NCEA LEVEL 3 BIOLOGY – PLANT AND ANIMAL RESPONSES (AS91602) PRACTICE EXAM (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.

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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!

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Questions

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1. Which term refers to the living factors affecting an organism?

A. Abiotic Factors

B. Biotic Factors

C. Environmental Factors

D. Physical Factors

2. What term describes the movement of an organism towards or away from a stimulus?

A. Taxis

B. Homeostasis

C. Phototropism

D. Thermotropism

3. What function do stomata serve in plant responses?

A. They generate energy from sunlight

B. They regulate water loss and gas exchange

C. They support the plant's root structure

D. They store nutrients for future use

4. Which hormone is primarily responsible for regulating the metabolic rate in animals?

A. Insulin

B. Testosterone

C. Thyroxine

D. Cortisol

5. How do animals use learned behaviors to improve survival?

A. They rely solely on instinctual behaviors

B. They develop strategies for finding food and avoiding predators

C. They avoid all forms of social interaction

D. They become less adaptable to environmental changes

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6. What is the mass movement of a population from one area to another called?

A. Migration

B. Dispersion

C. Foraging

D. Translocation

7. In what way can plants respond to herbivory?

A. By producing defensive chemicals

B. By growing taller

C. By creating more leaves

D. By losing their color

8. What is the primary benefit of using the sun for navigation?

A. It is constant and reliable.

B. It is easily adjustable.

C. It provides all necessary information.

D. It requires no tools.

9. Which term refers to the amount of random turning in response to the intensity of a stimulus?

A. Kinesis

B. Klinokinesis

C. Orthokinesis

D. Vernalisation

10. Which type of mimicry involves a harmless species that resembles a harmful or poisonous species?

A. Batesian mimicry

B. Mullerian mimicry

C. Aposematic mimicry

D. aggressive mimicry

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Answers

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

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Explanations

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1. Which term refers to the living factors affecting an organism?

A. Abiotic Factors

B. Biotic Factors

C. Environmental Factors

D. Physical Factors

The term that refers to the living factors affecting an organism is biotic factors. These include all the interactions organisms have with other living entities in their environment, such as competition, predation, symbiosis, and disease. Biotic factors play a crucial role in shaping the ecosystem and influencing the behaviors, adaptations, and survival of organisms within that ecosystem. In contrast, abiotic factors refer to the non-living components of an environment, such as temperature, water, soil, and light. Environmental factors can encompass both biotic and abiotic influences, while physical factors typically highlight non-living elements specifically. Understanding the distinction between these terms is essential for studying ecological relationships and the dynamics of ecosystems.

2. What term describes the movement of an organism towards or away from a stimulus?

A. Taxis

B. Homeostasis

C. Phototropism

D. Thermotropism

The movement of an organism towards or away from a stimulus is referred to as taxis. This term specifically describes directional movement in response to environmental cues, such as light, chemicals, or gravity. In the case of taxis, the organism may move closer to a positive stimulus (e.g., moving towards a source of light or food) or away from a negative stimulus (e.g., moving away from harmful chemicals). The other options represent different concepts. Homeostasis refers to the regulation of an organism's internal environment to maintain stable, constant conditions, rather than a directional movement. Phototropism and thermotropism are specific types of growth movements in plants: phototropism is growth in response to light, while thermotropism refers to movement or growth in response to temperature gradients. While these terms are related to responses to stimuli, they do not encompass the broader definition of organismal movement towards or away from stimuli as taxis does.

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3. What function do stomata serve in plant responses?

A. They generate energy from sunlight

B. They regulate water loss and gas exchange

C. They support the plant's root structure

D. They store nutrients for future use

Stomata are small openings found mainly on the surface of leaves, and their primary function is to regulate water loss and facilitate gas exchange. This process is critical for photosynthesis and respiration in plants. During photosynthesis, plants take in carbon dioxide from the atmosphere through the stomata, which is necessary for producing glucose and oxygen. Simultaneously, stomata also allow for the release of oxygen as a byproduct. Moreover, the stomatal openings help manage transpiration, the process through which water vapor is lost from the plant to the atmosphere. By controlling the size of these openings, the plant can minimize water loss during hot or dry conditions while still taking in the necessary gases for metabolic processes. This dual role helps plants maintain homeostasis, ensuring they can optimize photosynthesis while preventing excessive water loss. Other options mention functions unrelated to stomata, such as energy generation, structural support, and nutrient storage, which are performed by different plant structures like chloroplasts, roots, and specialized storage tissues. Therefore, the main function of stomata is accurately captured in the response that highlights their role in regulating water loss and gas exchange.

4. Which hormone is primarily responsible for regulating the metabolic rate in animals?

A. Insulin

B. Testosterone

C. Thyroxine

D. Cortisol

Thyroxine, a hormone produced by the thyroid gland, plays a crucial role in regulating the metabolic rate in animals. It influences various physiological processes, including how quickly the body utilizes energy, synthesizes proteins, and metabolizes carbohydrates and fats. Higher levels of thyroxine increase overall metabolic activity, leading to an increase in energy expenditure. This hormone essentially acts like a metabolic catalyst, enhancing the rate at which cells perform their functions. In contrast, insulin primarily regulates blood sugar levels, testosterone is involved in the development of male secondary sexual characteristics and may influence muscle mass and strength but does not directly impact metabolic rate, and cortisol, while associated with stress response and metabolism, primarily helps regulate energy during times of stress rather than being the primary regulator of metabolic rate. Thus, thyroxine is the most significant hormone among the options for its role in metabolic regulation.

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5. How do animals use learned behaviors to improve survival?

A. They rely solely on instinctual behaviors

B. They develop strategies for finding food and avoiding predators

C. They avoid all forms of social interaction

D. They become less adaptable to environmental changes

Animals use learned behaviors to enhance their survival by developing strategies that allow them to more effectively find food and avoid predators. Learning from experience enables animals to adapt their behaviors based on past encounters, improving their chances of success in securing resources and evading threats. For instance, a bird might learn the locations of food sources or recognize the presence of specific predators, allowing it to take proactive measures to avoid danger or to exploit food opportunities efficiently. In contrast, relying solely on instinctual behaviors limits an animal's ability to adapt to changing environments or new challenges it may face. Avoiding all forms of social interaction would hinder social learning opportunities, which can be crucial for survival in species that benefit from cooperation. Moreover, becoming less adaptable to environmental changes contradicts the very nature of learned behaviors, as these behaviors typically enhance adaptability and flexibility, enabling animals to thrive in varying circumstances.

6. What is the mass movement of a population from one area to another called?

A. Migration

B. Dispersion

C. Foraging

D. Translocation

The mass movement of a population from one area to another is referred to as migration. This term specifically describes the seasonal or periodic movement of animals from one habitat to another, often in search of food, mating opportunities, or suitable environmental conditions. Migration is a key behavior observed in many species and is influenced by factors such as climate, availability of resources, and reproductive cycles. In contrast, dispersion refers more to the spreading out of individuals within a population in a given area rather than a mass movement from one area to another. Foraging pertains to the behavior associated with searching for and exploiting food resources, while translocation generally describes the purposeful movement of organisms from one location to another, often for conservation purposes. Therefore, "migration" accurately captures the essence of a population's mass movement across distances between different regions.

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7. In what way can plants respond to herbivory?

A. By producing defensive chemicals

B. By growing taller

C. By creating more leaves

D. By losing their color

Plants have evolved a range of strategies to cope with herbivory, one of which involves the production of defensive chemicals. When a plant is damaged by herbivores, it can synthesize various secondary metabolites such as alkaloids, tannins, and terpenoids. These chemicals serve multiple purposes: they can deter herbivores from feeding by making the plant taste bad or be toxic, and they can attract natural predators or parasites of the herbivores, thus providing an indirect form of defense. This strategy not only helps to protect the plant from immediate damage but also contributes to its long-term survival and reproductive success. The ability to produce these defensive chemicals can be crucial, especially in environments where herbivory pressure is high, making it a significant adaptive response. Other responses, such as growing taller or creating more leaves, may help the plant capture more sunlight or improve its growth, but they do not directly address the threat posed by herbivory in the same effective manner as chemical defenses do. Losing color, while it may happen under stress, is not a direct response to herbivory and does not confer any protective advantage against herbivores.

8. What is the primary benefit of using the sun for navigation?

A. It is constant and reliable.

B. It is easily adjustable.

C. It provides all necessary information.

D. It requires no tools.

Using the sun for navigation relies on its consistent and predictable path across the sky, making it a reliable reference point during the day. The position of the sun changes throughout the day and is influenced by the Earth's rotation and its orbit around the sun, which allows navigators to determine directions based on its position relative to time. This reliability is especially useful in outdoor navigation where man-made markers may not be present. The other options do not capture the primary benefit as effectively. While it is true that adjustments can be made based on the sun's movement, the focus on reliability as a constant reference underpins why it is favored for navigation. The sun indeed provides information, such as time of day and directional cues, but not all necessary information in every context. Although some navigation methods can be tool-free, relying solely on the sun does require knowledge of solar patterns and possibly some means for tracking time to be effective, making tool-less navigation not the central advantage.

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9. Which term refers to the amount of random turning in response to the intensity of a stimulus?

A. Kinesis

B. Klinokinesis

C. Orthokinesis

D. Vernalisation

The correct term that refers to the amount of random turning in response to the intensity of a stimulus is klinokinesis. This phenomenon specifically describes how an organism changes its rate of turning as a reaction to the strength of a stimulus, such as light or moisture. An increase in stimulus intensity leads to more frequent and more pronounced turning, allowing the organism to adjust its movement in response to its environment. In contrast, kinesis generally refers to a non-directional movement that occurs in response to a stimulus, focusing more on the overall movement rate rather than directional turning. Orthokinesis describes changes in the speed of movement rather than turning patterns. Vernalisation, on the other hand, involves the process by which plants require exposure to a period of cold temperatures to induce flowering, which is distinct from movement responses.

10. Which type of mimicry involves a harmless species that resembles a harmful or poisonous species?

A. Batesian mimicry

B. Mullerian mimicry

C. Aposematic mimicry

D. aggressive mimicry

Batesian mimicry is the term that describes the scenario where a harmless species evolves to resemble a harmful or poisonous species. This resemblance provides a survival advantage to the harmless species, as potential predators may avoid them due to their similarity to the harmful model species. The harmless mimics gain protection from predation by duplicating the warning signals, colors, or patterns of the dangerous organisms. In the case of Mullerian mimicry, both the mimicking and the model species are harmful or poisonous. This form of mimicry reinforces the avoidance behavior in predators, as they learn to stay away from multiple species that share similar warning signals. Aposematic mimicry refers specifically to the use of bright coloration by poisonous or harmful species to warn predators of their toxicity. Both mimics and models in this scenario are harmful, thus it does not fit the description of a harmless species mimicking a harmful one. Aggressive mimicry occurs when a predator resembles a harmless or beneficial species to deceive its prey. This form of mimicry does not involve one harmless species mimicking another harmful species but rather focuses on deception for predation. In summary, Batesian mimicry is the most accurate description for the relationship between a harmless species and a harmful or poisonous species, as

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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:

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

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