

GEORGIA STATE UNIVERSITY (GSU) BIOL 1103 INTRODUCTORY BIOLOGY I EXAM 1 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 term describes an explanation of natural relationships that has been repeatedly tested and consistently observed?**
 - A. Hypothesis
 - B. Model
 - C. Law
 - D. Theory

- 2. Which term describes living components of an environment?**
 - A. Abiotic
 - B. Biosphere
 - C. Biotic
 - D. Ecosystem

- 3. Which type of bond forms when two atoms share a pair of electrons?**
 - A. Ionic Bond
 - B. Hydrogen Bond
 - C. Covalent Bond
 - D. Non-polar Covalent

- 4. Which is a listed benefit of dietary fiber?**
 - A. Increases overeating
 - B. Helps in weight reduction
 - C. Decreases digestive health
 - D. Decreases colon function

- 5. Which term describes a simplified version of reality used for understanding and predictions but not the real system?**
 - A. Hypothesis
 - B. Model
 - C. Law
 - D. Theory

- 6. The entire library of genetic instructions that an organism inherits is called:**
- A. Chromosome
 - B. Genome
 - C. Transcriptome
 - D. Proteome
- 7. In biological fluids, buffers serve to minimize changes in pH.**
- A. Base
 - B. Acid
 - C. Buffer
 - D. Enzyme
- 8. What term describes simple sugars like glucose and fructose?**
- A. Disaccharides
 - B. Monosaccharides
 - C. Polysaccharides
 - D. Oligosaccharides
- 9. An electronegativity difference of about 1.7 between two atoms typically indicates which type of bond?**
- A. Ionic Bond
 - B. Covalent Bond
 - C. Hydrogen Bond
 - D. Non-polar Covalent
- 10. Which element is a major component of bone and teeth in humans?**
- A. Sodium
 - B. Calcium
 - C. Phosphorus
 - D. Iron

Answers

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

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Explanations

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1. Which term describes an explanation of natural relationships that has been repeatedly tested and consistently observed?

- A. Hypothesis
- B. Model
- C. Law

D. Theory

Think about how science builds explanations for natural relationships. A theory is a well-supported, broad explanation that integrates many observations and experimental results. Because it has been repeatedly tested and consistently observed across different situations, it provides a reliable framework that explains how and why phenomena occur and can make testable predictions. This goes beyond a single guess or observation. By contrast, a hypothesis is a proposed answer that scientists test; a model is a simplified representation used to simulate aspects of a system; and a law describes a consistent relationship or pattern, often expressed mathematically, without explaining why that relationship exists. So the term that describes an explanation of natural relationships that has been repeatedly tested and consistently observed is theory.

2. Which term describes living components of an environment?

- A. Abiotic
- B. Biosphere
- C. Biotic**
- D. Ecosystem

Living components of an environment are described as biotic. This term refers to all organisms present—plants, animals, bacteria, fungi, and other living things. Abiotic describes the nonliving parts of the environment, such as temperature, humidity, minerals, and water. A biosphere encompasses Earth's entire range of environments and all life on the planet, which is broader than any single setting. An ecosystem is the dynamic system formed by the interactions between living organisms and their physical surroundings in a particular area, including both living and nonliving components. Because the question focuses on the living elements, biotic is the best fit.

3. Which type of bond forms when two atoms share a pair of electrons?

- A. Ionic Bond
- B. Hydrogen Bond
- C. Covalent Bond**
- D. Non-polar Covalent

Sharing a pair of electrons between two atoms forms a covalent bond. This type of bond arises when atoms seek to complete their outer electron shells by sharing electrons rather than transferring them. The shared electron pair is counted toward both atoms, which helps hold the atoms together in a molecule. If the atoms have similar electronegativities, the electrons are shared more or less equally, giving a non-polar covalent bond. If there's a difference in electronegativity, the share is unequal, producing a polar covalent bond, but it's still covalent. Ionic bonds, on the other hand, result from transferring electrons to create oppositely charged ions that attract, not from sharing electrons. Hydrogen bonds are interactions between a hydrogen atom bonded to an electronegative atom and another electronegative atom, not bonds formed by sharing electrons.

4. Which is a listed benefit of dietary fiber?

- A. Increases overeating
- B. Helps in weight reduction**
- C. Decreases digestive health
- D. Decreases colon function

Dietary fiber helps with weight management by increasing fullness after meals and slowing digestion, which can lead to lower overall calorie intake. That feeling of fullness makes it easier to reduce how much you eat, supporting weight reduction. Fiber doesn't promote overeating; it tends to suppress hunger. It also supports digestive and colon health by adding bulk to stool and improving regularity, so it does not decrease colon function.

5. Which term describes a simplified version of reality used for understanding and predictions but not the real system?

- A. Hypothesis
- B. Model**
- C. Law
- D. Theory

In science, a model is a simplified representation of reality that helps us understand how a system works and make predictions, without needing every detail of the real world. Models can be graphs, diagrams, equations, or computer simulations that capture essential features while leaving out less important ones. For example, a logistic growth equation is a model of how a population grows and then levels off, helping us predict outcomes without tracking every individual organism. This concept fits best here because the idea is to use a simplified version of reality for understanding and predictions, not to describe the real system in full detail. A hypothesis is a testable guess about what will happen in an experiment. A law describes a consistent, observed relationship in nature, usually with mathematical form but without explaining why. A theory is a well-supported broad explanation that ties together many observations and laws.

6. The entire library of genetic instructions that an organism inherits is called:

- A. Chromosome
- B. Genome**
- C. Transcriptome
- D. Proteome

The entire library of genetic instructions an organism inherits is its genome. This term encompasses all of the genetic material in an organism or cell, including the genes and the noncoding sequences that regulate when, where, and how those genes are expressed. A chromosome is a single DNA molecule (or a few) that carries a portion of that genetic material, so it's a structural component rather than the whole collection. The transcriptome refers to all RNA transcripts produced from the genome at a given time, reflecting which genes are being expressed, not the full set of inherited instructions. The proteome is the complete set of proteins that can be produced, which results from gene expression. So the genome is the full set of hereditary instructions.

7. In biological fluids, buffers serve to minimize changes in pH.

- A. Base
- B. Acid
- C. Buffer**
- D. Enzyme

Buffers resist changes in pH by using a reversible balance between a weak acid and its conjugate base (or a weak base and its conjugate acid). In biological fluids, this means adding acid donates H^+ to the conjugate base, forming the weak acid and limiting how much the pH drops; adding base consumes H^+ by the weak acid donating a proton, forming the conjugate base and limiting how much the pH rises. This keeps the pH within a narrow, life-supporting range (like around 7.35–7.45 in blood) so enzymes and metabolic processes function properly. While acids, bases, and enzymes play other roles, they don't inherently stabilize pH the way a buffering system does; a buffer is specifically designed to minimize pH fluctuations.

8. What term describes simple sugars like glucose and fructose?

- A. Disaccharides
- B. Monosaccharides**
- C. Polysaccharides
- D. Oligosaccharides

Monosaccharides are the simplest sugars, the basic units of carbohydrates. They cannot be broken down into smaller sugar molecules by hydrolysis. Glucose and fructose are classic examples of monosaccharides; each is a single sugar unit—glucose is an aldose and fructose a ketose, both hexoses. When two monosaccharides join, you get a disaccharide; many monosaccharides linked together form polysaccharides, while oligosaccharides contain a few to about ten units. So the term that describes simple sugars like glucose and fructose is monosaccharides.

9. An electronegativity difference of about 1.7 between two atoms typically indicates which type of bond?

- A. Ionic Bond**
- B. Covalent Bond
- C. Hydrogen Bond
- D. Non-polar Covalent

An electronegativity difference around 1.7 means the more electronegative atom pulls on the electrons so strongly that they are effectively transferred rather than shared. That transfer creates ions with opposite charges, which then attract each other and form an ionic bond. This pattern is typical for compounds made from metals and nonmetals, like sodium chloride. Covalent bonds arise from sharing electrons, with non-polar covalent having very small differences and polar covalent having a moderate sharing, not full transfer. Hydrogen bonds are not the primary bond type in such a compound; they're intermolecular attractions involving H bonded to F, O, or N. So the described difference best indicates an ionic bond.

10. Which element is a major component of bone and teeth in humans?

- A. Sodium
- B. Calcium**
- C. Phosphorus
- D. Iron

The mineral that gives bones and teeth their resilience is calcium, because the bone matrix is a mineralized material called hydroxyapatite, which is made up largely of calcium and phosphate. Calcium ions fill the crystal structure, contributing to the hardness and strength of bone, and the body stores most of its calcium in bones as a reservoir to maintain blood calcium levels. Teeth are also strengthened by calcium phosphate in enamel and dentin, providing rigidity and durability. Phosphorus is also important since it is part of the same mineral, but calcium is the primary element people recognize as responsible for bone and tooth hardness. Sodium and iron don't form the main structural minerals of bone or teeth; sodium is mainly an extracellular ion, and iron is mainly involved in oxygen transport and some enzymes.

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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://gsu-biol1103exam1.examzify.com>

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

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