

HISET 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. Which part of the flower aids in attracting pollinators?**
 - A. Stamen
 - B. Filament
 - C. Petal
 - D. Pistil

- 2. What process converts light energy into chemical energy in plants?**
 - A. Respiration
 - B. Photosynthesis
 - C. Transpiration
 - D. Fermentation

- 3. What term describes the mutual reliance among members of an ecosystem?**
 - A. Independence
 - B. Symbiosis
 - C. Interdependence
 - D. Isolation

- 4. What do dendrites in a neuron primarily do?**
 - A. Transmit impulses
 - B. Receive information
 - C. Protect the neuron
 - D. Generate energy

- 5. During which phase of cell division do chromosomes become visible and the nuclear envelope dissolves?**
 - A. Anaphase
 - B. Prophase
 - C. Metaphase
 - D. Telophase

- 6. What diagram illustrates the feeding relationships between organisms in an ecosystem?**
- A. Food Chain
 - B. Food Web
 - C. Energy Pyramid
 - D. Biogeochemical Cycle
- 7. What reproductive structure is produced by angiosperms?**
- A. Fruit
 - B. Flowers
 - C. Seeds
 - D. Spore Cases
- 8. Which term refers to the variable that is kept constant throughout an experiment?**
- A. Control Variable
 - B. Independent Variable
 - C. Dependent Variable
 - D. Experimental Variable
- 9. What term describes the body's response to injury or disease?**
- A. Response
 - B. Inflammation
 - C. Immunity
 - D. Recovery
- 10. What is defined as a law or rule prescribed by an authority to regulate conduct?**
- A. Regulation
 - B. Policy
 - C. Statute
 - D. Guideline

Answers

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

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Explanations

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1. Which part of the flower aids in attracting pollinators?

- A. Stamen
- B. Filament
- C. Petal**
- D. Pistil

The petals of a flower play a crucial role in attracting pollinators such as bees, butterflies, and other insects. They are typically brightly colored and can have various patterns and markings that make them visually appealing to these organisms. The vibrant colors and sometimes even scents produced by the petals serve as signals to pollinators, guiding them to the flower. This attraction is essential for the pollination process, as it facilitates the transfer of pollen from the male parts of the flower to the female parts, thus enabling fertilization and subsequent seed production. In contrast, other parts of the flower have different functions. The stamen is the male reproductive part of the flower, which produces pollen. The filament is a part of the stamen that supports the anther. The pistil is the female reproductive part of the flower, composed of the ovary, style, and stigma. While these structures are important for reproduction, they do not serve the primary purpose of attracting pollinators in the same way that petals do.

2. What process converts light energy into chemical energy in plants?

- A. Respiration
- B. Photosynthesis**
- C. Transpiration
- D. Fermentation

The process that converts light energy into chemical energy in plants is photosynthesis. During photosynthesis, plants utilize sunlight, carbon dioxide from the air, and water from the soil to create glucose and oxygen. The primary site for photosynthesis in plants is the chloroplast, where chlorophyll— the green pigment— absorbs light energy. This energy is then used to convert carbon dioxide and water into glucose, a simple sugar that serves as food for the plant, effectively storing energy in a chemical form. The overall equation for photosynthesis can be summarized as: $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{light energy} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$. In this process, light energy is transformed into the chemical energy found in glucose, making it essential for the survival and growth of the plant. Other processes listed, such as respiration, transpiration, and fermentation, involve different energy transformations or materials and are not responsible for the conversion of light energy into chemical energy.

3. What term describes the mutual reliance among members of an ecosystem?

- A. Independence
- B. Symbiosis
- C. Interdependence**
- D. Isolation

The term that describes the mutual reliance among members of an ecosystem is interdependence. In ecological contexts, interdependence refers to the relationships and connections between different organisms and species within a given environment. Each organism relies on others for survival, whether it's through food chains, pollination, habitat creation, or nutrient recycling. For instance, plants provide oxygen and food, which is essential for animals, while animals contribute to plant reproduction and nutrient cycling through their waste. This mutual reliance helps maintain the balance and stability of the ecosystem, highlighting the importance of each species and its role. Other terms do not capture this concept as accurately. Independence implies a lack of reliance on others, which contradicts the interconnected nature of ecosystems. Symbiosis refers to a specific type of close relationship between two different organisms, but it is just one example of interdependence. Isolation suggests separation, which does not reflect the collaborative nature of interactions within ecosystems. Hence, interdependence is the most comprehensive and appropriate term to describe the mutual reliance among ecosystem members.

4. What do dendrites in a neuron primarily do?

- A. Transmit impulses
- B. Receive information**
- C. Protect the neuron
- D. Generate energy

Dendrites in a neuron primarily receive information from other neurons. They are branched structures that extend from the neuron's cell body and serve as the primary sites for synaptic connections. When neurotransmitters are released from the axon terminal of a neighboring neuron, they bind to receptors on the dendrites, allowing the receiving neuron to obtain signals and integrate incoming information. This process is essential for the communication within the nervous system and plays a critical role in how neurons process and respond to stimuli. The other functions mentioned in the choices do not accurately describe the primary role of dendrites. For example, transmitting impulses is primarily the function of the axon, which sends the electrical signals away from the neuron. Protecting the neuron is more associated with the function of glial cells. Generating energy is mainly the role of metabolic processes in the neuron's cell body, rather than a function of dendrites.

5. During which phase of cell division do chromosomes become visible and the nuclear envelope dissolves?

- A. Anaphase
- B. Prophase**
- C. Metaphase
- D. Telophase

In the process of cell division, the phase during which chromosomes become visible and the nuclear envelope dissolves is prophase. During this phase, the chromatin condenses into distinct chromosomes, making them easier to see under a microscope. Each chromosome typically consists of two sister chromatids joined at a region called the centromere. In addition to chromatin condensation, prophase is characterized by the breakdown of the nuclear envelope, allowing the spindle apparatus to interact with the chromosomes. This preparation is crucial for the subsequent phases of mitosis, where the chromosomes need to align and separate properly. It's important to note that this visibility and breakdown do not occur in the other phases mentioned. In metaphase, chromosomes are aligned at the cell's equatorial plane; in anaphase, sister chromatids are pulled apart; and during telophase, the chromosomes begin to de-condense, and the nuclear envelope reforms around the separated sets of chromosomes.

6. What diagram illustrates the feeding relationships between organisms in an ecosystem?

- A. Food Chain
- B. Food Web**
- C. Energy Pyramid
- D. Biogeochemical Cycle

A food web is the diagram that illustrates the feeding relationships between organisms in an ecosystem. It comprises many interconnected food chains, showing how different species are linked through their dietary habits. This complexity reflects the reality of ecosystems, where organisms often have multiple food sources and predators, creating a network of interactions. On the other hand, a food chain represents a linear sequence of who eats whom, simplifying the relationships to a single pathway. An energy pyramid depicts the energy distribution among trophic levels in an ecosystem, while a biogeochemical cycle involves the movement of elements through biological and geological processes. Therefore, a food web is the most comprehensive representation of feeding interactions among various organisms, highlighting the intricate connections that sustain an ecosystem.

7. What reproductive structure is produced by angiosperms?

- A. Fruit
- B. Flowers**
- C. Seeds
- D. Spore Cases

Angiosperms, or flowering plants, are characterized by their unique reproductive structures known as flowers. These flowers contain the gametes for sexual reproduction and facilitate the process of pollination, which can occur through various agents such as wind, insects, and animals. The structure of the flower includes various parts: petals, sepals, stamens (the male reproductive organs), and carpels (the female reproductive organs). Each of these components plays a critical role in attracting pollinators and ensuring successful fertilization. After pollination and fertilization occur, the flower can develop into fruit, which encases the seeds and aids in their dispersal. Although fruits and seeds are indeed products of the reproductive process in angiosperms, the primary reproductive structure responsible for facilitating this entire process is the flower itself. Thus, flowers are a defining feature of angiosperms and serve as their main reproductive structures.

8. Which term refers to the variable that is kept constant throughout an experiment?

- A. Control Variable**
- B. Independent Variable
- C. Dependent Variable
- D. Experimental Variable

The term that refers to the variable that is kept constant throughout an experiment is a control variable. Control variables are essential in experimental design because they ensure that any changes in the dependent variable can be attributed solely to the manipulation of the independent variable. By keeping certain factors constant, researchers can isolate the effects of the independent variable, which enhances the reliability and validity of the experiment's results. In scientific experimentation, independent variables are those that are deliberately changed or manipulated to observe how they affect the dependent variable, while the dependent variable is the one being measured. Experimental variables, which may sometimes be used interchangeably with independent variables, are also manipulated during the experiment but do not encompass the importance of maintaining consistency that control variables do. Thus, understanding the role of control variables is vital for accurately interpreting experimental outcomes.

9. What term describes the body's response to injury or disease?

- A. Response
- B. Inflammation**
- C. Immunity
- D. Recovery

The term that describes the body's response to injury or disease is inflammation. Inflammation is a complex biological process that the body initiates in response to harmful stimuli, such as pathogens, damaged cells, or irritants. When an injury occurs or an infection is detected, the body activates its immune system, which leads to the increased blood flow to the affected area. This process results in the characteristic signs of inflammation, including redness, heat, swelling, and pain. Inflammation serves to localize and eliminate the cause of the injury or infection, clean up the damaged tissue, and start the healing process. This process plays a crucial role in protecting the body and initiating recovery. Other terms, such as immunity, refer to the body's ability to resist specific infections and diseases rather than the immediate response to injury. Recovery denotes the process of regaining health after illness or injury, but it occurs after the inflammatory response has taken place. Therefore, inflammation specifically describes the body's initial response mechanism.

10. What is defined as a law or rule prescribed by an authority to regulate conduct?

A. Regulation

B. Policy

C. Statute

D. Guideline

The definition of a law or rule prescribed by an authority to regulate conduct aligns with the term "regulation." Regulations are established by governmental agencies and are designed to manage specific activities in various sectors, ensuring that standards are met and public welfare is protected. They typically carry the force of law, meaning that they must be followed and can result in penalties if violated. Policies, while important, refer more broadly to principles or plans of action adopted by organizations or governments to guide decision-making rather than specific laws that enforce conduct. Statutes are laws that have been enacted by a legislature, often serving as the broader framework within which regulations operate. Guidelines are generally recommendations or best practices rather than binding rules, offering a more flexible approach to compliance. Therefore, the term that most accurately represents a binding rule established by an authority is "regulation."

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://hisetscience.examzify.com>

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

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