PRAXIS II GENERAL SCIENCE (5435) PRACTICE TEST (SAMPLE)

STUDY GUIDE

SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. Which statement is true regarding the accuracy and precision of two classroom laboratory balances?

A. The digital balance is less accurate and less precise.

B. The mechanical balance is more accurate but less precise.

C. The digital balance is both more accurate and more precise.

D. Both balances have the same accuracy and precision.

2. In general, where in the periodic table of elements are the elements with the largest atomic radii located?

A. Top-right corner

B. Bottom-right corner

C. Top-left corner

D. Bottom-left corner

3. Which substance is most likely to be a solid at standard temperature and pressure (STP)?

A. H_2O

B. Na

C. Cl_2

D. CO_2

4. Which of the following is NOT a factor as to why lakes don't freeze solid in winter?

A. Water has its lowest volume at zero degrees Celsius.

B. Water is most dense at four degrees Celsius.

C. Ice acts as an insulator on the lake surface.

D. Wind can circulate water and help prevent freezing.

5. The hydrogen bonds in water contribute to its ability to serve as what?

A. A conductor of electricity

B. A solvent for all substances

C. A surface for small particles and organisms

D. An insulator against heat

6. Which of the following is an environmental concern associated with hydraulic fracturing (fracking)?

A. Increased biodiversity

B. Groundwater contamination

C. Urban development

D. Deforestation

7. Which process is responsible for transforming light energy into chemical energy?

A. Cellular respiration

B. Photosynthesis

C. Fermentation

D. Combustion

8. How does the loss of biodiversity impact the environment and society?

A. Increase in pest populations

B. Decrease of food supply

C. Improvement of soil quality

D. Greater ecosystem resilience

9. What phenomenon explains why a rainbow is formed?

A. Reflection of light

B. Refraction of light

C. Dispersion of light

D. Diffraction of light

10. Which of the following statements is NOT true about the period of a simple pendulum?

A. As the length of a pendulum increases, the period increases.

B. As the mass of a pendulum increases, the period increases.

C. The period depends only on the length of the pendulum.

D. The period is independent of the mass of the pendulum.

Answers

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

Explanations

1. Which statement is true regarding the accuracy and precision of two classroom laboratory balances?

A. The digital balance is less accurate and less precise.

B. The mechanical balance is more accurate but less precise.

C. The digital balance is both more accurate and more precise.

D. Both balances have the same accuracy and precision.

In a classroom laboratory setting, the choice that states the digital balance is both more accurate and more precise reflects the typical advantages associated with digital balances compared to mechanical ones. Accuracy refers to how close a measurement is to the true value, while precision pertains to the consistency of measurements under the same conditions. Digital balances are designed with advanced technology that often allows for better calibration and reduces the impact of human error, leading to more accurate readings. Additionally, digital balances measure weight with greater specificity (usually to the hundredth or thousandth of a gram), making them more precise than mechanical balances, which often rely on analog readings that can be subject to interpretation and may vary slightly from one reading to another. Mechanical balances can be quite effective but tend to rely on a system of beams and weights that may introduce variability in readings, plus they might not provide the same level of sensitivity and resolution as their digital counterparts. Therefore, the advantages of reduced error and improved measurement capability in digital balances support the assertion that they are both more accurate and more precise.

2. In general, where in the periodic table of elements are the elements with the largest atomic radii located?

A. Top-right corner

B. Bottom-right corner

C. Top-left corner

D. Bottom-left corner

The elements with the largest atomic radii are typically found in the bottom-left corner of the periodic table. This is due to the fact that atomic radius increases as you move down a group in the table because additional electron shells are added, causing the outermost electrons to be farther from the nucleus. Additionally, within a period, the atomic radius tends to decrease as you move from left to right because the increase in positive charge in the nucleus pulls the electron cloud closer to the nucleus, reducing the size of the atom. In the bottom-left corner, you will find the alkali metals, which have larger atomic radii compared to other elements. This combination of being low in the table and to the left captures the trend of larger atomic size effectively. Therefore, the option indicating the bottom-left corner accurately reflects where elements with the largest atomic radii are located on the periodic table.

3. Which substance is most likely to be a solid at standard temperature and pressure (STP)?

A. H2O

B. Na

C. Cl2

D. CO2

The correct choice is sodium (Na) because it is a metal and, at standard temperature and pressure (STP), most metals exist in a solid state. Sodium has a melting point of 97.8 °C, which is well above room temperature. Therefore, at STP, sodium will be in solid form. In contrast, while water (H2O) is commonly found in solid form as ice, at STP it may exist as a liquid. Chlorine (Cl2) is a gaseous diatomic molecule at STP, and carbon dioxide (CO2) is typically a gas under these conditions, although it can exist as a solid (dry ice) at low temperatures and pressures. Thus, compared to these other substances, sodium is the most likely to be solid at STP.

4. Which of the following is NOT a factor as to why lakes don't freeze solid in winter?

A. Water has its lowest volume at zero degrees Celsius.

B. Water is most dense at four degrees Celsius.

C. Ice acts as an insulator on the lake surface.

D. Wind can circulate water and help prevent freezing.

The statement that water has its lowest volume at zero degrees Celsius is not related to why lakes don't freeze solid in winter. In fact, water reaches its maximum density at around four degrees Celsius, which is why it sinks below the ice when lakes cool. This characteristic prevents lakes from freezing solid because the ice that forms on the surface acts as an insulator, allowing a layer of water below it to remain in a liquid state despite cold air temperatures. In addition, the circulation of water due to wind helps mix the warmer waters in the depths of the lake with the cooler surface waters, further contributing to the prevention of complete freezing. This combination of properties of water, including the unique behavior of ice and the effects of wind on water circulation, plays a significant role in maintaining liquid water beneath the ice layer during winter months.

5. The hydrogen bonds in water contribute to its ability to serve as what?

A. A conductor of electricity

B. A solvent for all substances

C. A surface for small particles and organisms

D. An insulator against heat

The hydrogen bonds in water play a crucial role in its unique properties, one of which is its ability to create a surface tension that can support small particles and organisms. Water molecules are polar, leading to the formation of hydrogen bonds between them. These bonds create cohesion, allowing water to resist external forces to a degree. This phenomenon contributes to surface tension, which can support lightweight objects, such as small insects or other small organisms, allowing them to walk on or float on the surface of water. While water does have excellent solvent properties due to its polarity, it is not a universal solvent for all substances, as it cannot dissolve nonpolar substances effectively. Additionally, while water can conduct electricity when it contains dissolved ions, it is not a conductor in its purest form. Water also exhibits properties of thermal insulation; however, the primary role of hydrogen bonds is more directly related to the cohesive properties affecting surfaces. Thus, the choice that accurately reflects the impact of hydrogen bonds in relation to providing a surface for small particles and organisms is correct.

6. Which of the following is an environmental concern associated with hydraulic fracturing (fracking)?

A. Increased biodiversity

B. Groundwater contamination

C. Urban development

D. Deforestation

Groundwater contamination is a significant environmental concern associated with hydraulic fracturing, or fracking. This process involves injecting high-pressure fluid into underground rock formations to release natural gas or oil. The chemicals used in the fracking fluid, along with the potential for methane and other contaminants from the fractured rock, can migrate into nearby groundwater sources, posing risks to drinking water quality. This contamination can have serious consequences for public health and local ecosystems, emphasizing the importance of monitoring and regulating fracking operations. In contrast, increased biodiversity, urban development, and deforestation are not direct results of hydraulic fracturing. While fracking operations can lead to changes in land use and potentially impact local ecosystems, the specific and most pressing concern directly related to this technique is the risk it poses to groundwater sources. Understanding these dynamics helps illustrate the complex balance required in energy extraction practices and environmental protection.

7. Which process is responsible for transforming light energy into chemical energy?

A. Cellular respiration

B. Photosynthesis

C. Fermentation

D. Combustion

Photosynthesis is the process that converts light energy into chemical energy. During photosynthesis, plants, algae, and some bacteria capture sunlight through chlorophyll and use it to transform carbon dioxide and water into glucose and oxygen. The glucose produced is a form of chemical energy that plants use for growth, metabolism, and energy storage. This process is essential for life on Earth as it forms the basis of the food chain, supplying energy to primary producers, which in turn provide energy to consumers. The transformation of light energy into a stable chemical form, such as glucose, is crucial for sustaining living organisms up the food chain. In contrast, cellular respiration is a process that breaks down glucose to release energy, fermentation occurs under anaerobic conditions to produce energy without oxygen, and combustion is a reaction involving the burning of substances that typically releases energy but does not convert light energy into a usable chemical form.

8. How does the loss of biodiversity impact the environment and society?

A. Increase in pest populations

B. Decrease of food supply

C. Improvement of soil quality

D. Greater ecosystem resilience

The loss of biodiversity has significant implications for both the environment and society. When biodiversity decreases, the variety of life—including different species of plants, animals, and microorganisms—diminishes, which can lead to a decline in ecosystem services that are critical for food production. These services include pollination, soil fertility, and pest control, all of which are reliant on a diverse range of organisms. A decrease in biodiversity can disrupt these natural processes, resulting in reduced agricultural yields and a decline in the availability of food resources. Since diverse ecosystems are better equipped to handle pests, diseases, and environmental changes, the loss of species can lead to increased vulnerability in food systems. Consequently, a limited genetic variety in crops can result in food supplies that are less resilient to disease and climate fluctuations, leading to potential shortages and increased food insecurity. The other options do not accurately reflect the consequences of biodiversity loss. For instance, increased pest populations can occur, but this is more a consequence of lowering biodiversity rather than a direct impact on the environment and society. Similarly, the idea of improved soil quality contradicts the understanding that diverse organisms contribute to maintaining soil health. Greater ecosystem resilience is associated with higher biodiversity, not its loss. Therefore, the primary concern with biodiversity loss is

9. What phenomenon explains why a rainbow is formed?

A. Reflection of light

B. Refraction of light

C. Dispersion of light

D. Diffraction of light

The formation of a rainbow is primarily explained by the dispersion of light. When sunlight enters a raindrop, it is not only refracted, or bent, but the different wavelengths of light (colors) are also spread out due to their varying degrees of bending in the water. This process separates the light into its component colors, creating the visual spectrum of a rainbow. Dispersion occurs because the refractive index of water varies with wavelength; shorter wavelengths (like blue and violet) bend more than longer wavelengths (like red). As light exits the raindrop, this separation of colors results in the beautiful arc of a rainbow, with red typically on the outside and violet on the inside. While reflection involves light bouncing off a surface, and refraction refers to the bending of light as it passes from one medium to another, these processes alone do not account for the visible spectrum that we identify as a rainbow. Diffraction, on the other hand, involves the bending of light waves around obstacles and does not play a significant role in the formation of a rainbow.

10. Which of the following statements is NOT true about the period of a simple pendulum?

A. As the length of a pendulum increases, the period increases.

B. As the mass of a pendulum increases, the period increases.

C. The period depends only on the length of the pendulum.

D. The period is independent of the mass of the pendulum.

The correct statement to support the understanding of the period of a simple pendulum is that the period is primarily affected by the length of the pendulum and is independent of its mass. According to the formula for the period of a simple pendulum, the period is a function of the length (L) and the acceleration due to gravity (g), specifically represented as \(T = 2\pi\sqrt{\frac{L}{g}} \). This means that as the length of the pendulum increases, the period does indeed increase. In contrast, the mass of the pendulum does not influence the period. In an ideal scenario, where air resistance and friction are negligible, all pendulums of the same length—and regardless of their mass—will have the same period. This empirical observation can be counterintuitive, as one might assume that a heavier pendulum would swing slower, but this is not the case in the idealized conditions of a simple pendulum. Therefore, the assertion that the mass of a pendulum affects its period is inaccurate, making it the statement that is NOT true about the period of a simple pendulum.

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://praxis25435.examzify.com

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