

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 is the process called in which a cell or organism is copied from an original source?**
 - A. Replication
 - B. Reproduction
 - C. Cloning
 - D. Transcription
- 2. Which type of gene is expressed whenever it is present?**
 - A. Recessive Gene
 - B. Dominant Gene
 - C. Conditional Gene
 - D. Anonymous Gene
- 3. Which of the following is defined as a marine coelenterate with a soft, gelatinous structure?**
 - A. Starfish
 - B. Jellyfish
 - C. Coral
 - D. Seaweed
- 4. Which of these is primarily responsible for protecting the body from infections?**
 - A. Cardiovascular System
 - B. Nervous System
 - C. Immune System
 - D. Respiratory System
- 5. What term describes diseases caused by physical injuries, genetic defects, or non-contagious factors?**
 - A. Non-infectious Diseases
 - B. Infectious Diseases
 - C. Autoimmune Disorders
 - D. Communicable Diseases

- 6. What is one key factor that can influence the rate of evolutionary change?**
- A. Climate stability
 - B. Population size
 - C. Genetic engineering
 - D. Dietary changes
- 7. Which of the following best describes a dominant gene?**
- A. A gene that is only expressed in heterozygous conditions
 - B. A gene that is always expressed when present
 - C. A gene that influences the phenotype only when both alleles are recessive
 - D. A gene that remains dormant in most cases
- 8. What does genetic drift refer to in evolutionary biology?**
- A. The change in allele frequencies due to chance events
 - B. Deliberate changes made by humans
 - C. The influence of multiple genes on a single trait
 - D. Systematic adjustments made by a population
- 9. What is the classification of animals that have soft bodies often covered by a hard shell?**
- A. Crustaceans
 - B. Arthropods
 - C. Mollusks
 - D. Insects
- 10. What is the function of the cell membrane?**
- A. Provides energy to the cell
 - B. Stores genetic information
 - C. Regulates what enters and leaves the cell
 - D. Breaks down waste products

Answers

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

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Explanations

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1. What is the process called in which a cell or organism is copied from an original source?

- A. Replication
- B. Reproduction
- C. Cloning**
- D. Transcription

Cloning is the process in which a cell or organism is copied from an original source. This can occur through various methods, such as asexual reproduction, somatic cell nuclear transfer, or other techniques that produce a genetically identical copy of the original. Cloning can involve the replication of DNA and cellular components to create an identical organism or cell line, making it a precise method of duplicating genetic information and characteristics. In biological contexts, cloning can apply to whole organisms, tissues, or cells, emphasizing the significance of the genetic similarity between the clone and the original source. This process is distinct from other terms like replication, which typically refers to the duplication of DNA molecules within the cell, and reproduction, which generally encompasses the broader process of creating offspring that may not be genetically identical. Transcription, on the other hand, is specifically the process of synthesizing RNA from a DNA template, which does not involve the copying of entire cells or organisms.

2. Which type of gene is expressed whenever it is present?

- A. Recessive Gene
- B. Dominant Gene**
- C. Conditional Gene
- D. Anonymous Gene

The type of gene that is expressed whenever it is present is a dominant gene. Dominant genes will manifest their traits in an organism's phenotype even when only one copy is present in the genotype. This means that if an individual has at least one dominant allele for a trait, that trait will be expressed, regardless of whether the other allele is dominant or recessive. For example, if a dominant gene for brown eyes is present, a person will have brown eyes even if they also carry a recessive gene for blue eyes. The presence of the dominant allele overshadows the effect of the recessive allele, leading to the dominant trait being the one visibly expressed. This concept is fundamental in genetics and helps explain how certain traits are inherited from one generation to the next. The other types of genes mentioned do not consistently result in expression. Recessive genes require two copies for their trait to be expressed, while conditional genes might only be expressed under specific environmental conditions. Anonymous genes generally refer to those whose effects or functions are not known or observable. Therefore, the correct understanding of dominant genes is crucial in genetics.

3. Which of the following is defined as a marine coelenterate with a soft, gelatinous structure?

- A. Starfish
- B. Jellyfish**
- C. Coral
- D. Seaweed

The term "marine coelenterate" refers to organisms belonging to the phylum Cnidaria, which includes jellyfish, corals, and sea anemones. Jellyfish are characterized by their soft, gelatinous bodies, which primarily consist of a substance called mesoglea. This structure allows them to drift with ocean currents and gives them their characteristic bell shape. They possess tentacles equipped with specialized cells called nematocysts, which are used for capturing prey and defense. In contrast, starfish, corals, and seaweeds have different structural features. Starfish (or sea stars) belong to the phylum Echinodermata and have a hard, calcified body covered with skin. Coral, while also a coelenterate, has a hard exoskeleton and is more rigid than a jellyfish. Seaweed, on the other hand, is a type of algae and does not belong to the phylum Cnidaria; its structure is entirely different as it is composed of plant-like tissues that can be more fibrous or leafy in appearance. Thus, the defining characteristics of jellyfish make it the correct answer in identifying a marine coelenterate with a soft, gelatinous structure.

4. Which of these is primarily responsible for protecting the body from infections?

- A. Cardiovascular System
- B. Nervous System
- C. Immune System**
- D. Respiratory System

The immune system is primarily responsible for protecting the body from infections. It is composed of various cells, tissues, and organs that work together to identify and eliminate pathogens such as bacteria, viruses, fungi, and parasites. Key components of the immune system include white blood cells, antibodies, and the lymphatic system, which all play essential roles in detecting foreign invaders and mounting an appropriate response to them. While other systems contribute to overall health and can have roles in defense, such as the cardiovascular system delivering immune cells throughout the body, the primary function of the immune system is specifically focused on identifying and neutralizing threats to health. The nervous system is primarily involved in transmitting signals and processing information, while the respiratory system is responsible for gas exchange and does have some role in immune defense (e.g., mucous membranes that trap pathogens), it does not have the central role that the immune system does in combating infections.

5. What term describes diseases caused by physical injuries, genetic defects, or non-contagious factors?

A. Non-infectious Diseases

B. Infectious Diseases

C. Autoimmune Disorders

D. Communicable Diseases

The term that describes diseases caused by physical injuries, genetic defects, or non-contagious factors is non-infectious diseases. These conditions are characterized by their origins not being associated with pathogens like bacteria or viruses, distinguishing them from infectious diseases that spread from one individual to another. Non-infectious diseases can arise from various sources, including heredity, environmental exposure, lifestyle factors, and injuries. Examples include genetic disorders, certain types of cancer, and chronic conditions like cardiovascular diseases. Understanding this classification helps in recognizing how these diseases differ from infectious diseases and stresses the importance of prevention methods that are focused more on lifestyle and environmental factors rather than on exposure to infectious agents.

6. What is one key factor that can influence the rate of evolutionary change?

A. Climate stability

B. Population size

C. Genetic engineering

D. Dietary changes

Population size is a critical factor influencing the rate of evolutionary change because it impacts genetic variation within a species. In smaller populations, genetic drift can have a more pronounced effect, leading to the rapid loss of genetic diversity and potentially accelerating evolutionary changes as certain traits become fixed or lost over generations. This can also increase vulnerability to environmental changes, as the reduced diversity limits adaptive responses. Larger populations tend to maintain more genetic variation, allowing for a broader range of traits to be naturally selected, facilitating gradual evolutionary changes over time. Additionally, in larger populations, mutations have a greater chance of being preserved or propagated compared to smaller populations where random changes can significantly shift genetic frequencies. This interplay between population size and evolutionary dynamics is pivotal for understanding how species adapt and evolve in response to environmental pressures.

7. Which of the following best describes a dominant gene?

A. A gene that is only expressed in heterozygous conditions

B. A gene that is always expressed when present

C. A gene that influences the phenotype only when both alleles are recessive

D. A gene that remains dormant in most cases

A dominant gene is characterized by its ability to express its phenotype in the presence of just one copy of the gene. When a dominant allele is present, it masks the effects of a recessive allele, even when the recessive allele is present in a heterozygous condition. This means that as long as at least one dominant allele exists, its associated trait will be exhibited in the organism. This property is crucial in understanding inheritance patterns and predicting phenotypic outcomes in offspring. For example, in a gene pair where one allele is dominant (A) and the other is recessive (a), both genotypes AA and Aa will result in the expression of the dominant trait, while only the homozygous recessive (aa) will lead to the expression of the recessive trait. This fundamental principle underpins many aspects of genetics, including the study of inheritance and variation within populations.

8. What does genetic drift refer to in evolutionary biology?

- A. The change in allele frequencies due to chance events**
- B. Deliberate changes made by humans
- C. The influence of multiple genes on a single trait
- D. Systematic adjustments made by a population

Genetic drift in evolutionary biology refers to the change in allele frequencies within a population that occurs due to random chance events. This phenomenon is particularly significant in small populations, where random events can have a more pronounced effect on the genetic makeup of the population. For example, if a natural disaster randomly eliminates a portion of a population, the remaining individuals may not represent the original allele frequencies, leading to a shift over generations. This process is distinct from other mechanisms of evolution such as natural selection, where changes in allele frequencies occur based on the fitness advantages of certain traits. In contrast, genetic drift is purely a statistical effect that can lead to the loss of genetic variation or the fixation of alleles irrespective of their adaptive value. The random nature of these changes means that they can result in significant evolutionary consequences over time, even if they do not confer any survival benefit. Therefore, the understanding of genetic drift is crucial for studying population genetics and evolutionary dynamics.

9. What is the classification of animals that have soft bodies often covered by a hard shell?

- A. Crustaceans
- B. Arthropods
- C. Mollusks**
- D. Insects

Animals with soft bodies that are often covered by a hard shell belong to the classification known as mollusks. This group includes diverse organisms such as snails, clams, squids, and octopuses, many of which possess a protective hard shell made of calcium carbonate. The shell serves several purposes, including defense against predators, support for the body, and prevention of desiccation in terrestrial environments. Mollusks are characterized by their soft, unsegmented bodies and typically have a muscular foot for movement, a mantle that secretes the shell, and a visceral mass that contains their internal organs. The hard shell can vary in form, from the coiled shells of snails to the bivalve shells of clams, showcasing the significant evolutionary adaptations within this phylum. Recognizing this distinctive feature of a soft body complemented by a hard shell is crucial for identifying mollusks within the broader context of animal classification.

10. What is the function of the cell membrane?

- A. Provides energy to the cell
- B. Stores genetic information
- C. Regulates what enters and leaves the cell**
- D. Breaks down waste products

The function of the cell membrane is to regulate what enters and leaves the cell, making it essential for maintaining the internal environment of the cell. The cell membrane is selectively permeable, meaning it controls the movement of substances in and out to ensure that essential nutrients can enter while waste products and harmful substances are kept out or expelled. This regulation is crucial for numerous cellular processes, including nutrient uptake, waste removal, and communication with other cells. The cell membrane achieves this through various mechanisms, such as passive transport, active transport, and facilitated diffusion, utilizing proteins and other structures to manage these exchanges. Proper functioning of the cell membrane is vital for the overall health of the cell and its ability to respond to changes in its environment.

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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