# College Biology Exam 1 Practice Test (Sample)

## Study Guide


**Everything you need from our exam experts!**

# Table of Contents

# 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

**1. The atomic number defines the element. Which term describes this?**

**A. Atomic Mass**

**B. An Ion**

**C. Atomic Number**

**D. Isotope**

**2. DNA and RNA are examples of which macromolecule?**

**A. Lipids**

**B. Nucleic Acids**

**C. Carbohydrates**

**D. Proteins**

**3. Something that looks the same**

**A. Divergent**

**B. Homogeneous**

**C. Similar**

**D. Monogomus**

**4. 5-6 on the pH scale is how much more acidic?**

**A. 2**

**B. 10**

**C. 100**

**D. 1**

**5. An individual living thing**

**A. Cells**

**B. Organ System**

**C. Organism**

**D. Biosphere**

**6. Who breaks the bonds by releasing the stored energy?**

**A. Consumers**

**B. Producers**

**C. Autotrophs**

**D. Decomposers**

**7. Which kingdom obtains food by ingesting and digesting other organisms, classifying them as heterotrophs?**

**A. Heterotrophs**

**B. Autotrophs**

**C. Detritivores**

**D. Protists**

**8. Which type of fat is solid at room temperature and linked to heart disease more strongly?**

**A. Saturated fats**

**B. Trans fats**

**C. Monounsaturated fats**

**D. Polyunsaturated fats**

**9. What type of bond forms when two atoms share one or more pairs of electrons?**

**A. Covalent bond**

**B. Ionic bond**

**C. Hydrogen bond**

**D. Metallic bond**

**10. Complex carbohydrates made of long chains of monosaccharides are called what?**

**A. Monosaccharide**

**B. Disaccharide**

**C. Polysaccharide**

**D. Protein**

# Answers

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

# Explanations

## 1. The atomic number defines the element. Which term describes this?

**A. Atomic Mass**

**B. An Ion**

**C. Atomic Number**

**D. Isotope**

**The defining feature that identifies an element is the number of protons in its nucleus. This count is called the atomic number, and it is unique to each element on the periodic table. Because the atomic number fixes the element's identity, the term that describes this feature is atomic number. Atomic mass reflects protons plus neutrons and can vary with isotopes, so it does not uniquely identify the element. An ion is an atom with a net charge, involving electrons, not the element's identity. Isotopes are atoms of the same element with different numbers of neutrons, so they share the same atomic number but differ in mass.**

## 2. DNA and RNA are examples of which macromolecule?

**A. Lipids**

**B. Nucleic Acids**

**C. Carbohydrates**

**D. Proteins**

**DNA and RNA are nucleic acids, the polymers built from nucleotide units. Each nucleotide has a sugar, a phosphate, and a nitrogenous base, and these monomers link to form a long sugar-phosphate backbone with the bases sticking out. This structure lets nucleic acids store and transmit genetic information and, in the case of RNA, help express it. DNA uses deoxyribose and bases A, T, C, G (thymine), while RNA uses ribose and bases A, U, C, G (uracil). They differ from lipids (not built as repeating monomers and mainly used for energy storage and membranes), carbohydrates (polymers of sugars used for energy and structure), and proteins (polymers of amino acids with diverse functions).**

## 3. Something that looks the same

**A. Divergent**

**B. Homogeneous**

**C. Similar**

**D. Monogomus**

**The concept being tested is likeness in appearance. If something "looks the same," the best word is similar, which directly expresses that there is a resemblance in how things appear. Divergent describes differences or moving apart, not sameness. Monogamous pertains to mating patterns, not appearance. Homogeneous means uniform throughout, which can describe appearance in a broader sense, but it emphasizes uniform composition rather than just-looking-the-same relative to another object. So the simplest match to "looks the same" is similar.**

## 4. 5-6 on the pH scale is how much more acidic?

**A. 2**

**B. 10**

**C. 100**

**D. 1**

**Acidity on the pH scale is described by a logarithmic relationship: each unit change in pH reflects a tenfold change in hydrogen ion concentration. Lower pH means more acidic. So shifting from pH 6 to pH 5 increases the hydrogen ion concentration by a factor of ten, making it ten times more acidic. The other numbers would reflect linear changes, which isn't how the pH scale works.**

## 5. An individual living thing

**A. Cells**

**B. Organ System**

**C. Organism**

**D. Biosphere**

**A single living being is called an organism. This term describes a complete, individual life form that can carry out all essential life processes, such as metabolism, growth, response to stimuli, and reproduction. An organism can be made of a single cell (unicellular) or many cells (multicellular), but it remains one living unit. A cell is the basic unit of life, but used alone it doesn't capture the idea of the entire living individual. An organ system is a collection of organs working together inside a multicellular organism, not a standalone living individual. The biosphere is the global sum of all ecosystems and isn't an individual organism.**

## 6. Who breaks the bonds by releasing the stored energy?

**A. Consumers**

**B. Producers**

**C. Autotrophs**

**D. Decomposers**

**Energy stored in chemical bonds is released when those bonds are broken during cellular metabolism. Cells do this to harvest energy and make ATP for work. Consumers are the organisms that obtain energy by eating other organisms, so they routinely break the bonds in the food they ingest to release that energy for their own cells. Producers focus on capturing energy from sunlight and storing it in chemical bonds, and decomposers break down dead matter to recycle nutrients; while both processes involve bond-breaking, the immediate release of stored energy from ingested food is most characteristic of consumers.**

## 7. Which kingdom obtains food by ingesting and digesting other organisms, classifying them as heterotrophs?

**A. Heterotrophs**

**B. Autotrophs**

**C. Detritivores**

**D. Protists**

**Heterotrophy is the feeding mode where organisms obtain energy and carbon by ingesting and digesting other organisms. This means they rely on preformed organic molecules from others rather than making their own food. So, describing a kingdom by its nutrition—consuming and breaking down living or dead organisms—best fits the term heterotrophs. Autotrophs, by contrast, make their own organic matter through photosynthesis or chemosynthesis. Detritivores refer to a feeding habit (consuming detritus) rather than a broad kingdom-level classification. Protists is a diverse group with many different nutrition strategies, including both autotrophy and heterotrophy, so it doesn't specify the feeding mode as clearly.**

## 8. Which type of fat is solid at room temperature and linked to heart disease more strongly?

**A. Saturated fats**

**B. Trans fats**

**C. Monounsaturated fats**

**D. Polyunsaturated fats**

**Saturated fats are solid at room temperature because their hydrocarbon chains have no double bonds, so the chains are straight and can pack tightly together. That tight packing gives them a solid, buttery texture. In terms of health, they tend to raise LDL cholesterol in many people, which is a risk factor for heart disease. Monounsaturated and polyunsaturated fats have kinks from double bonds, so they don't pack as tightly and are typically liquid at room temperature; they are generally less associated with heart disease when substituted for saturated fats. Trans fats are also solid and harmful, but this item highlights saturated fats as the type most commonly linked to heart-disease risk, making them the best answer in this context.**

## 9. What type of bond forms when two atoms share one or more pairs of electrons?

**A. Covalent bond**

**B. Ionic bond**

**C. Hydrogen bond**

**D. Metallic bond**

**Sharing one or more pairs of electrons between two atoms forms a covalent bond. This happens when the atoms have similar electronegativities, typically nonmetals, so neither atom fully transfers electrons to the other. Instead, they share electrons to fill their outer shells, creating a stable molecule. The number of shared electron pairs determines bond strength and order: one pair for a single bond, two for a double bond, three for a triple bond. Covalent bonds can be nonpolar if the sharing is even, or polar if there's an uneven pull toward one atom due to differing electronegativities. Ionic bonds arise from electron transfer and electrostatic attraction between ions, hydrogen bonds are weak intermolecular attractions involving a hydrogen atom, and metallic bonds involve a lattice of metal cations with delocalized electrons. The shared-electron picture is the hallmark of covalent bonding.**

## 10. Complex carbohydrates made of long chains of monosaccharides are called what?

**A. Monosaccharide**

**B. Disaccharide**

**C. Polysaccharide**

**D. Protein**

**The concept here is how carbohydrates are categorized by the number of sugar units they contain. A polysaccharide is a long chain of monosaccharides linked together by glycosidic bonds. The prefix "poly-" means many, so polysaccharides are made of many sugar units, which is what "complex carbohydrates made of long chains of monosaccharides" describes. Examples include starch and glycogen for energy storage, and cellulose for structure. Monosaccharides are single sugar units; disaccharides are two linked sugars; proteins are made of amino acids, not sugars. That long-chain polysaccharide structure is what makes this the correct term.**

# 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://collegebiology1.examzify.com**

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