

JLAB BIOLOGY SOL PRACTICE TEST (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

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Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	15

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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. What classification level do the four different pine trees belong to?**
 - A. Family
 - B. Genus
 - C. Species
 - D. Order

- 2. What scientific advancement is attributed to Louis Pasteur's experiments?**
 - A. The development of antibiotics.
 - B. The germ theory of disease.
 - C. The understanding of photosynthesis.
 - D. The concept of evolution.

- 3. What is the primary function of lipids in living organisms?**
 - A. Providing energy
 - B. Storing genetic information
 - C. Insulation and energy storage
 - D. Facilitating enzyme reactions

- 4. What is an essential characteristic of the lifecycle of a moth?**
 - A. A metamorphic stage
 - B. Instant reproduction
 - C. Direct development
 - D. Constant habitat

- 5. What was Rosalind Franklin's contribution to the understanding of DNA molecules?**
 - A. Identifying the double helix structure
 - B. Creating the first DNA model
 - C. Visualizing the shape of DNA through X-ray diffraction
 - D. Discovering the role of RNA in protein synthesis

- 6. What term describes a group of different organisms living together in a particular area, such as a backyard?**
- A. Population
 - B. Ecosystem
 - C. Community
 - D. Biome
- 7. How did Timothy inherit attached earlobes despite both parents having free earlobes?**
- A. He received a dominant allele from each parent
 - B. He received a recessive allele from each parent
 - C. He mutated one allele to become recessive
 - D. He inherited only one dominant allele from a grandparent
- 8. What is one main characteristic of fungi?**
- A. The ability to photosynthesize
 - B. Absorption of nutrients through cell walls
 - C. Reproduction through seeds
 - D. Mobility in search of food
- 9. What factor likely contributed to the evolution of different species of Hawaiian honeycreepers?**
- A. Natural selection in diverse habitats
 - B. Geographic isolation
 - C. Adaptive radiation from common ancestors
 - D. Availability of food resources
- 10. Studying the differences between fossils and modern organisms helps scientists better understand the -**
- A. behavioral differences of species
 - B. genetic makeup of organisms
 - C. evolution of organisms over time
 - D. ecological systems of ancient environments

Answers

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

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Explanations

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1. What classification level do the four different pine trees belong to?

- A. Family
- B. Genus
- C. Species**
- D. Order

The classification level that the four different pine trees belong to is species. In biological classification, the species is the most specific rank and refers to a group of organisms that can interbreed and produce fertile offspring. Each species of pine tree has distinctive characteristics that differentiate it from other species, making this level the most appropriate for describing the various types of pine trees. The options for family, genus, and order represent higher taxonomic ranks. The family is a broader category that encompasses many genera, while the genus groups closely related species together. Therefore, while pine trees can be classified within the same family or genus, identifying them as distinct species brings their classification to the most precise level, reflecting the unique traits and reproductive isolation that define each type of pine tree.

2. What scientific advancement is attributed to Louis Pasteur's experiments?

- A. The development of antibiotics.
- B. The germ theory of disease.**
- C. The understanding of photosynthesis.
- D. The concept of evolution.

Louis Pasteur's experiments are primarily credited with the establishment of the germ theory of disease. This theory revolutionized the field of medicine by demonstrating that microorganisms are the cause of many diseases. Pasteur conducted experiments that showed how sterilization and the prevention of microbial contamination can prevent disease and spoilage, particularly through his work with fermentation and pasteurization. His findings provided a scientific basis for understanding how infections spread and how they can be controlled, ultimately leading to improved public health measures and advancements in hygiene practices. This foundational work laid the groundwork for modern bacteriology and led to the development of vaccines, transforming how diseases are treated and prevented.

3. What is the primary function of lipids in living organisms?

- A. Providing energy
- B. Storing genetic information
- C. Insulation and energy storage**
- D. Facilitating enzyme reactions

The primary function of lipids in living organisms includes insulation and energy storage. Lipids, which comprise fats and oils, serve as a long-term energy reserve for organisms, as they contain more than twice the energy per gram compared to carbohydrates and proteins. This energy-rich nature makes lipids an efficient form of energy storage. Additionally, lipids play a crucial role in insulation. They form a protective layer under the skin of many animals, helping to maintain body temperature by reducing heat loss. This is particularly important for organisms in cold environments. By combining these roles, lipids contribute significantly to the overall energy management and thermoregulation within living systems, highlighting their essential function in biological processes.

4. What is an essential characteristic of the lifecycle of a moth?

A. A metamorphic stage

B. Instant reproduction

C. Direct development

D. Constant habitat

The lifecycle of a moth is characterized by a metamorphic stage, which is a crucial aspect of its development. Moths undergo complete metamorphosis, which includes four distinct life stages: egg, larva (caterpillar), pupa (chrysalis), and adult. This process allows for significant changes in form and function at each stage, enabling the organism to thrive in different environments. During the larval stage, the caterpillar primarily focuses on feeding and growth, while the pupal stage involves transformation into the adult form, where the moth will eventually emerge and mate. The presence of these distinct stages is vital for the survival and adaptation of moths, contributing to their reproductive success and ability to exploit various resources. While the other options touch on aspects of biological development, they do not accurately reflect the characteristic lifecycle of moths. Instant reproduction does not apply, as moths go through various stages and typically require time to develop. Direct development suggests a simplified lifecycle where the organism does not undergo significant changes, which does not align with the complex metamorphosis seen in moths. Lastly, a constant habitat is not characteristic of moths, as they are often found in varying environments throughout their life stages, particularly during the larval and

5. What was Rosalind Franklin's contribution to the understanding of DNA molecules?

A. Identifying the double helix structure

B. Creating the first DNA model

C. Visualizing the shape of DNA through X-ray diffraction

D. Discovering the role of RNA in protein synthesis

Rosalind Franklin's significant contribution to the understanding of DNA molecules was her pioneering work in using X-ray diffraction techniques to visualize the structural details of DNA. Through her meticulous experiments, she generated high-quality images, most notably Photograph 51, which revealed the helical shape of the DNA molecule. This data provided critical evidence that ultimately helped confirm the double helix structure proposed by Watson and Crick. Her work highlighted the importance of the helical configuration and provided key insights into the molecular structure of DNA that were fundamental to understanding genetic material. Other contributions, such as those involving the modeling of DNA or the role of RNA in protein synthesis, were made by different scientists. Franklin's specialized expertise in X-ray crystallography was essential in advancing the knowledge of DNA's physical properties and its implications for genetics.

6. What term describes a group of different organisms living together in a particular area, such as a backyard?

- A. Population
- B. Ecosystem
- C. Community**
- D. Biome

The term that accurately describes a group of different organisms living together in a particular area, such as a backyard, is 'community.' A community consists of various species that interact with each other in a shared environment. This includes not only the plants and animals but also microorganisms and other living organisms that coexist in that specific area. The interactions among these species—such as competition, predation, and symbiosis—play a crucial role in the dynamics of the community. In contrast, a population refers to a specific group of individuals of the same species living in a given area. An ecosystem encompasses both the community of organisms and the physical environment they interact with, including abiotic factors like soil, water, and climate. A biome is a larger ecological area on the Earth's surface, defined by its climate, plants, and animals, spanning multiple ecosystems. Thus, within the context of the question, 'community' is the most fitting term to describe the diverse group of organisms found in a specific location.

7. How did Timothy inherit attached earlobes despite both parents having free earlobes?

- A. He received a dominant allele from each parent
- B. He received a recessive allele from each parent**
- C. He mutated one allele to become recessive
- D. He inherited only one dominant allele from a grandparent

Timothy inherited attached earlobes, which are typically considered a trait linked to a recessive allele, despite both parents having free earlobes. For a person to express a recessive trait like attached earlobes, they must inherit two copies of the recessive allele, one from each parent. In this case, even though his parents exhibit free earlobes (the dominant trait), it is possible that both parents are heterozygous, carrying one dominant allele for free earlobes and one recessive allele for attached earlobes. When Timothy inherited one recessive allele from each parent, he would express the attached earlobe trait. This scenario illustrates how traits governed by recessive alleles can appear in offspring even if those traits are not present in the parents, provided both parents carry the recessive allele.

8. What is one main characteristic of fungi?

- A. The ability to photosynthesize
- B. Absorption of nutrients through cell walls**
- C. Reproduction through seeds
- D. Mobility in search of food

Fungi are primarily characterized by their method of nutrient acquisition, which involves the absorption of nutrients through their cell walls. Unlike plants, fungi do not have the capability to photosynthesize, as they lack chlorophyll and do not convert sunlight into energy. Instead, fungi break down organic matter through external digestion; they release enzymes into their environment that decompose complex substances, allowing them to absorb simpler organic compounds through their cell walls. This absorptive method of nutrition is a defining trait of fungi, as it enables them to thrive in diverse environments, playing crucial roles in ecosystems as decomposers. Other characteristics, such as reproduction through spores rather than seeds and their generally immobile nature, further emphasize their unique biology, but the key focus remains on how fungi absorb nutrients rather than producing them through photosynthesis or movement.

9. What factor likely contributed to the evolution of different species of Hawaiian honeycreepers?

- A. Natural selection in diverse habitats
- B. Geographic isolation**
- C. Adaptive radiation from common ancestors
- D. Availability of food resources

The evolution of different species of Hawaiian honeycreepers can be significantly attributed to geographic isolation. The Hawaiian Islands are an archipelago, which has led to the separation of populations of organisms. Because these islands are physically isolated from one another, populations of honeycreepers found on different islands have evolved independently over time. This isolation allows for the development of distinct species as each population adapts to its specific environment, leading to a variety of physical traits and behaviors suited to different ecological niches. This geographic isolation is particularly important in the context of the Hawaiian honeycreepers, as it provides an opportunity for speciation processes to occur without the mixing of genes from other populations. As such, the combination of the unique environments available on each island and the separation of populations has resulted in a rich diversity of honeycreeper species that are uniquely adapted to their individual habitats.

10. Studying the differences between fossils and modern organisms helps scientists better understand the -

- A. behavioral differences of species
- B. genetic makeup of organisms
- C. evolution of organisms over time**
- D. ecological systems of ancient environments

Studying the differences between fossils and modern organisms is crucial for understanding the evolution of organisms over time. Fossils provide a snapshot of the physical characteristics and structures of organisms that lived in the past, allowing scientists to observe how various traits have changed or adapted throughout history. By comparing these features with those of contemporary species, scientists can trace lineages, assess how environmental changes influenced evolutionary processes, and identify patterns of diversification, extinction, and adaptation. For instance, examining transitional fossils can reveal the gradual changes that occur within a lineage, highlighting important evolutionary milestones. This relationship between fossils and the current biological diversity we see helps establish a timeline of evolution and elucidates the mechanisms driving these changes, such as natural selection and genetic drift. Consequently, this investigation serves as a valuable tool for understanding the overarching narrative of life on Earth and the interconnectedness of species across various epochs.

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://jlabbiologysol.examzify.com>

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

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