

COLLEGE BIOLOGY EXAM 1 PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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 kingdom is characterized by organisms that obtain energy by absorbing nutrients from the environment, often decomposing organic material, and have chitin in their cell walls?**
 - A. Protista
 - B. Plantae
 - C. Animalia
 - D. Fungi

- 2. Atomic number describes the number of protons and defines the element. Which option states this?**
 - A. The Number of Protons and Defines the Element
 - B. The Number of Protons and Neutrons
 - C. The Total Electrons
 - D. The Total Mass

- 3. Which part of the pH scale is acidic?**
 - A. 0 to 6
 - B. 7
 - C. 8-14
 - D. 0-14

- 4. Complex carbohydrates made of long chains of monosaccharides are called what?**
 - A. Monosaccharide
 - B. Disaccharide
 - C. Polysaccharide
 - D. Protein

- 5. Which of the following sequences is described as the order of steps in scientific inquiry?**
 - A. Observation, Question, Hypothesis, Prediction, Experiment, Publish
 - B. Question, Observation, Hypothesis, Prediction, Experiment, Publish
 - C. Hypothesis, Observation, Data, Conclusion
 - D. Observation, Question, Hypothesis, Prediction, Experiment, Publish

- 6. What are linked by peptide bonds to form polypeptide chains?**
- A. Nucleotides
 - B. Amino acids
 - C. Monosaccharides
 - D. Fatty acids
- 7. Which kingdom obtains food by ingesting and digesting other organisms (heterotrophs)?**
- A. Plants
 - B. Protists
 - C. Fungi
 - D. Animals
- 8. What sugar is present in DNA?**
- A. Ribose
 - B. Glucose
 - C. Fructose
 - D. Deoxyribose
- 9. Which term describes the process by which information in biological systems is stored, transmitted, and used?**
- A. Stored, transmitted, and used
 - B. Data management
 - C. Signal transduction
 - D. Information flow
- 10. What did a previous cell transmit to create a new cell?**
- A. Energy
 - B. Matter
 - C. Information
 - D. Signals

Answers

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

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Explanations

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1. Which kingdom is characterized by organisms that obtain energy by absorbing nutrients from the environment, often decomposing organic material, and have chitin in their cell walls?

- A. Protista
- B. Plantae
- C. Animalia
- D. Fungi**

Fungi feed by absorbing nutrients from their surroundings after extracellular digestion. They secrete enzymes that break down organic material outside their bodies and then take up the resulting small molecules, which makes them effective decomposers in ecosystems. They also have cell walls made of chitin, a strong polysaccharide different from the cellulose walls of plants and the lack of cell walls in animals. This combination of absorptive nutrition, ecological role as decomposers, and chitin-containing cell walls uniquely points to fungi among the major kingdoms.

2. Atomic number describes the number of protons and defines the element. Which option states this?

- A. The Number of Protons and Defines the Element**
- B. The Number of Protons and Neutrons
- C. The Total Electrons
- D. The Total Mass

Atomic number is the count of protons in the nucleus, and it uniquely identifies the element. The description that the atomic number is the number of protons and that this defines the element is the best choice because protons determine which element an atom is; isotopes share the same proton count but differ in neutrons, so their mass changes while their identity does not. The other options mix in neutrons, electrons, or total mass, which are not what defines the element: neutrons vary among isotopes, electrons change with charge, and total mass is protons plus neutrons. So the statement about the number of protons defining the element matches exactly what the atomic number represents.

3. Which part of the pH scale is acidic?

- A. 0 to 6**
- B. 7
- C. 8-14
- D. 0-14

Acidity on the pH scale is represented by values below 7. Since pH is a measure of hydrogen ion concentration, lower pH means higher acidity. The range from 0 up to 6 sits in the acidic region, with 7 being neutral and values above 7 being basic. So the part of the scale that is acidic is 0–6. The other options point to neutral (7), basic (8–14), or the entire range (0–14) which isn't specifically acidic.

4. 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.

5. Which of the following sequences is described as the order of steps in scientific inquiry?

- A. Observation, Question, Hypothesis, Prediction, Experiment, Publish
- B. Question, Observation, Hypothesis, Prediction, Experiment, Publish
- C. Hypothesis, Observation, Data, Conclusion
- D. Observation, Question, Hypothesis, Prediction, Experiment, Publish**

The main idea here is how scientists move from noticing something to sharing what they've learned. You begin with careful observations of the natural world, because those observations ground your inquiry in real phenomena. From what you've seen, you form a question about what's going on. Then you propose a testable explanation—a hypothesis—that can be evaluated. From that hypothesis you derive a prediction, a specific expectation you can check if the hypothesis is true. An experiment is designed to test that prediction and gather data. Finally, you publish the results so others can review, critique, and replicate the work. This sequence is the most logical flow: data first to spark questions, then a testable explanation, followed by predictions, experiments to test them, and communication of the findings. Starting with a question before any observation or starting with a hypothesis before collecting data would misplace steps, and skipping the reporting stage prevents scientific scrutiny and advancement.

6. What are linked by peptide bonds to form polypeptide chains?

- A. Nucleotides
- B. Amino acids**
- C. Monosaccharides
- D. Fatty acids

Peptide bonds are the links that hold amino acids together to form polypeptide chains. This bond forms when the carboxyl group of one amino acid reacts with the amino group of the next amino acid, releasing a molecule of water in a dehydration synthesis. The resulting covalent bond, an amide linkage, stitches amino acids into a polymer with a repeating backbone. The order of amino acids creates the primary structure, which then folds into functional proteins. Nucleotides, by contrast, are joined by phosphodiester bonds to form nucleic acids; monosaccharides join by glycosidic bonds to make polysaccharides; fatty acids and glycerol connect by ester bonds to form lipids.

7. Which kingdom obtains food by ingesting and digesting other organisms (heterotrophs)?

- A. Plants
- B. Protists
- C. Fungi
- D. Animals

Heterotrophs obtain carbon and energy by consuming other organisms or their remains. Plants are autotrophs, making their own food through photosynthesis. Fungi feed by external digestion: they secrete enzymes into their surroundings to break down organic matter and then absorb the resulting nutrients. This extracellular digestion and nutrient absorption is a classic way fungi acquire food, illustrating heterotrophy. While animals also rely on heterotrophy through ingestion, the feeding strategy described aligns with fungi, making them the best fit for this statement.

8. What sugar is present in DNA?

- A. Ribose
- B. Glucose
- C. Fructose
- D. Deoxyribose

The sugar in DNA is deoxyribose, a five-carbon sugar that forms the backbone of DNA. It's called deoxyribose because it lacks an oxygen atom at the 2' position compared with ribose. This missing oxygen makes DNA more chemically stable, helping it store genetic information over long periods without breaking down. RNA uses ribose, which has a hydroxyl group at the 2' position, making RNA more reactive and less stable. Glucose and fructose are hexoses used mainly for energy metabolism and are not components of nucleic acid backbones.

9. Which term describes the process by which information in biological systems is stored, transmitted, and used?

- A. Stored, transmitted, and used
- B. Data management
- C. Signal transduction
- D. Information flow

Information flow captures how biology handles information at all levels: how genetic material and epigenetic marks store information, how signals and heredity transmit it between cells and generations, and how cells use that information to regulate gene expression and produce appropriate responses. This framing includes storage in DNA and chromatin, transmission through inheritance and intercellular signaling, and usage in transcription, translation, and regulatory networks that shape phenotype. It's broader than signaling pathways alone, which focus on passing a signal inside a cell, and broader than human data-management ideas that don't describe living systems.

10. What did a previous cell transmit to create a new cell?

- A. Energy
- B. Matter
- C. Information**
- D. Signals

Information is what gets transmitted from a parent cell to its offspring to form a new cell. The genetic information stored in DNA acts as the blueprint for building and maintaining the cell, so when a cell divides, DNA is replicated and its sequences are passed to the daughter cells. This inheritance of genetic information determines the new cell's identity and function, guiding which proteins to make and how to regulate activity. Energy and building blocks are essential inputs for the process, and signaling can coordinate division, but they do not establish the inherited blueprint that creates a new cell.

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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://collegebiology1.examzify.com>

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

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