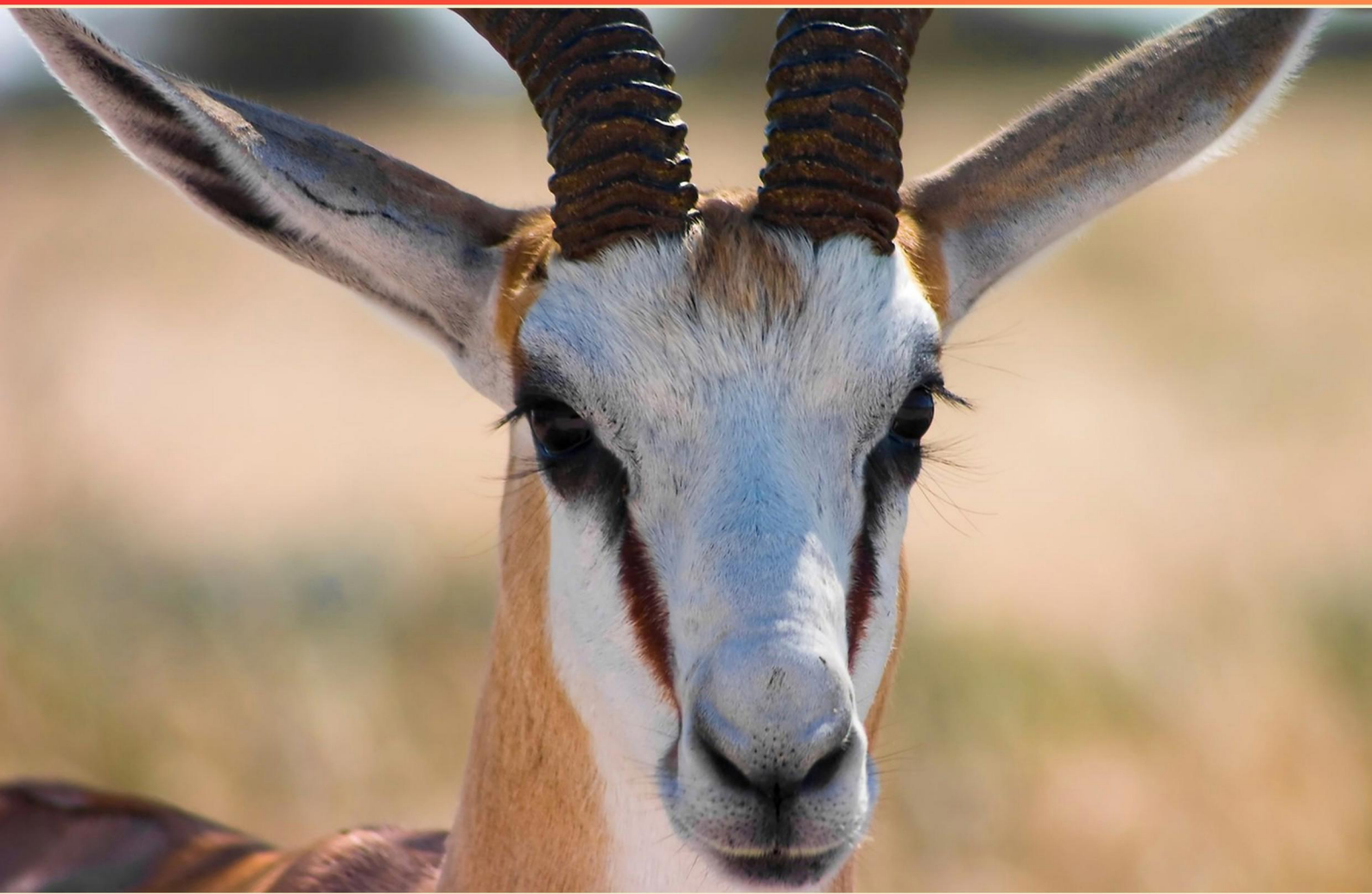


ARIZONA STATE UNIVERSITY (ASU) BIO360 ANIMAL PHYSIOLOGY EXAM 1 PRACTICE (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

**VISIT US ONLINE FOR
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 of the following characteristics is true for all animals?

- A. Eat other animals
- B. Are multicellular
- C. Reproduce sexually
- D. Are triploblastic

2. Which carbohydrate is classified as a monosaccharide?

- A. Sucrose
- B. Lactose
- C. Glucose
- D. Maltose

3. Which of the following is NOT a function of the liver?

- A. Producing bile
- B. Filtering blood
- C. Storing oxygen
- D. Detoxifying harmful substances

4. How does vasodilation aid in thermoregulation?

- A. By constricting blood vessels
- B. By increasing blood flow to internal organs
- C. By increasing blood flow to the skin
- D. By reducing sweat production

5. What role do chemoreceptors play in animal behavior?

- A. Detect sound signals
- B. Sense chemical stimuli
- C. Monitor temperature changes
- D. Respond to visual stimuli

6. Organisms that are closely related to each other are likely to:

- A. Share some features with all other organisms.
- B. Share some features only with organisms from the same group.
- C. Have no features in common with any other organism.
- D. Both A and B.

7. How does gene regulation affect metabolism in multicellular organisms?

- A. By controlling muscle contractions
- B. By influencing behavior during stress
- C. By regulating the expression of metabolic enzymes
- D. By maintaining electrolyte balance

8. Which of the following statements provides inaccurate information?

- A. In paracrine communication, the target cell receives chemical messenger from signal cell via diffusion.
- B. A neurotransmitter is a chemical messenger that had been converted from an electrical signal.
- C. Endocrine messengers are hormones.
- D. Allelochemicals are chemical messengers released into the external environment by individuals of the opposite sex but of the same species.

9. Which statement about receptor types is correct?

- A. Ligand-gated ion channels change membrane ion permeability
- B. Intracellular receptors interact with hydrophilic messengers
- C. Receptor enzymes activate extracellular enzymes
- D. G protein-coupled receptors interact with hydrophobic messengers

10. How do the structure and function of alveoli contribute to gas exchange?

- A. Alveoli have a large surface area and thin walls
- B. Alveoli contain muscle tissue for contraction
- C. Alveoli are surrounded by a dense network of capillaries
- D. Alveoli have a solid structure for support

Answers

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

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Explanations

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1. Which of the following characteristics is true for all animals?

- A. Eat other animals
- B. Are multicellular**
- C. Reproduce sexually
- D. Are triploblastic

The characteristic of being multicellular is true for all animals and is a fundamental aspect of their biological organization. Animals are complex organisms made up of multiple cells that work together to perform various functions essential for survival. This multicellularity allows for specialization, where different cell types can develop to take on specific roles within the organism, such as muscle cells for movement, nerve cells for signaling, and epithelial cells for protection and absorption. In contrast, the other characteristics listed do not apply across all animal species. For instance, while many animals do consume other organisms, not all have diets that exclusively include other animals—some may be herbivores, detritivores, or omnivores. Additionally, while sexual reproduction is common among animals, there are many species that can reproduce asexually. Lastly, being triploblastic, which refers to having three primary germ layers (ectoderm, mesoderm, and endoderm), does not apply to all animals, as some, like sponges and cnidarians, are diploblastic with only two germ layers. Thus, being multicellular stands as the unifying characteristic for the kingdom Animalia.

2. Which carbohydrate is classified as a monosaccharide?

- A. Sucrose
- B. Lactose
- C. Glucose**
- D. Maltose

Glucose is classified as a monosaccharide because it consists of a single sugar molecule, which makes it the simplest form of carbohydrate. Monosaccharides are the building blocks of carbohydrates and typically have the chemical formula $(CH_2O)_n$, where n can range from 3 to 7. Glucose is a six-carbon sugar (hexose) and plays a crucial role in providing energy for cellular processes. In contrast, sucrose, lactose, and maltose are classified as disaccharides, as they are composed of two monosaccharide units linked together. Sucrose is formed from glucose and fructose, lactose consists of glucose and galactose, and maltose is made up of two glucose molecules. Therefore, the correct identification of glucose as a monosaccharide highlights its fundamental role in carbohydrate metabolism and energy production in organisms.

3. Which of the following is NOT a function of the liver?

- A. Producing bile
- B. Filtering blood
- C. Storing oxygen**
- D. Detoxifying harmful substances

The liver is a vital organ with numerous important functions, but it is not responsible for storing oxygen. Instead, oxygen is primarily stored in the body by hemoglobin in red blood cells and to a lesser extent by myoglobin in muscle tissues. The liver does produce bile, which plays a crucial role in digestion, particularly in the emulsification of fats. Additionally, it filters blood, removing toxins and waste products, and also detoxifies harmful substances, converting them into less harmful compounds that can be excreted from the body. These functions emphasize the liver's role in metabolic processes and maintaining homeostasis, but it does not have a role in the storage of oxygen, which is essential for cellular respiration and energy production.

4. How does vasodilation aid in thermoregulation?

- A. By constricting blood vessels
- B. By increasing blood flow to internal organs
- C. By increasing blood flow to the skin**
- D. By reducing sweat production

Vasodilation plays a crucial role in thermoregulation by increasing blood flow to the skin. When the body temperature rises, either due to external temperatures or internal metabolic processes, blood vessels near the surface of the skin relax and widen, a process known as vasodilation. This increased blood flow to the skin facilitates heat loss through conduction, convection, and radiation. The warm blood at the skin surface can transfer heat to the surrounding environment, effectively cooling the body down. Additionally, this mechanism is often accompanied by the initiation of sweating, which further enhances cooling through the evaporation of sweat. Therefore, increasing blood flow to the skin during vasodilation not only aids in dissipating heat but also supports the body in maintaining a stable internal temperature, particularly in warm conditions.

5. What role do chemoreceptors play in animal behavior?

- A. Detect sound signals
- B. Sense chemical stimuli**
- C. Monitor temperature changes
- D. Respond to visual stimuli

Chemoreceptors are specialized sensory cells that are crucial for detecting chemical stimuli in the environment. They play a vital role in various behaviors across different animal species, allowing individuals to sense and respond to various chemical signals, such as pheromones, food availability, and environmental toxins. For instance, in many organisms, chemoreceptors in the olfactory system enable the detection of odors, which is essential for locating food, identifying mates, and avoiding predators. In aquatic animals, chemoreceptors can also sense changes in water chemistry, which is important for survival. This capacity to perceive chemical changes directly influences behaviors like foraging, mating, and social interactions. While the other options involve different sensory modalities such as sound, temperature, and visual stimuli, they do not pertain to the fundamental function of chemoreceptors, which is strictly related to the detection of chemicals.

6. Organisms that are closely related to each other are likely to:

- A. Share some features with all other organisms.
- B. Share some features only with organisms from the same group.
- C. Have no features in common with any other organism.
- D. Both A and B.**

Organisms that are closely related to each other typically share a set of characteristics due to their common ancestry. When considering the options given, both of the first two choices highlight different aspects of these shared traits. Firstly, closely related organisms may indeed share some features with all other organisms, such as fundamental biological processes (e.g., cellular respiration, genetic encoding) since all life forms share a common biochemical heritage. This reflects the universal traits that are essential for life, highlighting the interconnectedness of all living beings. Secondly, closely related organisms will also exhibit specific features that are unique to their own group. These may include morphological, behavioral, genetic, or physiological traits that define them and distinguish them from other groups. Such similarities arise because these organisms descended from a recent common ancestor, allowing traits to be passed down more closely than to more distantly related species. Given that both shared characteristics with all organisms and more specialized features within a group are valid, the option that encompasses both situations—acknowledging both universal traits and specific group characteristics—provides a comprehensive understanding of the relationships among closely related organisms. Thus, the correct answer integrates both perspectives effectively.

7. How does gene regulation affect metabolism in multicellular organisms?

- A. By controlling muscle contractions
- B. By influencing behavior during stress
- C. By regulating the expression of metabolic enzymes**
- D. By maintaining electrolyte balance

Gene regulation plays a crucial role in metabolism within multicellular organisms by directly affecting the expression of metabolic enzymes. Metabolic enzymes are proteins that catalyze biochemical reactions necessary for various metabolic processes, including the breakdown of nutrients and the production of energy. The regulation of these enzymes is tightly controlled at the genetic level, allowing the organism to adjust its metabolism in response to different physiological and environmental conditions. For instance, when an organism needs to increase its energy production, such as during exercise or in response to fasting, specific metabolic genes may be upregulated to produce more of the necessary enzymes. Conversely, in a different metabolic state, such as during periods of abundance or rest, those same genes may be downregulated, reducing enzyme production and conserving resources. This dynamic regulation ensures that the organism maintains metabolic homeostasis and can efficiently adapt to varying physiological demands. Therefore, the ability to modulate the expression of metabolic enzymes through gene regulation is fundamental to effective metabolism in multicellular organisms.

8. Which of the following statements provides inaccurate information?

- A. In paracrine communication, the target cell receives chemical messenger from signal cell via diffusion.
- B. A neurotransmitter is a chemical messenger that had been converted from an electrical signal.
- C. Endocrine messengers are hormones.
- D. Allelochemicals are chemical messengers released into the external environment by individuals of the opposite sex but of the same species.**

In the context of chemical communication in animals, option D is inaccurate because allelochemicals are not typically defined as chemical messengers released into the external environment by individuals of the opposite sex of the same species. Instead, allelochemicals are generally understood as compounds released by one organism that can affect individuals of other species, hence functioning in interspecific communication rather than intraspecific communication. They typically serve roles in defense mechanisms, competitive interactions, or signaling to potential mates of different species. In contrast, the other statements are accurate and reflect established concepts within animal physiology. Paracrine communication indeed involves the diffusion of chemical messengers from one cell to nearby target cells, which plays a crucial role in local signaling. Neurotransmitters are synthesized and released in response to electrical signals, allowing for the communication between neurons at synapses. Endocrine messengers are hormones released into the bloodstream, where they travel to distant target tissues to exert systemic effects.

9. Which statement about receptor types is correct?

- A. Ligand-gated ion channels change membrane ion permeability**
- B. Intracellular receptors interact with hydrophilic messengers
- C. Receptor enzymes activate extracellular enzymes
- D. G protein-coupled receptors interact with hydrophobic messengers

The statement about receptor types that is correct highlights the role of ligand-gated ion channels in altering the permeability of the cell membrane to ions. When a ligand, such as a neurotransmitter, binds to these channels, they undergo a conformational change that allows specific ions to flow into or out of the cell. This change in ion permeability can lead to significant physiological effects, such as depolarization or hyperpolarization of the cell membrane, thereby playing a crucial role in processes such as synaptic transmission in neurons. In contrast, intracellular receptors typically interact with hydrophobic messengers, such as steroid hormones, which can easily pass through cell membranes due to their lipid-soluble nature. Receptor enzymes are focused on catalyzing reactions within the cell rather than activating extracellular enzymes. Lastly, G protein-coupled receptors primarily engage with hydrophilic messengers, which cannot cross the membrane directly; instead, they depend on secondary messengers to propagate signals inside the cell. Thus, the unique functionality of ligand-gated ion channels in changing membrane ion permeability distinctly supports the accuracy of the correct statement.

10. How do the structure and function of alveoli contribute to gas exchange?

- A. Alveoli have a large surface area and thin walls**
- B. Alveoli contain muscle tissue for contraction
- C. Alveoli are surrounded by a dense network of capillaries
- D. Alveoli have a solid structure for support

The structure and function of alveoli are crucial for effective gas exchange within the lungs, and the large surface area paired with thin walls is fundamental to this process. Alveoli are tiny air sacs that maximize the area available for gas exchange; a greater surface area allows for more oxygen to diffuse into the blood and more carbon dioxide to diffuse out. The thin walls of the alveoli, made up of simple squamous epithelium, facilitate rapid diffusion of gases. This is essential because gas exchange relies on the efficiency of diffusion—thinner barriers allow gases to move more freely and quickly between the alveoli and the surrounding capillaries. This large surface area and thinness collectively optimize the respiratory process, ensuring that oxygen is absorbed into the blood efficiently and that waste gases are expelled effectively. While capillaries are indeed densely packed around the alveoli to enable efficient gas transfer, muscles are not present in the alveolar walls, and they do not have a solid structure for support; rather, they rely on the surfactant and elastic properties to maintain their shape during respiration.

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://asu-bio360exam1.examzify.com>

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

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