

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. What type of organism is characterized as a special eukaryote that decomposes and absorbs nutrients?**
 - A. Fungi
 - B. Bacteria
 - C. Algae
 - D. Protozoa
- 2. Which type of selection occurs when individuals at both extremes of a trait distribution are favored?**
 - A. Directional Selection
 - B. Stabilizing Selection
 - C. Disruptive Selection
 - D. Balancing Selection
- 3. A cell that contains only one set of chromosomes is called what?**
 - A. Diploid Cell
 - B. Haploid Cell
 - C. Somatic Cell
 - D. Spermatocyte
- 4. Which classification grouping consists of closely related species?**
 - A. Genus
 - B. Species
 - C. Order
 - D. Phylum
- 5. What is the series of stages that individuals go through from birth to death called?**
 - A. Life Cycle
 - B. Aging Process
 - C. Development Stages
 - D. Lifecycle Analysis

- 6. What is the effect of mutations on genetic traits?**
- A. They do not affect traits
 - B. They create uniformity in traits
 - C. They can enhance genetic diversity
 - D. They only lead to detrimental changes
- 7. What defines arthropods in the animal kingdom?**
- A. They have a backbone
 - B. They are invertebrates with jointed appendages
 - C. They are mammals with fur
 - D. They have scales and lay eggs
- 8. What theory explains how organisms change and develop over time to enhance their survival rates?**
- A. Theory of Relativity
 - B. Theory of Plate Tectonics
 - C. Theory of Evolution
 - D. Germ Theory of Disease
- 9. What are the small respiratory passages that connect the trachea to the lungs?**
- A. Alveoli
 - B. Bronchial Tubes
 - C. Capillaries
 - D. Larynx
- 10. What term refers to plants that have neither true vascular tissue nor true roots, stems, or leaves?**
- A. Vascular Plants
 - B. Nonvascular Plants
 - C. Angiosperms
 - D. Gymnosperms

Answers

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

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Explanations

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1. What type of organism is characterized as a special eukaryote that decomposes and absorbs nutrients?

- A. Fungi**
- B. Bacteria
- C. Algae
- D. Protozoa

Fungi are special eukaryotes known for their unique role in ecosystems as decomposers. They absorb nutrients from their surroundings through a process called absorption, which involves secreting enzymes that break down complex organic materials into simpler substances that can be absorbed. This ability makes fungi crucial for nutrient cycling, as they help decompose dead plants, animals, and other organic matter, returning essential nutrients to the soil. Fungi exhibit a distinct cellular structure characterized by cell walls made of chitin, differentiating them from other types of organisms. Unlike bacteria, which are prokaryotes and primarily decompose through direct nutrient uptake without complex enzymes, fungi utilize a more sophisticated mechanism involving external digestion. Algae, while also eukaryotic, primarily conduct photosynthesis and do not typically function as decomposers in the same way. Protozoa are unicellular eukaryotes that usually feed on bacteria and organic matter but are not primarily known for their decomposing abilities. Thus, fungi are the primary eukaryotes that take on the role of decomposers in ecological systems.

2. Which type of selection occurs when individuals at both extremes of a trait distribution are favored?

- A. Directional Selection
- B. Stabilizing Selection
- C. Disruptive Selection**
- D. Balancing Selection

Disruptive selection is a type of natural selection that favors individuals at both extremes of a trait distribution while selecting against those with intermediate traits. This process occurs in environments where the extremes confer a survival advantage, leading to a greater probability of these traits being passed on to successive generations. For example, in a hypothetical situation involving a species of bird that feeds on seeds, if very large and very small beaks are advantageous for accessing different types of seeds while those with medium-sized beaks are less efficient at feeding, then the population may evolve toward these two extremes over time. This can result in increased diversity within the population as it may split into two distinct phenotypes adapted to different niches in the environment. In contrast, directional selection favors individuals at one extreme of a trait distribution, leading to a shift in the population toward that particular trait. Stabilizing selection promotes the intermediate form of a trait, reducing variation and favoring average individuals. Balancing selection maintains multiple phenotypes within a population, generally in fluctuating environments, without strongly favoring one over the others. Therefore, the correct identification of disruptive selection highlights its unique role in promoting extremes and enhancing diversity within a population.

3. A cell that contains only one set of chromosomes is called what?

- A. Diploid Cell
- B. Haploid Cell**
- C. Somatic Cell
- D. Spermatocyte

A cell that contains only one set of chromosomes is referred to as a haploid cell. In humans and many other organisms, the haploid condition is typically represented by gametes, such as sperm and egg cells. These cells are crucial for sexual reproduction because they combine during fertilization to form a diploid zygote, restoring the paired sets of chromosomes. To elaborate, haploid cells have half the number of chromosomes compared to diploid cells, which have two sets. This reduction is essential for maintaining the stable number of chromosomes in a species across generations. When organisms reproduce sexually, the haploid cells play a key role in ensuring genetic diversity as they combine genetic material from two parents. Diploid cells, in contrast, are those that contain two sets of chromosomes and are commonly found in somatic cells, which make up the majority of an organism's body. Somatic cells are not involved in reproduction. A spermatocyte is a specific type of diploid cell that undergoes meiosis to produce haploid sperm cells, but it is still considered diploid before this process.

4. Which classification grouping consists of closely related species?

- A. Genus**
- B. Species
- C. Order
- D. Phylum

The classification grouping that consists of closely related species is the genus. In biological taxonomy, a genus is a rank in the hierarchy that groups species that share common characteristics and are closely related to one another. For example, the genus *Panthera* includes species such as the lion and the tiger, which are more closely related to each other than to species in other genera. In contrast, species represents the most specific level of classification and refers to individual organisms that can interbreed and produce fertile offspring. While it identifies a single type of organism, it does not encompass closely related species like a genus does. Order and phylum are higher taxonomic categories that encompass broader groups of organisms. An order consists of multiple families, which in turn contain various genera, while a phylum groups together several classes of organisms based on certain fundamental characteristics. Therefore, the genus is the correct choice as it effectively captures the idea of closely related species within taxonomy.

5. What is the series of stages that individuals go through from birth to death called?

- A. Life Cycle**
- B. Aging Process
- C. Development Stages
- D. Lifecycle Analysis

The term that best describes the series of stages that individuals go through from birth to death is the Life Cycle. This concept encompasses all the biological and developmental changes that occur from the initial stages of life, such as infancy and childhood, through adolescence and adulthood, and ultimately to old age and death. The Life Cycle captures the comprehensive progression of life stages, highlighting that each phase has its own characteristics, challenges, and milestones. It emphasizes the continuity of life experiences and the transformation an individual undergoes over the span of their lifetime. By understanding the Life Cycle, one can better appreciate how physical, emotional, and social changes manifest throughout different phases of life. Other terms like the Aging Process or Development Stages may refer to specific aspects of growing older or particular phases of development, but they do not encapsulate the complete journey from birth to death as effectively as the Life Cycle does. Lifecycle Analysis, on the other hand, typically relates to assessing products' environmental impacts throughout their life span rather than focusing on human life stages.

6. What is the effect of mutations on genetic traits?

- A. They do not affect traits
- B. They create uniformity in traits
- C. They can enhance genetic diversity**
- D. They only lead to detrimental changes

Mutations play a crucial role in genetic diversity within populations. When a mutation occurs, it introduces new variations in genes, which can lead to different phenotypes, or observable traits. These variations can be beneficial, neutral, or harmful, but on a larger scale, they increase the overall genetic diversity of a species. Enhanced genetic diversity is essential for the adaptability and survival of species as it can result in new traits that may help individuals better survive in changing environments. For example, a mutation might confer resistance to a disease or allow an organism to exploit a new food source. Over time, if such beneficial mutations are advantageous, they can spread throughout a population, leading to evolution. While some mutations can indeed lead to detrimental changes or disorders, and some may have no effect at all, the capacity of mutations to introduce new genetic combinations is fundamental to the process of evolution and the development of diverse genetic traits within a population. Thus, the correct answer reflects the positive role that mutations play in creating genetic diversity.

7. What defines arthropods in the animal kingdom?

- A. They have a backbone
- B. They are invertebrates with jointed appendages**
- C. They are mammals with fur
- D. They have scales and lay eggs

Arthropods are defined by their distinct body plan that features jointed appendages. This characteristic allows them a wide range of movement and adaptability, which is crucial for their survival in various environments. Additionally, arthropods are invertebrates, meaning they lack a backbone, distinguishing them from vertebrates like mammals or reptiles. The presence of an exoskeleton made of chitin further defines this group, providing support and protection. The mention of jointed appendages is particularly significant as this trait is not shared by all invertebrates, making it a defining feature of arthropods. Examples of arthropods include insects, arachnids, crustaceans, and myriapods, all of which exhibit these jointed limbs. This allows them to interact with their environment in complex ways, such as walking, grasping, and swimming, depending on their ecological niche.

8. What theory explains how organisms change and develop over time to enhance their survival rates?

- A. Theory of Relativity
- B. Theory of Plate Tectonics
- C. Theory of Evolution**
- D. Germ Theory of Disease

The Theory of Evolution is the correct choice because it provides a framework for understanding how species adapt over time through processes like natural selection, mutation, genetic drift, and migration. This theory posits that organisms with traits that improve their chances of survival and reproduction are more likely to pass those traits on to future generations. Over long periods, these gradual changes can lead to the emergence of new species. This concept is fundamental in biology as it explains the diversity of life on Earth and how species interact with their environment. In contrast, the other theories focus on different scientific principles. The Theory of Relativity, developed by Albert Einstein, addresses the physics of space and time rather than biological processes. The Theory of Plate Tectonics explains the movement of Earth's lithospheric plates and the geological changes that result from these movements, which is unrelated to biological evolution. Lastly, the Germ Theory of Disease describes how microorganisms cause diseases, but it does not provide insights into the evolutionary processes that lead to the adaptation and survival of species.

9. What are the small respiratory passages that connect the trachea to the lungs?

A. Alveoli

B. Bronchial Tubes

C. Capillaries

D. Larynx

The bronchial tubes are the small respiratory passages that connect the trachea to the lungs. After air enters through the trachea, it travels down into the bronchial tubes, which branch off into the right and left lungs. Within the lungs, these tubes continue to divide into smaller bronchi and ultimately lead to tiny air sacs called alveoli, where gas exchange occurs. Understanding the role of bronchial tubes is essential because they serve as the main passageways for air to reach the alveoli, where oxygen is introduced into the bloodstream and carbon dioxide is removed. This makes them a crucial part of the respiratory system. In contrast, alveoli are the site of gas exchange, while capillaries are tiny blood vessels that surround the alveoli, playing a role in transporting oxygen and carbon dioxide between blood and air. The larynx, or voice box, is involved in sound production and is located above the trachea, but it does not connect directly to the lungs.

10. What term refers to plants that have neither true vascular tissue nor true roots, stems, or leaves?

A. Vascular Plants

B. Nonvascular Plants

C. Angiosperms

D. Gymnosperms

The term that refers to plants lacking true vascular tissue, as well as true roots, stems, or leaves, is nonvascular plants. These plants are generally smaller and rely on diffusion and osmosis to transport nutrients and water since they do not have specialized structures for these functions. Examples of nonvascular plants include mosses, liverworts, and hornworts. In contrast, vascular plants, which include both angiosperms and gymnosperms, possess true vascular tissues (xylem and phloem) that facilitate the transportation of water and nutrients throughout the plant. The distinction is important as it highlights different evolutionary adaptations within the plant kingdom.

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:

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

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