

LITHUANIAN UNIVERSITY OF HEALTH SCIENCES (LSMU) ENTRANCE PRACTICE EXAM (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 pigment is crucial for the process of photosynthesis?**
 - A. Chlorophyll
 - B. Carotene
 - C. Hemoglobin
 - D. Myoglobin
- 2. What is the role of bicarbonate in the body?**
 - A. Neutralizes strong acids
 - B. Acts as a strong base
 - C. Acts as a weak acid
 - D. Regulates acid-base balance
- 3. Which enzyme is responsible for breaking down fats?**
 - A. Amylase
 - B. Lipases
 - C. Proteases
 - D. Cellulases
- 4. What is the process of cytokinesis responsible for?**
 - A. Division of the nucleus
 - B. Division of the cytoplasm
 - C. Replication of DNA
 - D. Formation of spindle fibers
- 5. What is the main characteristic of euchromatin?**
 - A. Highly condensed structure
 - B. Loosely packed DNA
 - C. Inhibits gene expression
 - D. Rich in histones
- 6. What is a genotype?**
 - A. The observable traits of an organism
 - B. The combination of alleles inherited from parents
 - C. A specific type of gene mutation
 - D. The function of a particular gene

7. What is the general formula for hydrides?

- A. $\text{Me} + \text{O}$
- B. $\text{Me} + \text{H}$
- C. $\text{Me} + \text{Cl}$
- D. $\text{Me} + \text{OH}$

8. What characterizes a Lewis acid?

- A. Hydrogen ion donor
- B. Proton acceptor
- C. Electron pair donor
- D. Proton donor

9. Which cell type is noted for its ability to remember past infections?

- A. Regulatory T cells
- B. Memory T cells
- C. B lymphocytes
- D. Dendritic cells

10. What product is formed in a neutralization reaction?

- A. Acid and base
- B. Salt and water
- C. Hydrogen gas
- D. Bicarbonate buffer

Answers

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

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Explanations

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1. Which pigment is crucial for the process of photosynthesis?

A. Chlorophyll

B. Carotene

C. Hemoglobin

D. Myoglobin

The pigment that is crucial for the process of photosynthesis is chlorophyll. It is found primarily in the chloroplasts of plant cells and plays a vital role in absorbing light energy from the sun. Chlorophyll absorbs mainly blue and red wavelengths of light while reflecting green light, which is why plants appear green. Through its absorption of light energy, chlorophyll facilitates the conversion of carbon dioxide and water into glucose and oxygen, a fundamental process that supports plant life and, by extension, all life on Earth by producing oxygen and organic matter. In contrast, carotene is another pigment found in plants that can contribute to photosynthesis by capturing light energy, but it is not as critical as chlorophyll. Hemoglobin and myoglobin are proteins found in animal tissues responsible for oxygen transport and storage, respectively, and do not play a role in photosynthesis at all. Thus, the key function of chlorophyll in capturing solar energy makes it the primary pigment necessary for the photosynthetic process.

2. What is the role of bicarbonate in the body?

A. Neutralizes strong acids

B. Acts as a strong base

C. Acts as a weak acid

D. Regulates acid-base balance

Bicarbonate plays a crucial role in maintaining the body's acid-base balance, a vital system for ensuring proper physiological function. It acts as a buffer in the blood and other bodily fluids, helping to neutralize excess acids and prevent significant deviations in pH that could lead to acidosis or alkalosis. The bicarbonate buffer system interacts with other components, such as carbonic acid and carbon dioxide, to modulate pH levels effectively. This regulatory function is essential because many metabolic processes depend on a stable pH environment. By converting strong acids into weaker forms and facilitating the excretion of acidic compounds through respiration and renal function, bicarbonate helps maintain homeostasis in the body. This highlights the significance of the bicarbonate ion in the overall functioning of biological systems and its role as a buffer in the acid-base equilibrium.

3. Which enzyme is responsible for breaking down fats?

A. Amylase

B. Lipases

C. Proteases

D. Cellulases

Lipases are the enzymes specifically responsible for breaking down fats, also known as lipids. They catalyze the hydrolysis of ester bonds in triglycerides, leading to the production of glycerol and fatty acids. This biochemical reaction is crucial for the digestion and absorption of dietary fats in the body; without lipases, the body would be unable to effectively utilize the fats consumed in food. Each type of enzyme has a distinct role in the body's metabolic processes. For instance, amylase is involved in the breakdown of carbohydrates, primarily starches into sugars. Proteases, on the other hand, break down proteins into smaller peptides and amino acids. Cellulases are enzymes that digest cellulose, a carbohydrate found in plant cell walls, thus are not involved in fat digestion. Understanding the specific functions of lipases emphasizes their critical role in both metabolic chemistry and nutrition.

4. What is the process of cytokinesis responsible for?

- A. Division of the nucleus
- B. Division of the cytoplasm**
- C. Replication of DNA
- D. Formation of spindle fibers

Cytokinesis is the process that specifically refers to the division of the cytoplasm during cell division. This occurs after the mitotic phase, where the nucleus of the cell has already divided (a process known as mitosis). During cytokinesis, the cell's cytoplasm and its organelles are evenly distributed between the two daughter cells, ensuring that each new cell has the necessary components to function properly. The importance of cytokinesis lies in its role in completing the cell division cycle. The correct functioning of this process allows for the creation of two distinct and viable daughter cells from one parent cell. In many eukaryotic cells, this process involves the formation of a contractile ring that pinches the cell membrane, ultimately leading to the separation of the cells. The other options refer to different cellular processes: the division of the nucleus is completed during mitosis, replication of DNA occurs during the S phase of interphase, and the formation of spindle fibers is crucial for the separation of chromosomes during mitosis, but none of these processes encompass the specific action of cytokinesis.

5. What is the main characteristic of euchromatin?

- A. Highly condensed structure
- B. Loosely packed DNA**
- C. Inhibits gene expression
- D. Rich in histones

The main characteristic of euchromatin is that it consists of loosely packed DNA. This less condensed structure allows for greater accessibility of the DNA to transcription machinery, facilitating active gene expression. Euchromatin is typically associated with actively transcribed genes, as its structure permits the necessary proteins to bind to the DNA and initiate transcription. The loosely packed nature of euchromatin contrasts with heterochromatin, which is tightly packed and generally associated with gene repression. The accessibility provided by euchromatin makes it essential for processes such as transcription and DNA replication, enabling cells to efficiently express the genes they need at any given time.

6. What is a genotype?

- A. The observable traits of an organism
- B. The combination of alleles inherited from parents**
- C. A specific type of gene mutation
- D. The function of a particular gene

The concept of a genotype refers specifically to the genetic makeup of an organism, which encompasses the combination of alleles inherited from both parents. This genetic information is crucial because it determines various traits and characteristics that can be expressed in an organism. When discussing genotypes, it's important to distinguish them from phenotypes, which represent the observable traits or characteristics (like height, color, etc.) that may result from the genotype. The genotype essentially serves as the underlying blueprint that influences the phenotype. Moreover, while mutations in genes and the functions of genes are significant topics in genetics, they do not define what a genotype is. A specific mutation might alter a particular trait but does not change the foundational meaning of genotype itself. Similarly, the function of a gene relates more to its role in biological processes rather than its genetic composition. Thus, the understanding of genotype as the specific combination of alleles inherited from parents is fundamental in genetics, providing insight into inheritance and variation within populations.

7. What is the general formula for hydrides?

- A. Me + O
- B. Me + H**
- C. Me + Cl
- D. Me + OH

The correct answer is based on the definition of hydrides, which are compounds formed between hydrogen and another element, typically a metal. In the general formula represented by "Me + H", "Me" stands for a metal, and the "+" indicates that it is combined with hydrogen. Hydrides can be categorized into different types, such as ionic hydrides, covalent hydrides, and metallic hydrides, depending on the nature of the bond formed between hydrogen and the metal. For instance, alkali and alkaline earth metals form ionic hydrides where hydrogen acts as a negative ion, while non-metals can form covalent hydrides. To further clarify, the context of the other choices makes it evident that they do not represent hydrides. "Me + O" refers to oxides, compounds formed with oxygen; "Me + Cl" relates to chlorides, which are compounds with chlorine; and "Me + OH" signifies hydroxides, involving the hydroxide ion. Each of these options represents different classes of chemical compounds and not hydrides, which underscores why "Me + H" is the appropriate choice.

8. What characterizes a Lewis acid?

- A. Hydrogen ion donor
- B. Proton acceptor
- C. Electron pair donor**
- D. Proton donor

A Lewis acid is best characterized as an electron pair acceptor. This definition is derived from the Lewis theory of acids and bases, which expands on the traditional Brønsted-Lowry definitions. According to Lewis, an acid is a substance that can accept an electron pair from a base during a chemical reaction, thereby forming a coordinate covalent bond. In contrast to the other choices, a hydrogen ion donor corresponds to a Brønsted-Lowry acid, which focuses exclusively on proton transfer. A proton acceptor refers to a Brønsted-Lowry base, which also does not fit the Lewis framework. Similarly, the term "proton donor" describes the behavior of Brønsted-Lowry acids, further emphasizing the difference between the two acid-base theories. Overall, the definition of a Lewis acid revolves around its ability to accept electrons, which is fundamental to many chemical reactions, especially in coordination chemistry and catalysis.

9. Which cell type is noted for its ability to remember past infections?

- A. Regulatory T cells
- B. Memory T cells
- C. B lymphocytes**
- D. Dendritic cells

The cell type recognized for its essential role in remembering past infections is memory T cells. These specialized T lymphocytes are formed after an initial encounter with a specific pathogen. They remain in the body long after the infection has resolved, allowing for a quicker and more robust immune response upon re-exposure to the same pathogen. This memory function is a crucial aspect of the adaptive immune system, ensuring that the body can respond more effectively and efficiently to previously encountered infections. B lymphocytes, while also significant in the immune response, primarily produce antibodies and can also develop into memory B cells that help the body remember past infections by producing specific antibodies upon re-exposure. However, memory T cells are specifically responsible for remembering and responding to past infections by activating cytotoxic T cells and coordinating the overall immune response. Regulatory T cells play an important role in modulating the immune response and maintaining tolerance to self-antigens but are not primarily involved in the memory aspect of the immune system. Dendritic cells serve as antigen-presenting cells that help activate T cells but do not have the memory function themselves. Therefore, the role of memory T cells is paramount when discussing the ability of the immune system to remember and respond to past infections effectively.

10. What product is formed in a neutralization reaction?

- A. Acid and base
- B. Salt and water**
- C. Hydrogen gas
- D. Bicarbonate buffer

In a neutralization reaction, the primary products formed are salt and water. This type of reaction occurs when an acid reacts with a base, resulting in a chemical process that neutralizes the properties of both the acid and the base. The acid provides hydrogen ions (H^+), while the base supplies hydroxide ions (OH^-). When these ions combine, they form water (H_2O). The remaining components of the acid and base then react to produce a salt, which is an ionic compound typically formed from the cation of the base and the anion of the acid. This is important in various applications, including the regulation of pH in biological systems, as well as in industrial processes. The generation of salt and water is a characteristic outcome that signifies successful neutralization. Understanding the nature of the products in a neutralization reaction is fundamental in chemistry, particularly in areas that involve solution chemistry, acid-base theories, and their practical applications in both laboratory and real-world environments.

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://lsmuentrance.examzify.com>

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

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