LITHUANIAN UNIVERSITY OF HEALTH SCIENCES (LSMU) ENTRANCE PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Table of Contents

Copyright 1

Table of Contents 2

Introduction 3

How to Use This Guide 4

Questions 5

Answers 8

Explanations 10

Next Steps 16

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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.

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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!

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Questions

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1. Which statement about steroid hormones is accurate?

A. They are soluble in water and act quickly
B. They are derived from cholesterol
C. They bind to surface receptors on the cell
D. They are produced in the pituitary gland

2. Which type of epithelial cell is characterized by its flat shape?

A. Cuboidal cells
B. Columnar cells
C. Pseudostratified cells
D. Squamous cells

3. What happens to light energy during photosynthesis?

A. It is released as heat
B. It is converted to chemical energy
C. It is stored as is
D. It is transformed into mechanical energy

4. What type of muscle is classified as involuntary and non-striated?

A. Skeletal muscle
B. Cardiac muscle
C. Smooth muscle
D. Striated muscle

5. What is the role of peripheral proteins in the cell membrane?

A. They form the cell wall
B. They permanently integrate into the membrane
C. They temporarily adhere to the membrane
D. They cannot act as receptors

6. What occurs during Prophase I of meiosis?

A. Chromosomes condense and align at the cell's center
B. Homologous chromosomes move to opposite poles
C. Nuclear envelope breaks down and crossing-over occurs
D. Cytoplasm divides to form daughter cells

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7. Which connective tissue type is described as having a network of reticular fibers supporting internal organs?

A. Loose connective tissue

B. Dense connective tissue

C. Reticular connective tissue

D. Elastic connective tissue

8. What is the chemical name for $H_2PO_4^-$?

A. Dihydrogen phosphate

B. Hydrogen phosphate

C. Phosphate

D. Phosphoric acid

9. Which best describes a heterozygote?

A. An individual with two identical alleles for a gene

B. An individual with two different alleles for a gene

C. An individual with no alleles for a gene

D. An individual with one dominant allele

10. What process describes the movement of water from a lower to a higher concentration?

A. Active transport

B. Diffusion

C. Osmosis

D. Endocytosis

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Answers

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

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Explanations

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1. Which statement about steroid hormones is accurate?

A. They are soluble in water and act quickly

B. They are derived from cholesterol

C. They bind to surface receptors on the cell

D. They are produced in the pituitary gland

Steroid hormones are indeed derived from cholesterol, which is the correct statement. Cholesterol serves as the foundational molecule from which steroid hormones are synthesized. This group of hormones includes well-known examples such as cortisol, testosterone, and estrogen. Because they originate from a fat-based molecule, steroid hormones possess the ability to easily cross cell membranes, which are primarily composed of lipid layers. Once inside the cell, steroid hormones can bind to specific intracellular receptors, leading to changes in gene expression and producing longer-lasting effects compared to hormones that act through surface receptors. This characteristic of steroid hormones highlights their mode of action, which differs significantly from that of hormones that are water-soluble and bind to receptors on the cell surface. The other options present inaccuracies regarding the nature of steroid hormones. They are not soluble in water, which means they do not act quickly in the same manner as peptide hormones; they also do not bind to surface receptors, as they act on intracellular targets; and contrary to what one of the options suggests, steroid hormones are primarily produced in the adrenal glands, ovaries, and testes, rather than the pituitary gland, which produces peptide hormones.

2. Which type of epithelial cell is characterized by its flat shape?

A. Cuboidal cells

B. Columnar cells

C. Pseudostratified cells

D. Squamous cells

The type of epithelial cell characterized by its flat shape is squamous cells. These cells are distinguished by their thin, flat appearance, which allows for efficient diffusion and filtration processes. This flat morphology is particularly advantageous in locations where rapid exchange of materials is necessary, such as in the alveoli of the lungs or the lining of blood vessels. The structure of squamous cells facilitates the movement of gases and nutrients, making them vital in various physiological functions. In contrast, cuboidal cells, which are roughly square in shape, primarily function in secretion and absorption, while columnar cells, taller and shaped like columns, are often involved in absorption and secretion as well but are typically found in more active secretory tissues. Pseudostratified cells, while they may appear to have multiple layers due to differing cell heights, are actually one layer of varying heights and are commonly found in the respiratory tract, where they contribute to mucus secretion and movement. Understanding the distinct shapes and functions of these epithelial cells is crucial for grasping their roles in the human body.

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3. What happens to light energy during photosynthesis?

A. It is released as heat

B. It is converted to chemical energy

C. It is stored as is

D. It is transformed into mechanical energy

During photosynthesis, light energy is primarily captured by chlorophyll and other pigments in the chloroplasts of plant cells. This light energy is then used to drive a series of biochemical reactions that convert carbon dioxide and water into glucose and oxygen. The key aspect of this process is that light energy is transformed into chemical energy, which is stored in the bonds of glucose molecules. This chemical energy can later be utilized by the plant (and by organisms that consume the plant) for growth, reproduction, and various metabolic processes. This transformation of light energy into a usable form of chemical energy is a fundamental aspect of photosynthesis and is crucial for the survival of plant life and for providing energy to the entire ecosystem. Thus, the correct answer highlights the primary outcome of photosynthesis, which is the conversion of light energy into chemical energy.

4. What type of muscle is classified as involuntary and non-striated?

A. Skeletal muscle

B. Cardiac muscle

C. Smooth muscle

D. Striated muscle

Smooth muscle is classified as involuntary and non-striated, which is key to its function and characteristics. Unlike skeletal muscle, which is striated and under voluntary control, smooth muscle operates automatically and is found in various organs, such as the digestive tract, blood vessels, and the uterus. This involuntary nature allows smooth muscle to contract and relax in response to internal body signals and autonomic nervous system regulation without conscious effort. The lack of striations in smooth muscle cells is due to the arrangement of muscle fibers. In contrast, cardiac muscle, while also involuntary, is striated and found only in the heart, with distinct structural and functional characteristics compared to smooth muscle. Skeletal muscle, on the other hand, is striated and under voluntary control, enabling precise movements. Striated muscle is a general term that encompasses both skeletal and cardiac muscle, but does not include smooth muscle. This distinction highlights why smooth muscle is the correct answer to the question.

5. What is the role of peripheral proteins in the cell membrane?

A. They form the cell wall

B. They permanently integrate into the membrane

C. They temporarily adhere to the membrane

D. They cannot act as receptors

Peripheral proteins play a crucial role in the cell membrane primarily by temporarily adhering to its surface rather than being embedded within the lipid bilayer itself. These proteins are often associated with the inner or outer sides of the membrane and can interact with other membrane components or cytoskeletal elements. This temporary attachment allows them to perform a variety of functions, such as signaling, maintaining the cell's shape, and facilitating communication between the cell and its environment. Understanding this transient nature helps clarify their role in cellular processes. For example, peripheral proteins may associate with membrane receptors to relay signals from the extracellular environment to the cell's interior. Additionally, their reversibility allows the membrane to remain flexible and capable of changing in response to internal or external cues. In contrast, the other options do not accurately describe the properties or functions of peripheral proteins in the cell membrane, contributing to the understanding of cellular structure and function.

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6. What occurs during Prophase I of meiosis?

A. Chromosomes condense and align at the cell's center

B. Homologous chromosomes move to opposite poles

C. Nuclear envelope breaks down and crossing-over occurs

D. Cytoplasm divides to form daughter cells

During Prophase I of meiosis, critical events prepare the cell for two rounds of division, ultimately leading to the formation of gametes. The correct answer highlights that during this phase, the nuclear envelope breaks down, allowing the chromosomes to interact freely within the cell. This loss of the nuclear envelope is essential for the subsequent processes of chromosome segregation and genetic recombination. Additionally, crossing-over occurs during Prophase I, where homologous chromosomes exchange genetic material. This process increases genetic diversity in the resulting gametes, as it creates new combinations of alleles that will be passed on to the offspring. This event is significant for evolution and adaptation within populations. The condensation of chromosomes is also a feature of this phase, but it is not the main focus. While chromosomes do indeed condense to become more visible under a microscope, the primary hallmark identifier of Prophase I is the breakdown of the nuclear envelope and the occurrence of crossing-over between homologous chromosomes. The other choices reflect processes that occur at different stages of meiosis. The movement of homologous chromosomes to opposite poles happens during Anaphase I, and cytokinesis, where the cytoplasm divides to form daughter cells, occurs after Telophase II. Therefore, the selection of the nuclear envelope

7. Which connective tissue type is described as having a network of reticular fibers supporting internal organs?

A. Loose connective tissue

B. Dense connective tissue

C. Reticular connective tissue

D. Elastic connective tissue

Reticular connective tissue is characterized by its network of reticular fibers, which are a type of collagen fiber that form a delicate, supportive mesh. This specific structure is crucial for the organ's function as it provides a supportive framework for cells, particularly in soft organs like the liver, lymph nodes, and spleen. The reticular fibers create a scaffold that helps to maintain the shape of these organs while supporting the various cell types they house. In contrast, loose connective tissue contains a mix of different fiber types and provides elasticity and cushioning but does not specifically provide the specialized network found in reticular connective tissue. Dense connective tissue is primarily composed of densely packed collagen fibers, which provide strength and resistance to stretching, rather than the supportive network seen in reticular tissue. Elastic connective tissue contains elastic fibers that allow for stretch and recoil, but it does not have the unique reticular fiber structure that supports internal organs. Thus, the defining characteristic of reticular connective tissue makes it the correct choice, as it specifically provides the supportive network necessary for the structure and function of various internal organs.

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8. What is the chemical name for H2PO4-?

A. Dihydrogen phosphate

B. Hydrogen phosphate

C. Phosphate

D. Phosphoric acid

The chemical name for H2PO4- is indeed dihydrogen phosphate. In this ion, there are two hydrogen atoms (H) attached to the phosphate (PO4) group, making it a dihydrogen phosphate. This name reflects the presence of those two protons. When considering the other options, hydrogen phosphate refers to HPO4^2-, indicating a different structure that contains only one hydrogen ion. Phosphate typically refers to the PO4^3- ion, which is fully deprotonated. Phosphoric acid is H3PO4 in its molecular form and does not represent the ion H2PO4-. Therefore, understanding the composition of the ion leads to recognizing that dihydrogen phosphate accurately describes H2PO4-.

9. Which best describes a heterozygote?

A. An individual with two identical alleles for a gene

B. An individual with two different alleles for a gene

C. An individual with no alleles for a gene

D. An individual with one dominant allele

A heterozygote is characterized by having two different alleles for a particular gene. This genetic variability can occur in diploid organisms where one allele is inherited from each parent, resulting in different forms of a gene present at a specific locus. The presence of two different alleles can influence traits through various interactions such as dominance, co-dominance, or incomplete dominance, leading to a range of possible phenotypes. For instance, if one allele encodes for a trait such as flower color that is dominant (let's say purple) and the other encodes for a recessive trait (like white), the heterozygote will typically exhibit the dominant characteristic (purple flowers). This is fundamental in understanding inheritance patterns and predicting trait expressions in offspring. In contrast to the correct choice, the definition of a homozygote—individuals with identical alleles (one of the incorrect options)—does not apply here. Similarly, having no alleles indicated a lack of genetic information for that gene, which is not applicable to heterozygotes. Lastly, while having one dominant allele pertains to dominance in gene expression, it doesn't encompass the entire definition of heterozygosity, as heterozygotes contain both dominant and recessive alleles

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10. What process describes the movement of water from a lower to a higher concentration?

A. Active transport

B. Diffusion

C. Osmosis

D. Endocytosis

The movement of water from a region of lower solute concentration to a region of higher solute concentration is specifically referred to as osmosis. This process is critical in biological systems, particularly in maintaining cell turgor and overall fluid balance within organisms. Osmosis occurs across a semi-permeable membrane that allows water molecules to pass through while restricting solute molecules. During osmosis, water molecules naturally move toward the area where there are more solute particles (higher concentration) in order to equalize the concentration on both sides of the membrane. This means that even though it may seem counterintuitive, water moves towards the area of higher concentration of solutes because it is effectively diluting that area. This process is vital for many physiological functions, such as the absorption of water in the kidneys, nutrient absorption in the intestines, and the balance of fluids in tissues throughout the body. Understanding osmosis is essential in fields like medicine and health sciences, especially when dealing with conditions related to fluid imbalance. The other processes listed do not describe the same mechanism. Active transport, for example, involves the movement of ions or molecules against their concentration gradient and requires energy, while diffusion pertains to the movement of substances from a region of higher concentration to

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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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