading to a shift in the population toward the favored trait. Artificial selection is driven by human intervention to promote desirable traits, rather than natural environmental pressures, which is distinct from how disruptive selection functions in a natural setting.

6. Which of the following best describes the role of oxygen in aerobic respiration?

- A. It is a byproduct of glucose breakdown
- B. It acts as the final electron acceptor in the electron transport chain**
- C. It is unnecessary for ATP production
- D. It inhibits the process of respiration

The role of oxygen in aerobic respiration is best described by its function as the final electron acceptor in the electron transport chain. During aerobic respiration, glucose is broken down through a series of metabolic processes, primarily glycolysis, the Krebs cycle, and oxidative phosphorylation. In the electron transport chain, which takes place in the inner mitochondrial membrane, electrons derived from the oxidation of nutrients are passed through a series of protein complexes. Oxygen plays a crucial role at the end of this chain, combining with electrons and protons to form water. This process is vital because it allows the electron transport chain to continue functioning efficiently. The flow of electrons down the chain drives the pumping of protons across the membrane, creating a proton gradient that is used by ATP synthase to generate ATP. Without oxygen, the electron transport chain would cease to operate, leading to a significant reduction in ATP production. Thus, oxygen is essential for maximizing energy yield in aerobic respiration.

7. What is the primary defining characteristic of the scientific community?

- A. A network of scientists and researchers who share knowledge**
- B. A group focused solely on theoretical research
- C. An organization that regulates scientific research practices
- D. A collective that operates independently without collaboration

The primary defining characteristic of the scientific community is its emphasis on collaboration and the sharing of knowledge among scientists and researchers. This interconnected network allows for the dissemination of findings, peer review, and the accumulation of scientific knowledge across various disciplines. By sharing research outcomes, methodologies, and data, scientists can build upon each other's work, fostering advancement in understanding and innovation. In contrast, the other options do not capture the essence of the scientific community effectively. Focusing solely on theoretical research neglects the empirical aspect that is crucial in scientific inquiry. An organization that regulates scientific practices suggests a governing body rather than a community oriented toward open communication and collaboration. Lastly, a collective that operates independently without collaboration overlooks the fundamental principle of interconnectedness that drives scientific progress and rigor.

8. What steps can humans take to minimize environmental damage?

- A. Promoting deforestation for urban development
- B. Reusing paper and recycling materials**
- C. Increasing plastic production
- D. All of the above

Choosing to reuse paper and recycle materials is a crucial step individuals and communities can take to minimize environmental damage. By reusing paper, fewer trees need to be cut down to produce new paper products, which helps preserve forests that serve as essential habitats for wildlife and play a vital role in carbon capture. Recycling materials reduces the demand for raw materials, which in turn decreases the amount of waste sent to landfills, minimizes energy consumption, and lessens pollution associated with manufacturing processes. Recycling also promotes a circular economy, where materials are kept in use for as long as possible, reducing the overall footprint on the environment. Overall, the practice encourages a more sustainable way of living, conserving resources and protecting the planet for future generations. In contrast, promoting deforestation for urban development and increasing plastic production would contribute to greater environmental harm, such as habitat loss and increased pollution.

9. What is an example of energy transfer in a food chain?

- A. Air moving through tree leaves
- B. A predator eating its prey**
- C. Sunlight hitting the ground
- D. Water evaporating from the ground

In a food chain, energy transfer occurs when one organism consumes another. The predator eating its prey exemplifies this process effectively. When a predator captures and consumes its prey, the energy that the prey obtained from the food it consumed is transferred to the predator. This energy transfer is fundamental to the flow of energy through an ecosystem, as it allows energy to move from one trophic level to another, starting with primary producers like plants, through herbivores, and up to various levels of predators. The correct focus on energy transfer in this context highlights the relationship between organisms, emphasizing how intertwined these interactions are within an ecosystem. This transfer is critical for maintaining the balance of energy that supports all forms of life within an environment.

10. Which type of tissue is primarily responsible for movement in the human body?

- A. Epithelial tissue
- B. Muscle tissue**
- C. Connective tissue
- D. Nervous tissue

Muscle tissue is primarily responsible for movement in the human body due to its unique structure and functionality. This type of tissue is composed of specialized cells known as muscle fibers, which have the ability to contract and relax. There are three main types of muscle tissue: skeletal, cardiac, and smooth. Skeletal muscle is attached to bones and under voluntary control, allowing for body movements such as walking and running. Cardiac muscle, found in the heart, is involuntary and is responsible for pumping blood throughout the body. Smooth muscle is found in walls of hollow organs and vessels, also under involuntary control, facilitating processes like digestion and blood circulation. The other types of tissue, while crucial for the body's overall structure and function, do not contribute to movement in the same direct way. Epithelial tissue serves primarily as a protective barrier and is involved in absorption and secretion. Connective tissue provides structural support and connects different tissues and organs, but is not involved in the generation of movement. Nervous tissue plays a critical role in transmitting signals throughout the body and coordinating actions, but it does not produce movement itself. Thus, muscle tissue stands out as the main driver of movement in the body.

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://praxis2science7814.examzify.com>

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

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