

Lithuanian University of Health Sciences (LSMU) Entrance Practice exam (Sample)

Study Guide



Everything you need from our exam experts!

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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. Where is dense connective tissue primarily found?**
 - A. In the skin and surrounding blood vessels**
 - B. In tendons and ligaments**
 - C. In organs and nerves**
 - D. In adipose tissue**

- 2. According to the Arrhenius definition, what does a base do?**
 - A. Increases H⁺ levels**
 - B. Increases OH⁻ levels**
 - C. Reduces acidity**
 - D. Neutralizes acids**

- 3. What are the two types of endoplasmic reticulum?**
 - A. Rough and soft**
 - B. Smooth and rough**
 - C. Flat and tubular**
 - D. Thin and thick**

- 4. What does phenotype refer to in genetics?**
 - A. An organism's genetic makeup**
 - B. An organism's observable characteristics**
 - C. The sum of an organism's alleles**
 - D. The process of genetic variation**

- 5. Which ion is indicative of a strong base?**
 - A. X⁺**
 - B. OH⁻**
 - C. H⁺**
 - D. HCO₃⁻**

- 6. What is the role of T cytotoxic cells (T_c, CD8⁺) in the immune response?**
 - A. Produce antibodies**
 - B. Stimulate T helper cells**
 - C. Destroy virally infected cells**
 - D. Enhance blood flow to tissues**

- 7. Which of the following is considered a weak base?**
- A. Ca(OH)₂**
 - B. NaOH**
 - C. NH₃**
 - D. KOH**
- 8. Which trisomy disorder typically results in severe disabilities and heart problems?**
- A. Down syndrome**
 - B. Patau syndrome**
 - C. Edwards syndrome**
 - D. Klinefelter syndrome**
- 9. Which enzyme is responsible for breaking down fats?**
- A. Amylase**
 - B. Lipases**
 - C. Proteases**
 - D. Cellulases**
- 10. In which part of a cell does glycolysis occur?**
- A. Nucleus**
 - B. Chloroplasts**
 - C. Cell membrane**
 - D. Cytoplasm**

Answers

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

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Explanations

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1. Where is dense connective tissue primarily found?

- A. In the skin and surrounding blood vessels
- B. In tendons and ligaments**
- C. In organs and nerves
- D. In adipose tissue

Dense connective tissue is primarily found in tendons and ligaments because of its structure, which is designed to withstand great tensile strength. This type of connective tissue is characterized by a high density of collagen fibers that are tightly packed together, providing the necessary strength and resistance to stretching forces. Tendons connect muscles to bones and allow for the transfer of force during movement, while ligaments connect bones to other bones at joints, providing stability and support. The organization of the collagen fibers in a parallel arrangement in these structures is particularly advantageous for these functions. In contrast, the other options represent different types of connective tissues or are areas where dense connective tissue is not the primary type. For example, the skin contains various connective tissues, including loose connective tissue and specialized structures, but it is not primarily characterized by dense connective tissue. Adipose tissue, mentioned in another option, is a form of loose connective tissue that provides insulation and energy storage, not dense connective tissue. Therefore, the presence of dense connective tissue is most prominent in tendons and ligaments, where its structural properties are essential for supporting and facilitating movement.

2. According to the Arrhenius definition, what does a base do?

- A. Increases H^+ levels
- B. Increases OH^- levels**
- C. Reduces acidity
- D. Neutralizes acids

The Arrhenius definition characterizes a base as a substance that increases the concentration of hydroxide ions (OH^-) in an aqueous solution. When a base is dissolved in water, it dissociates to release these hydroxide ions, which then enhances the alkalinity of the solution. This characteristic is a fundamental aspect of how bases modify the properties of solutions, distinguishing them from acids, which, according to the same definition, increase the concentration of hydrogen ions (H^+) in solution. The other aspects mentioned, such as reducing acidity or neutralizing acids, relate to the broader effects and reactions that bases can have but do not stem directly from the Arrhenius definition of a base. The concept of acidity reduction or neutralization involves more complex interactions and does not define what a base is in terms of hydroxide ion production. Thus, the core function of a base, according to Arrhenius, is specifically to increase the hydroxide ion levels in a solution.

3. What are the two types of endoplasmic reticulum?

- A. Rough and soft
- B. Smooth and rough**
- C. Flat and tubular
- D. Thin and thick

The two types of endoplasmic reticulum are smooth and rough. The rough endoplasmic reticulum (RER) is studded with ribosomes on its cytoplasmic surface, giving it a "rough" appearance under a microscope. This structure is primarily involved in the synthesis of proteins that are either secreted from the cell, incorporated into the cell's plasma membrane, or sent to an organelle, like the lysosome. The presence of ribosomes is what distinguishes the rough ER from the smooth endoplasmic reticulum. On the other hand, the smooth endoplasmic reticulum (SER) lacks ribosomes and has a smooth appearance. It is involved in the synthesis of lipids, metabolism of carbohydrates, detoxification of drugs and poisons, and storage of calcium ions. The functions of the smooth ER are essential for various cellular processes, particularly in glandular tissues and liver cells. In summary, the correct classification of endoplasmic reticulum into smooth and rough is based on their distinct structural characteristics and functional roles within the cell.

4. What does phenotype refer to in genetics?

- A. An organism's genetic makeup
- B. An organism's observable characteristics**
- C. The sum of an organism's alleles
- D. The process of genetic variation

Phenotype refers to the observable characteristics of an organism, which include traits such as height, color, shape, and behavioral tendencies. These traits result from the interaction between an organism's genetic makeup (genotype) and its environment. Phenotypes can be influenced by various factors, including nutrition, climate, and experiences, which can affect how the underlying genetic information is expressed. Understanding phenotype is essential in genetics as it provides insight into how genetic information manifests in living organisms. For example, two organisms may have the same genotype but display different phenotypes due to environmental factors, highlighting the distinction between genetic information and physical expression.

5. Which ion is indicative of a strong base?

- A. X^+
- B. OH^-**
- C. H^+
- D. HCO_3^-

The presence of the hydroxide ion (OH^-) is indicative of a strong base. A strong base is defined as a substance that completely dissociates in solution to produce hydroxide ions. When a strong base dissolves in water, it generates a high concentration of OH^- ions, which leads to an increase in pH and basicity of the solution. In the context of acid-base chemistry, bases are substances that can accept protons (H^+) or donate electron pairs. The hydroxide ion specifically reacts with protons in solution, neutralizing acids and contributing to the basicity of the environment. The higher the concentration of hydroxide ions, the stronger the base. Therefore, the presence of hydroxide ions is a clear indicator of a strong base, making it the correct choice in this scenario.

6. What is the role of T cytotoxic cells (T_c, CD8+) in the immune response?

- A. Produce antibodies
- B. Stimulate T helper cells
- C. Destroy virally infected cells**
- D. Enhance blood flow to tissues

T cytotoxic cells, also known as CD8+ T cells, play a crucial role in the immune response by directly targeting and destroying cells that have become infected with viruses or other intracellular pathogens. These cells recognize infected cells through specific interactions between their T cell receptors and peptide fragments presented on major histocompatibility complex (MHC) class I molecules on the surface of the infected cells. Once recognized, T_c cells initiate a series of actions that lead to the apoptosis (programmed cell death) of the infected cells, effectively halting the spread of the infection. This cytotoxic action is fundamental to the adaptive immune response, as it helps eliminate cells that are a source of viral replication and helps protect the host from further spread of the disease. The ability of T cytotoxic cells to recognize and kill infected cells is essential for controlling viral infections and is why they are key players in the immune system's defense mechanisms. The other choices reflect different functions in the immune system: antibody production is primarily the role of B cells, T helper cells are involved in activating B cells and assisting other immune responses, and enhancing blood flow to tissues is a role associated with inflammatory responses, rather than a direct action of CD8+ T cells.

7. Which of the following is considered a weak base?

- A. Ca(OH)₂
- B. NaOH
- C. NH₃**
- D. KOH

The identification of a weak base centers on the base's ability to dissociate in water and accept protons (H⁺). In this case, ammonia (NH₃) stands out as a weak base because it does not fully ionize in solution. Instead, it establishes an equilibrium in which only a portion of the ammonia molecules accept protons to form ammonium ions (NH₄⁺) and hydroxide ions (OH⁻). This characteristic is what differentiates it from the other options listed. Calcium hydroxide (Ca(OH)₂), sodium hydroxide (NaOH), and potassium hydroxide (KOH) are all strong bases—they completely dissociate in water, resulting in a high concentration of hydroxide ions. This complete dissociation reflects the ability of strong bases to significantly raise pH levels in solution, an ability that is not present in the same capacity in ammonia. Therefore, ammonia is categorized as a weak base due to its partial ionization and lower pH influence compared to the strong bases listed.

8. Which trisomy disorder typically results in severe disabilities and heart problems?

- A. Down syndrome
- B. Patau syndrome**
- C. Edwards syndrome
- D. Klinefelter syndrome

Patau syndrome, also known as trisomy 13, is characterized by the presence of an extra chromosome 13 in the individual's genetic makeup. This genetic anomaly leads to a variety of severe developmental issues, including significant intellectual disabilities, physical malformations, and organ defects. One of the hallmark features of Patau syndrome is the high incidence of congenital heart defects, which often accompanies the condition. Many affected individuals also exhibit structural abnormalities in other organs and systems, contributing to the overall severity of the disorder. In contrast, the other conditions listed, such as Down syndrome (trisomy 21), Edwards syndrome (trisomy 18), and Klinefelter syndrome (47, XXY), have different profiles of symptoms and complications. Although they also can be associated with disabilities and, in some cases, heart problems, the combination of severe disabilities, distinct physical characteristics, and a particularly high risk of serious cardiac issues is most closely associated with Patau syndrome.

9. 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.

10. In which part of a cell does glycolysis occur?

- A. Nucleus**
- B. Chloroplasts**
- C. Cell membrane**
- D. Cytoplasm**

Glycolysis is the metabolic pathway that breaks down glucose into pyruvate, generating a small amount of ATP and NADH in the process. This pathway occurs in the cytoplasm of the cell, making that the correct answer. The cytoplasm is the aqueous environment within the cell, where many metabolic processes take place, including glycolysis. This localization is essential because the enzymes necessary for the glycolytic pathway are present in the cytoplasm, allowing them to efficiently metabolize glucose derived from various sources. In contrast, the nucleus is primarily involved in housing genetic material and is not the site for glycolysis. Chloroplasts are specific to plant cells and are involved in photosynthesis, not glycolysis. The cell membrane functions primarily as a barrier and a means of transport into and out of the cell, rather than a site for metabolic pathways like glycolysis.

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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