

ACC Biology Accuplacer Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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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 cellular structure is primarily responsible for the synthesis of ribosomal RNA?**
 - A. Ribosome**
 - B. Nucleus**
 - C. Nucleolus**
 - D. Endoplasmic reticulum**

- 2. What is the primary role of enzymes in biological systems?**
 - A. Transport nutrients**
 - B. Store energy**
 - C. Catalyze chemical reactions**
 - D. Produce hormones**

- 3. What cycle is also known as the citric acid cycle?**
 - A. Krebs cycle**
 - B. Calvin cycle**
 - C. Light reaction**
 - D. Glycolysis**

- 4. How does concentration and pressure influence a chemical reaction?**
 - A. It does not influence the reaction**
 - B. It decreases the rate of a reaction**
 - C. It allows more particles to be present in a given space**
 - D. It eliminates excess reactants**

- 5. Which of the following correctly defines lipids?**
 - A. Insoluble in water and containing carbon, hydrogen, and oxygen**
 - B. Soluble in water and forming proteins**
 - C. Always solid at room temperature**
 - D. Composed mainly of amino acids**

- 6. During which phase does a cell intake nutrients before division?**
- A. Metaphase**
 - B. Interphase**
 - C. Anaphase**
 - D. Telophase**
- 7. What is the outward, physical manifestation of an organism called?**
- A. Genotype**
 - B. Phenotype**
 - C. Monohybrid crosses**
 - D. Dihybrid crosses**
- 8. Which type of bond results from the sharing of electrons between two atoms with similar electronegativities?**
- A. Ionic bond**
 - B. Covalent bond**
 - C. Coordinate covalent bond**
 - D. Metallic bond**
- 9. In irreversible chemical reactions, what happens to the reactants?**
- A. They are completely used up**
 - B. They can be regenerated**
 - C. They remain in the solution**
 - D. They do not change**
- 10. In which cellular phase does chromosome condensation occur?**
- A. Interphase**
 - B. Prophase**
 - C. Metaphase**
 - D. Telophase**

Answers

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

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Explanations

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1. Which cellular structure is primarily responsible for the synthesis of ribosomal RNA?

- A. Ribosome**
- B. Nucleus**
- C. Nucleolus**
- D. Endoplasmic reticulum**

The nucleolus is the cellular structure primarily responsible for the synthesis of ribosomal RNA (rRNA). It is located within the nucleus and serves as the site where rRNA is transcribed and combined with proteins to form the subunits of ribosomes. The nucleolus is not just a passive structure; it actively assembles the components needed for ribosome production, which is crucial for protein synthesis in the cell. While the nucleus contains the genetic material and is involved in various aspects of gene expression, it is the nucleolus specifically that focuses on rRNA synthesis and ribosome assembly. Other structures like ribosomes are the sites of protein synthesis but do not produce rRNA. The endoplasmic reticulum, particularly the rough variety, is involved in the synthesis of proteins but not in the synthesis of ribosomal RNA itself. Therefore, the nucleolus stands out as the dedicated site for rRNA synthesis, making it the correct answer.

2. What is the primary role of enzymes in biological systems?

- A. Transport nutrients**
- B. Store energy**
- C. Catalyze chemical reactions**
- D. Produce hormones**

Enzymes play a crucial role in biological systems primarily by catalyzing chemical reactions. This means that they facilitate and accelerate reactions without being consumed in the process, allowing metabolic pathways to occur efficiently. Enzymes lower the activation energy required for reactions, enabling them to proceed at a rate that supports life. The catalytic action of enzymes is vital for numerous biological processes, including digestion, metabolism, and DNA replication. Each enzyme is specific to a particular substrate, which means they can selectively facilitate specific reactions essential for cell function and organization. Transporting nutrients, storing energy, and producing hormones are all essential biological processes, but they are not the primary function of enzymes. Rather, enzymes can aid in the processes that occur during nutrient transport and energy storage, and some enzymes are involved in the production of hormones, but their main role remains as catalysts for chemical reactions.

3. What cycle is also known as the citric acid cycle?

- A. Krebs cycle**
- B. Calvin cycle**
- C. Light reaction**
- D. Glycolysis**

The citric acid cycle, also known as the Krebs cycle, is a key metabolic pathway that plays a crucial role in cellular respiration. This cycle occurs in the mitochondria of eukaryotic cells and is essential for converting carbohydrates, fats, and proteins into carbon dioxide and water, while also producing energy in the form of ATP. The Krebs cycle begins with the formation of citric acid (citrate) when acetyl-CoA combines with oxaloacetate. Throughout the cycle, citrate undergoes several transformations, leading to the release of two molecules of carbon dioxide and the production of reduced electron carriers such as NADH and FADH₂. These carriers are vital for the electron transport chain, which generates a significant amount of ATP. Understanding that the Krebs cycle is integral to aerobic respiration helps clarify its importance in energy metabolism. The other options, such as the Calvin cycle, the light reaction, and glycolysis, refer to different biological processes entirely. The Calvin cycle is involved in photosynthesis, the light reaction refers to the first stage of photosynthesis, and glycolysis is the initial step of glucose metabolism that occurs in the cytoplasm, preceding the Krebs cycle. Recognizing these differentiations highlights the distinct roles each pathway plays in cellular function.

4. How does concentration and pressure influence a chemical reaction?

- A. It does not influence the reaction**
- B. It decreases the rate of a reaction**
- C. It allows more particles to be present in a given space**
- D. It eliminates excess reactants**

The correct answer indicates that concentration and pressure play a significant role in chemical reactions by allowing more particles to be present in a given space. This concept is tied to the principles of collision theory, which states that for a chemical reaction to occur, reactant particles must collide with sufficient energy and proper orientation. When the concentration of reactants increases, or when pressure is applied (especially for gaseous reactions), the number of reactant particles in a particular volume increases. This leads to a higher frequency of collisions between particles, which in turn raises the likelihood of successful reactions occurring. Essentially, more particles result in more interactions, which speeds up the rate of reaction. This understanding is crucial in fields such as chemistry, chemical engineering, and environmental science, where controlling reaction rates is essential for optimizing processes. Concentration and pressure are fundamental factors that can be adjusted to achieve desired outcomes in reactions, making this answer particularly insightful.

5. Which of the following correctly defines lipids?

- A. Insoluble in water and containing carbon, hydrogen, and oxygen**
- B. Soluble in water and forming proteins**
- C. Always solid at room temperature**
- D. Composed mainly of amino acids**

Lipids are correctly defined as biomolecules that are primarily insoluble in water and consist of carbon, hydrogen, and oxygen atoms. This hydrophobic nature allows lipids to serve various essential functions in biological systems, including energy storage, structural components of cell membranes, and signaling molecules. Lipids encompass a wide range of substances such as fats, oils, steroids, and phospholipids, which all share the common characteristic of being nonpolar and, therefore, not dissolvable in water. The composition of carbon, hydrogen, and oxygen is significant, but unlike carbohydrates, lipids have a much lower proportion of oxygen relative to hydrogen. This results in their higher energy content. The other choices are related to different biochemical categories or characteristics. For instance, some options reference solubility in water or components of proteins, which are more fitting descriptions for other biomolecules such as carbohydrates or proteins. Additionally, stating that lipids are always solid at room temperature does not capture the full diversity of lipids, as some, like oils, may be liquid under those conditions. Similarly, lipids are not composed of amino acids, which are the building blocks of proteins. The correct answer succinctly captures the essential features that define lipids in biological contexts.

6. During which phase does a cell intake nutrients before division?

- A. Metaphase**
- B. Interphase**
- C. Anaphase**
- D. Telophase**

The correct choice is interphase because this phase is the period of the cell cycle where the cell prepares for division. During interphase, the cell undergoes critical growth and metabolic processes, which include the intake and processing of nutrients. This phase consists of three stages: G1 (first gap), S (synthesis), and G2 (second gap). In the G1 phase, the cell grows and synthesizes proteins, producing organelles and increasing the supply of proteins necessary for DNA replication. Nutrients from the environment are absorbed, providing the necessary materials for these processes. In the S phase, DNA replication occurs, ensuring that each daughter cell will have an identical set of chromosomes. By the end of interphase, during the G2 phase, the cell continues to grow and produces additional proteins and organelles in preparation for mitosis. In contrast, the other phases such as metaphase, anaphase, and telophase occur during mitosis, where the actual process of cell division takes place, focusing on segregating chromosomes rather than nutrient intake. Thus, interphase is critical for ensuring that the cell has the necessary resources and preparations before it divides.

7. What is the outward, physical manifestation of an organism called?

A. Genotype

B. Phenotype

C. Monohybrid crosses

D. Dihybrid crosses

The term that describes the outward, physical manifestation of an organism is phenotype. The phenotype encompasses all observable traits and characteristics of an organism, which can include features such as appearance, behavior, and physiological traits. These traits result from the interaction of the organism's genotype, which is the genetic makeup, with environmental factors. In contrast, genotype specifically refers to the genetic constitution of an organism, which may not always be evident in the physical traits expressed. Monohybrid and dihybrid crosses are concepts in genetics that refer to specific types of breeding experiments aimed at studying the inheritance of traits, but they do not pertain to the physical manifestations of those traits. Thus, phenotype is the correct answer as it directly relates to observable characteristics.

8. Which type of bond results from the sharing of electrons between two atoms with similar electronegativities?

A. Ionic bond

B. Covalent bond

C. Coordinate covalent bond

D. Metallic bond

The type of bond that results from the sharing of electrons between two atoms with similar electronegativities is a covalent bond. In covalent bonding, atoms come together and share pairs of electrons, allowing each atom to attain a more stable electron configuration, typically resembling that of the nearest noble gas. This sharing occurs between nonmetals where the difference in electronegativity is minimal, which enables a more equal distribution of electron density between the involved atoms. In contrast, ionic bonds occur between atoms with significantly different electronegativities, where one atom donates an electron to another, leading to the formation of charged ions that attract each other. Coordinate covalent bonds involve one atom providing both electrons in the shared pair, which typically happens when one atom has a lone pair of electrons. Lastly, metallic bonds do not involve electron sharing between individual atoms but rather involve a 'sea of electrons' that are free to move among a lattice of metal cations, contributing to the conductivity and malleability of metals.

9. In irreversible chemical reactions, what happens to the reactants?

- A. They are completely used up**
- B. They can be regenerated**
- C. They remain in the solution**
- D. They do not change**

In irreversible chemical reactions, the reactants undergo a transformation that results in the formation of products, and this process typically goes to completion. This means that all the reactants are completely consumed in the reaction, leaving no trace of the original reactants in the final mixture. This is a key distinction between irreversible reactions and reversible reactions, where reactants can reform. In irreversible reactions, the movement towards products is favored to such an extent that once the products are formed, they do not revert back to the original reactants under normal conditions. Thus, the answer indicating that the reactants are completely used up accurately describes what occurs in an irreversible reaction.

10. In which cellular phase does chromosome condensation occur?

- A. Interphase**
- B. Prophase**
- C. Metaphase**
- D. Telophase**

Chromosome condensation occurs during prophase, which is the first stage of mitosis. During this phase, the chromatin, which is a relaxed form of DNA, begins to coil and condense into distinct, visible chromosomes. This condensation is crucial because it allows the chromosomes to be moved and separated accurately during cell division. Each chromosome consists of two sister chromatids, which are joined at a region called the centromere. This visible structure is essential for the proper alignment and segregation of chromosomes in the subsequent phases of mitosis. In prophase, the nuclear envelope also begins to break down, and the spindle fibers start to form, further preparing the cell for division. This preparation phase is critical for ensuring that each daughter cell receives an identical set of chromosomes. As a result, the condensation of chromosomes in prophase is a key event that facilitates the orderly progression of cell division.

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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