

PRAXIS BIOLOGY (5236) PRACTICE EXAM (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. An ecosystem includes which components?**
 - A. Only the organisms
 - B. Only the physical environment
 - C. Both living organisms and their physical environment
 - D. Only water bodies
- 2. Which phylum is characterized by a segmented body?**
 - A. Annelida
 - B. Cnidaria
 - C. Nematoda
 - D. Porifera
- 3. Which transformation do denitrifying bacteria perform in the nitrogen cycle?**
 - A. Convert nitrate to molecular nitrogen
 - B. Convert ammonia to nitrate
 - C. Fix nitrogen gas
 - D. Oxidize nitrite to nitrate
- 4. Which of the following describes density-independent factors?**
 - A. Limiting factors that affect all populations in similar ways, regardless of population size.
 - B. Factors that affect populations only at high densities.
 - C. Factors influenced by predator–prey interactions.
 - D. Factors related to competition among individuals of the same species.
- 5. Which statement correctly contrasts DNA and RNA?**
 - A. DNA contains ribose sugar and uracil.
 - B. RNA contains deoxyribose sugar and thymine.
 - C. RNA contains ribose sugar and uracil; DNA contains deoxyribose sugar and thymine.
 - D. RNA and DNA share the same sugar and bases.

6. Which statement describes the G0 phase?

- A. It is a period of rapid cell division.
- B. No further division; cells just perform their specialized functions.
- C. It is synonymous with S phase.
- D. It is where spindle fibers form.

7. Which statement best describes gradualism in evolution?

- A. Large changes occur suddenly
- B. Small changes accumulate over time to produce large differences
- C. Speciation without geographic isolation
- D. Endosymbiosis

8. Hemophilia is an X-linked recessive disorder. If a woman with hemophilia has a child with a man who does not have hemophilia, what is the chance the child will be a carrier?

- A. 0%
- B. 25%
- C. 50%
- D. 100%

9. During cellular respiration, which cellular structure is primarily associated with ATP production via the electron transport chain?

- A. Mitochondrial Matrix
- B. Cytosol
- C. Nucleus
- D. Inner Mitochondrial Membrane

10. In translation, the start codon AUG codes for which amino acid in the growing polypeptide chain?

- A. Lysine
- B. Methionine
- C. Valine
- D. Alanine

Answers

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

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Explanations

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1. An ecosystem includes which components?

- A. Only the organisms
- B. Only the physical environment
- C. Both living organisms and their physical environment**
- D. Only water bodies

An ecosystem includes both living organisms and the physical environment, and these two parts interact to drive energy flow and nutrient cycling. The living components—plants, animals, fungi, bacteria, and other organisms—depend on the abiotic factors like air, water, minerals, soil, temperature, light, and climate to survive and reproduce. The environment isn't just background; it shapes which species can live there and how they interact with one another. Water bodies are only one type of abiotic setting and don't alone define an ecosystem, since ecosystems can exist in many forms beyond ponds and rivers. So the best choice is that an ecosystem comprises both living organisms and their physical environment.

2. Which phylum is characterized by a segmented body?

- A. Annelida**
- B. Cnidaria
- C. Nematoda
- D. Porifera

Segmentation, or metamerism, is the repeating series of body units along an organism's length. Annelids—the worms with rings like earthworms and leeches—display true segmentation. Their body is made of many similar segments separated internally by septa, which allows each segment to specialize and coordinate movement. This metameric plan enables peristaltic locomotion and the organization of repeating structures (nervous, excretory, and muscular systems) within each segment, a defining feature of this group. The other choices don't show this repeating, segmented pattern. Cnidarians have radial symmetry and simple tissue organization with no segmentation. Nematodes possess a single, unsegmented tube-like body plan. Porifera, or sponges, lack true tissues and organs and do not have segmented bodies.

3. Which transformation do denitrifying bacteria perform in the nitrogen cycle?

- A. Convert nitrate to molecular nitrogen**
- B. Convert ammonia to nitrate
- C. Fix nitrogen gas
- D. Oxidize nitrite to nitrate

Denitrifying bacteria use nitrate as an alternative electron acceptor when oxygen is scarce, carrying out denitrification. In this process, nitrate (NO_3^-) is reduced to molecular nitrogen (N_2), returning nitrogen to the atmosphere and reducing fixed nitrogen in the environment. That's why converting nitrate to nitrogen gas is the transformation performed by denitrifying bacteria. By contrast, converting ammonia to nitrate is nitrification, fixing nitrogen gas is nitrogen fixation, and oxidizing nitrite to nitrate is a step of nitrification, not denitrification.

4. Which of the following describes density-independent factors?

- A. Limiting factors that affect all populations in similar ways, regardless of population size.
- B. Factors that affect populations only at high densities.
- C. Factors influenced by predator–prey interactions.
- D. Factors related to competition among individuals of the same species.

Density-independent factors are factors that limit a population regardless of how many individuals are present. They are typically abiotic forces such as extreme weather, drought, floods, temperature extremes, or habitat destruction—events that affect small and large populations alike because their impact isn't tied to population size. That's why the description that limiting factors affect all populations in similar ways, no matter how big or small the population is, is the correct one. In contrast, factors like competition for resources, disease spread, and predator pressure often depend on how many individuals there are, increasing or changing their impact as density changes.

5. Which statement correctly contrasts DNA and RNA?

- A. DNA contains ribose sugar and uracil.
- B. RNA contains deoxyribose sugar and thymine.
- C. RNA contains ribose sugar and uracil; DNA contains deoxyribose sugar and thymine.
- D. RNA and DNA share the same sugar and bases.

DNA and RNA differ in two clear ways: the sugar in their backbone and the bases they use. RNA uses ribose sugar and uracil as a base, while DNA uses deoxyribose sugar and thymine. The extra hydroxyl group on ribose makes RNA more reactive and less stable, which fits its typically shorter, versatile roles in the cell. DNA's deoxyribose and thymine contribute to greater stability, helping preserve genetic information over time. So, the statement that RNA contains ribose sugar and uracil, whereas DNA contains deoxyribose sugar and thymine, is the accurate contrast.

6. Which statement describes the G₀ phase?

- A. It is a period of rapid cell division.
- B. No further division; cells just perform their specialized functions.
- C. It is synonymous with S phase.
- D. It is where spindle fibers form.

G₀ is a state where cells have exited the division cycle and are not preparing to divide; they focus on specialized functions instead. Some cells stay in G₀ for long periods (or permanently, like many neurons), while others can re-enter the cycle if needed. This is why the statement that there is no further division and cells perform their specialized roles fits best. In contrast, rapid division happens during the mitotic processes after G₁, S phase is when DNA is replicated, and spindle fibers form during mitosis, not in G₀.

7. Which statement best describes gradualism in evolution?

- A. Large changes occur suddenly
- B. Small changes accumulate over time to produce large differences**
- C. Speciation without geographic isolation
- D. Endosymbiosis

Gradualism is the idea that evolution happens through small, incremental genetic changes that accumulate over long periods of time, gradually leading to bigger differences. That's exactly what the statement describes: small changes piling up over time to produce large differences. The other ideas describe different patterns or mechanisms—changes happening in big leaps (punctuated equilibrium), speciation that isn't tied to geographic separation, or a process like endosymbiosis that explains origin of cellular organelles rather than the tempo of evolutionary change.

8. Hemophilia is an X-linked recessive disorder. If a woman with hemophilia has a child with a man who does not have hemophilia, what is the chance the child will be a carrier?

- A. 0%
- B. 25%
- C. 50%**
- D. 100%

In X-linked recessive inheritance, the gene for hemophilia sits on the X chromosome. An affected woman has two copies of the mutated X (X^hX^h), while a man without the disease has one normal X and a Y (X^HY). Every child gets one X from the mother and either an X or a Y from the father. Daughters receive X from the father and X from the mother, so a daughter would be X^HX^h (one normal and one mutated X), which makes her a carrier. Sons receive Y from the father and X from the mother, so a son would be X^hY (mutated X and Y), which makes him affected, not a carrier. Since half the offspring are daughters (carriers) and half are sons (affected), the chance a random child will be a carrier is half.

9. During cellular respiration, which cellular structure is primarily associated with ATP production via the electron transport chain?

- A. Mitochondrial Matrix
- B. Cytosol
- C. Nucleus
- D. Inner Mitochondrial Membrane**

The key idea is where the electron transport chain actually operates and how ATP is made. The electron transport chain is a set of protein complexes embedded in the inner mitochondrial membrane. As electrons move through these complexes, protons are pumped from the matrix into the intermembrane space, creating a proton gradient across that membrane. ATP synthase sits in the same inner membrane and uses the flow of protons back into the matrix to drive the synthesis of ATP from ADP and P_i . Because the chain creates and uses this gradient across the inner membrane, that membrane is the structure most directly associated with ATP production via the electron transport chain. The mitochondrial matrix handles other steps like the TCA cycle and is where ATP ultimately ends up, the cytosol hosts glycolysis, and the nucleus isn't part of respiration.

10. In translation, the start codon AUG codes for which amino acid in the growing polypeptide chain?

A. Lysine

B. Methionine

C. Valine

D. Alanine

The start codon AUG specifies methionine as the first amino acid in the growing polypeptide. During initiation, the initiator tRNA carrying methionine binds to this codon at the P site of the ribosome, setting the reading frame for the rest of the protein. In bacteria, this methionine is often formylated (formylmethionine) at initiation, but the codon still corresponds to methionine. As elongation proceeds, other codons recruit different amino acids. Sometimes the initial methionine is removed after translation, but the codon itself codes for methionine.

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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://praxis5236.examzify.com>

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

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