

ACC BIOLOGY ACCUPLACER PRACTICE TEST (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 type of RNA is primarily involved in translating mRNA into proteins?**
 - A. Ribosomal RNA
 - B. Transfer RNA
 - C. Messenger RNA
 - D. All of the above
- 2. What base pairs with adenine in DNA?**
 - A. Cytosine
 - B. Guanine
 - C. Thymine
 - D. Uracil
- 3. What is the genetic material found in all living organisms?**
 - A. RNA
 - B. Protein
 - C. DNA
 - D. Chromosome
- 4. What do you call the cross between F1 offspring of two individuals differing in two traits?**
 - A. Monohybrid crosses
 - B. Dihybrid crosses
 - C. Phenotype
 - D. Genotype
- 5. What type of plant tissue is responsible for photosynthesis?**
 - A. Phloem
 - B. Xylem
 - C. Parenchyma
 - D. Collenchyma
- 6. Which of the following statements is true about catalysts?**
 - A. They are completely consumed in the reaction
 - B. They can be reused in multiple reactions
 - C. They change the products of a reaction
 - D. They are always organic molecules

- 7. Which of the following substances is a common biological catalyst?**
- A. DNA
 - B. Protein
 - C. Water
 - D. Salt
- 8. Which organelle is known for its role in energy production through the oxidation of foodstuffs?**
- A. Mitochondria
 - B. Peroxisomes
 - C. Centrioles
 - D. Golgi apparatus
- 9. What particles are found in the nucleus of an atom?**
- A. Electrons and protons
 - B. Protons and neutrons
 - C. Neutrons and electrons
 - D. Protons and positrons
- 10. What are mitochondria commonly referred to as?**
- A. Cell builders
 - B. Powerhouses of the cell
 - C. Transporters of nutrients
 - D. Storage sacs

Answers

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

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Explanations

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1. Which type of RNA is primarily involved in translating mRNA into proteins?

- A. Ribosomal RNA
- B. Transfer RNA
- C. Messenger RNA
- D. All of the above**

The type of RNA primarily involved in translating mRNA into proteins is transfer RNA (tRNA). tRNA plays a crucial role in the process of translation by bringing amino acids to the ribosome, where proteins are synthesized. Each tRNA molecule has an anticodon that pairs with a corresponding codon on the messenger RNA (mRNA), ensuring that the correct amino acid is incorporated into the growing polypeptide chain. Ribosomal RNA (rRNA) also plays an essential role in this process as it is a key structural and functional component of ribosomes, the cellular machinery where translation occurs. While rRNA is vital, it is not the molecule that directly translates mRNA; rather, it helps form the site where translation takes place. Messenger RNA (mRNA) carries the genetic information from DNA to the ribosome, serving as the template for translation. However, it does not itself participate in the actual process of translating codons into amino acids. Although all these types of RNA work together in the process of protein synthesis, the most direct involvement in translating the mRNA's codons into the specific amino acids is performed by tRNA. Therefore, the correct answer focuses specifically on the unique function of tRNA in the translation process.

2. What base pairs with adenine in DNA?

- A. Cytosine
- B. Guanine
- C. Thymine**
- D. Uracil

In DNA, adenine pairs with thymine through two hydrogen bonds. This pairing is part of the base pairing rules in which purines (adenine and guanine) pair with pyrimidines (cytosine and thymine). The specificity of this pairing is essential for DNA structure and function, as it ensures accurate replication of genetic information during cell division. Cytosine pairs with guanine, while uracil is found in RNA, where it pairs with adenine instead of thymine. Understanding these pairings is crucial for grasping how genetic information is stored and transmitted in living organisms.

3. What is the genetic material found in all living organisms?

- A. RNA
- B. Protein
- C. DNA**
- D. Chromosome

The genetic material found in all living organisms is DNA. DNA, or deoxyribonucleic acid, serves as the blueprint for the development, functioning, growth, and reproduction of all known living organisms and many viruses. It carries the hereditary information necessary for the transfer of traits across generations and is composed of sequences of nucleotides, which are structured into genes. While RNA (ribonucleic acid) plays vital roles in various biological processes, such as coding, decoding, regulation, and expression of genes, it is not the primary genetic material in living organisms. Proteins, though essential for many cellular functions, are products of gene expression and do not serve as genetic material themselves. Lastly, chromosomes are structures that organize DNA within the cell nucleus in eukaryotes or the nucleoid in prokaryotes. While chromosomes contain the DNA, they are not the genetic material in the same sense that DNA itself is. Therefore, DNA is unequivocally recognized as the genetic material universally present across all forms of life.

4. What do you call the cross between F1 offspring of two individuals differing in two traits?

- A. Monohybrid crosses
- B. Dihybrid crosses**
- C. Phenotype
- D. Genotype

The cross between F1 offspring of two individuals differing in two traits is referred to as a dihybrid cross. This method allows the examination of how two separate traits are inherited simultaneously. In a dihybrid cross, you would typically start with two parent strains that are homozygous for two different traits (e.g., seed color and seed shape), generating F1 offspring that are heterozygous for both traits. By crossing these F1 individuals, you observe the inheritance patterns of the two traits together, often resulting in a characteristic phenotypic ratio in the F2 generation, commonly 9:3:3:1 in a typical dihybrid cross. Monohybrid crosses focus on the inheritance of a single trait, which is not sufficient to describe the F1 offspring differing in two traits. Phenotype refers to the observable traits of an organism, while genotype denotes the genetic makeup, neither of which describes the process of crossing in this specific scenario. Thus, the term dihybrid cross correctly captures the genetic interaction being studied when two traits are involved.

5. What type of plant tissue is responsible for photosynthesis?

- A. Phloem
- B. Xylem
- C. Parenchyma**
- D. Collenchyma

The type of plant tissue that is primarily responsible for photosynthesis is parenchyma. This tissue is composed of living cells that often contain chloroplasts, which are the organelles where photosynthesis occurs. Parenchyma cells are typically found in the leaves, stems, and roots of plants, and they have relatively thin cell walls that allow for gas exchange and the transfer of nutrients. In leaves, specifically, parenchyma forms the mesophyll, which is crucial for the process of capturing sunlight and converting carbon dioxide and water into glucose and oxygen. The arrangement of chloroplast-containing parenchyma cells maximizes light absorption, making them highly efficient at photosynthesis. In contrast, the other types of plant tissues mentioned are not directly involved in the photosynthetic process. Phloem is responsible for transporting sugars and organic nutrients throughout the plant, while xylem is involved in water and mineral transport. Collenchyma primarily provides structural support to young plant parts and does not have the same photosynthetic function as parenchyma.

6. Which of the following statements is true about catalysts?

- A. They are completely consumed in the reaction
- B. They can be reused in multiple reactions**
- C. They change the products of a reaction
- D. They are always organic molecules

Catalysts are substances that accelerate the rate of a chemical reaction without being consumed in the process. This means they can be utilized repeatedly in multiple reaction cycles, allowing them to facilitate ongoing chemical transformations without undergoing permanent changes themselves. Catalysts work by lowering the activation energy required for a reaction to proceed, thereby increasing the reaction rate. The other statements highlight misconceptions about catalysts. Some might think that catalysts are consumed, change the products of a reaction, or are always organic; however, catalysts can be inorganic as well, such as metals and metal oxides, exemplifying that they are not limited to organic molecules. This understanding of catalysts is fundamental in fields ranging from biochemistry to industrial chemistry, where their ability to be reused makes them highly valuable.

7. Which of the following substances is a common biological catalyst?

- A. DNA
- B. Protein**
- C. Water
- D. Salt

A common biological catalyst is an enzyme, which is primarily composed of proteins. Enzymes facilitate biochemical reactions by lowering the activation energy required for the reaction to occur, thereby increasing the reaction rate without being consumed in the process. This catalytic property is fundamental to various biological functions, including digestion, metabolism, and DNA replication. While DNA plays a crucial role in the storage and transmission of genetic information, it does not act as a catalyst in biological reactions. Water, although vital for life and participating in many biochemical reactions, does not serve as a catalyst itself. Salt, made up of ions, can influence reactions through osmosis or ionic strength but does not catalyze reactions in the way proteins do. Therefore, proteins, specifically enzymes, are recognized for their catalytic abilities in biological systems.

8. Which organelle is known for its role in energy production through the oxidation of foodstuffs?

- A. Mitochondria**
- B. Peroxisomes
- C. Centrioles
- D. Golgi apparatus

The mitochondria are known as the powerhouse of the cell primarily because they play a crucial role in energy production through the process of cellular respiration. During this process, mitochondria take in nutrients and oxygen to produce adenosine triphosphate (ATP), which serves as the main energy currency of the cell. This involves the oxidation of foodstuffs, such as carbohydrates, fats, and proteins, where energy is released from these molecules. Mitochondria have specialized structures and enzymes that facilitate the Krebs cycle and the electron transport chain, both essential pathways in the energy production process. This makes them essential for providing the energy necessary for various cellular functions, thereby sustaining life at the cellular level. In contrast, peroxisomes are primarily involved in lipid metabolism and detoxification processes, centrioles assist in cell division, and the Golgi apparatus is responsible for modifying, sorting, and packaging proteins and lipids for secretion or delivery to other organelles.

9. What particles are found in the nucleus of an atom?

- A. Electrons and protons
- B. Protons and neutrons**
- C. Neutrons and electrons
- D. Protons and positrons

The nucleus of an atom is composed of protons and neutrons. Protons are positively charged particles, which determine the element's identity and its atomic number. Neutrons, on the other hand, are electrically neutral and contribute to the atom's mass. Together, protons and neutrons are known as nucleons, and they are held together in the nucleus by the strong nuclear force. Electrons, while they are fundamental constituents of atoms, reside in orbitals outside the nucleus and are not found within it. Positrons, which are the antimatter counterparts of electrons, do not typically exist in a stable atom's nucleus. The presence of both protons and neutrons is crucial in defining the stability of the nucleus and the overall characteristics of the atom.

10. What are mitochondria commonly referred to as?

- A. Cell builders
- B. Powerhouses of the cell**
- C. Transporters of nutrients
- D. Storage sacs

Mitochondria are commonly referred to as the "powerhouses of the cell" because they play a crucial role in energy production. They are the sites of cellular respiration, a process where nutrients from food are converted into adenosine triphosphate (ATP), the primary energy carrier in cells. The inner membrane of mitochondria hosts proteins and enzyme complexes that facilitate the electron transport chain, leading to the generation of ATP. By producing this essential energy source, mitochondria enable cells to perform various functions, including growth, division, and response to environmental changes, maintaining overall cellular health and metabolism. This title aptly reflects their fundamental role in supplying energy that is vital for the survival of both the cell and the organism as a whole.

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://accbioaccuplacer.examzify.com>

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

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