ARIZONA STATE UNIVERSITY (ASU) BIO320 FUNDAMENTALS OF ECOLOGY EXAM 3 PRACTICE (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR THE FULL VERSION STUDY GUIDE

https://asu-bio320exam3.examzify.com

Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

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 16

SAMPLE

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.

SAMPLE

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!

SAMPLE

Questions

SAMPLE

1. According to the description of nutrient availability, what type of relationship is often observed with algal or terrestrial plant species diversity?

A. Positive

B. Negative

C. Linear

D. Cyclical

2. Which of the following is an example of a primary consumer?

A. Plants

B. Carnivorous animals

C. Herbivorous animals

D. Decomposers

3. What factor contributes to higher algal species richness in the presence of certain consumer species?

A. Overpredation

B. Stable environmental conditions

C. Intermediate predator densities

D. Fluctuating salinity levels

4. What does species evenness measure?

A. The total biomass of species in an ecosystem

B. The relative abundance of different species

C. The total number of individuals of a species

D. The genetic diversity within a population

5. Which organisms are involved in nitrogen fixation?

A. Only legumes

B. Cyanobacteria and certain soil bacteria

C. All bacteria in the soil

D. Only plants with roots

SAMPLE

6. How is evapotranspiration (ET) best defined?

A. Rate of rainwater absorbed by vegetation

B. Rate of water vapor lost from a system to the atmosphere

C. The total water input in a given area

D. Rate of water collected in soil

7. Which of the following is NOT a factor in climate determination?

A. Ocean currents

B. Elevation

C. Soil composition

D. Latitude

8. Which process is involved in the nitrogen cycle?

A. Photosynthesis

B. Transpiration

C. Nitrogen fixation

D. Cellular respiration

9. Gross Primary Productivity (GPP) is focused on which part of the plant?

A. The belowground component

B. The photosynthetic activities of roots

C. The aboveground parts of the plant such as leaves/stems

D. The entire plant system as a whole

10. Which term describes the similarity of relative abundance of each species in a community?

A. Population Density

B. Species Diversity

C. Species Evenness

D. Species Richness

SAMPLE

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. According to the description of nutrient availability, what type of relationship is often observed with algal or terrestrial plant species diversity?

A. Positive

B. Negative

C. Linear

D. Cyclical

The relationship between nutrient availability and algal or terrestrial plant species diversity is often characterized as negative. This means that as nutrient availability increases, species diversity tends to decrease. This phenomenon is connected to the idea of competitive exclusion, where in nutrient-rich environments, a few species may dominate, outcompeting others for resources. High nutrient concentrations can lead to conditions that favor fast-growing species, often resulting in lower overall diversity because those species can monopolize resources, leaving less space and fewer resources for slower-growing or more specialized species. This dynamic is frequently observed in various ecosystems, underscoring the importance of nutrient balance in maintaining biodiversity.

2. Which of the following is an example of a primary consumer?

A. Plants

B. Carnivorous animals

C. Herbivorous animals

D. Decomposers

A primary consumer is an organism that primarily feeds on producers, which are typically plants or other autotrophs. In ecological terms, primary consumers are often herbivores that consume plant material to obtain their energy and nutrients. Since herbivorous animals form a direct link in the food chain by feeding on plants, they play a crucial role in transferring energy from the primary producers to the higher trophic levels, such as carnivores. In this context, herbivorous animals exemplify primary consumers because their diet consists of plant matter. This interaction is fundamental to maintaining the flow of energy within an ecosystem, illustrating the connection between different trophic levels. Understanding the role of primary consumers is essential for studying ecological dynamics, food webs, and the overall balance in ecosystems.

3. What factor contributes to higher algal species richness in the presence of certain consumer species?

A. Overpredation

B. Stable environmental conditions

C. Intermediate predator densities

D. Fluctuating salinity levels

Higher algal species richness in the presence of certain consumer species can be attributed to intermediate predator densities. This concept is grounded in the "intermediate disturbance hypothesis," which suggests that moderate levels of predation or disturbance can foster biodiversity. In ecosystems, the presence of consumers at intermediate densities prevents any single algal species from dominating due to overgrazing. This allows multiple algal species to coexist, as those that are less palatable or grow more slowly can escape intense predation while still being present in the community. Thus, the diversity of algal species increases as these consumer species maintain a balance, enabling a variety of algal species to thrive.

SAMPLE

4. What does species evenness measure?

A. The total biomass of species in an ecosystem

B. The relative abundance of different species

C. The total number of individuals of a species

D. The genetic diversity within a population

Species evenness is a key component of biodiversity that specifically assesses the relative abundance of different species within a community. It provides insight into how evenly individuals are distributed among the various species present in an ecosystem. When species evenness is high, it indicates that the individuals are relatively equally distributed among the species, leading to a more balanced ecosystem. Conversely, low species evenness suggests that a few species dominate in terms of abundance, which can indicate ecological imbalances and reduce resilience against changes. In the context of biodiversity studies, measuring species evenness helps ecologists understand and compare the structure of different ecosystems, as well as the health and stability of those ecosystems. This measure is distinct from simply counting the total biomass of species, which relates more to the energy flow and productivity within an ecosystem, or from counting total individuals of a single species, which reflects density rather than diversity. Genetic diversity within a population is a different concept focused on the variation of genes within a species, rather than the community composition of multiple species. Thus, species evenness is clearly defined by the relative abundance of different species within a given area.

5. Which organisms are involved in nitrogen fixation?

A. Only legumes

B. Cyanobacteria and certain soil bacteria

C. All bacteria in the soil

D. Only plants with roots

The process of nitrogen fixation is primarily carried out by specific organisms that can convert atmospheric nitrogen gas (N) into forms usable by living organisms, such as ammonia (NH). This is a crucial ecological process because most organisms cannot use atmospheric nitrogen directly. Bacteria, particularly certain soil bacteria and cyanobacteria, are the key players in nitrogen fixation. Species such as Rhizobium, which form symbiotic relationships with the roots of leguminous plants, and free-living bacteria like Azotobacter and Clostridium, possess the enzymes necessary to break the strong triple bond in molecular nitrogen, thereby making it accessible in a form that plants can utilize. Cyanobacteria, which are photosynthetic bacteria found in aquatic environments and some soil, also have the capability of fixing nitrogen through specialized cells called heterocysts. In contrast, legumes, while important in nitrogen-fixing symbiosis, do not exclusively carry out the nitrogen fixation process on their own; they rely on the bacteria associated with them. Other choices include organisms that either do not have the ability to fix nitrogen or are too broad in their classification, as not all soil bacteria contribute to nitrogen fixation. Thus, the involvement of cyanobacteria and certain soil bacteria specifically makes this

SAMPLE

6. How is evapotranspiration (ET) best defined?

A. Rate of rainwater absorbed by vegetation

B. Rate of water vapor lost from a system to the atmosphere

C. The total water input in a given area

D. Rate of water collected in soil

Evapotranspiration (ET) is best defined as the rate of water vapor lost from a system to the atmosphere. This process encompasses both evaporation and transpiration. Evaporation refers to the conversion of liquid water into vapor from surfaces such as soil and water bodies, while transpiration involves the release of water vapor from the stomata of plants. By combining these two processes, ET provides a critical measure of the water cycle, indicating how much moisture is returned to the atmosphere from the land surface. Understanding this concept is essential in ecology and environmental science because it influences water availability for ecosystems, affects climate patterns, and plays a significant role in the hydrological cycle. Recognizing ET's significance helps in modeling environmental processes, managing water resources, and understanding plant-water relationships in different ecosystems.

7. Which of the following is NOT a factor in climate determination?

A. Ocean currents

B. Elevation

C. Soil composition

D. Latitude

Soil composition does not play a direct role in climate determination, whereas the other factors have significant impacts on climate. Ocean currents influence climate by transporting warm and cold water across various regions, affecting temperature and precipitation patterns. For instance, warm ocean currents can raise temperatures of coastal areas, while cold currents can cool them down. Elevation, or altitude, also significantly affects climate. As elevation increases, temperatures generally decrease due to the thinner atmosphere that leads to less heat retention, contributing to different climate zones depending on height above sea level. Latitude is a crucial determinant of climate since it dictates the angle and intensity of sunlight that reaches the Earth's surface. Areas closer to the equator receive more direct sunlight year-round, leading to warmer climates, while those at higher latitudes receive less, resulting in cooler temperatures. So, while soil composition is important for ecosystem functions and plant growth, it does not directly impact the climate itself, making it the correct answer in this context.

SAMPLE

8. Which process is involved in the nitrogen cycle?

A. Photosynthesis

B. Transpiration

C. Nitrogen fixation

D. Cellular respiration

The process involved in the nitrogen cycle that is correctly identified is nitrogen fixation. Nitrogen fixation is essential because it converts atmospheric nitrogen (N), which is not directly usable by most organisms, into ammonia (NH) or related compounds that plants can assimilate. This process is primarily carried out by certain bacteria and archaea, some of which live in symbiotic relationships with the roots of legumes, while others are free-living in the soil. Understanding nitrogen fixation is crucial for grasping how nitrogen, a vital nutrient for plant growth and development, enters the ecosystem. Without this process, the nitrogen available to living organisms would be limited, affecting food webs and ecosystem functioning. Other processes mentioned, while important in their own right, do not specifically pertain to the nitrogen cycle. For instance, photosynthesis is involved in the carbon cycle and is the process by which plants convert light energy into chemical energy. Transpiration refers to the movement of water within plants, playing a role in the water cycle rather than the nitrogen cycle. Cellular respiration, although critical for energy production in living organisms, primarily involves the consumption of oxygen and the release of carbon dioxide, rather than nitrogen.

9. Gross Primary Productivity (GPP) is focused on which part of the plant?

A. The belowground component

B. The photosynthetic activities of roots

C. The aboveground parts of the plant such as leaves/stems

D. The entire plant system as a whole

Gross Primary Productivity (GPP) refers to the total amount of organic matter or energy that is produced by photosynthesis in an ecosystem over a specific time period. It primarily focuses on the aboveground parts of the plant, especially leaves and stems, where most photosynthesis occurs. Leaves contain chlorophyll and are equipped to capture sunlight, converting carbon dioxide and water into glucose and oxygen through the photosynthetic process. This is the main contribution to GPP, as it represents the total energy captured from sunlight before any of it is used by the plant for respiration or lost as heat. Although roots play crucial roles in nutrient and water uptake, they are not directly involved in the photosynthetic process that contributes to GPP. Hence, GPP is not concerned with the belowground components or the photosynthetic activities of the roots, which are minimal. In conclusion, the focus on the aboveground parts aligns with our understanding of where the primary productivity initiated by photosynthesis is most prominent in plant systems.

SAMPLE

10. Which term describes the similarity of relative abundance of each species in a community?

A. Population Density

B. Species Diversity

C. Species Evenness

D. Species Richness

The concept that describes the similarity of relative abundance of each species in a community is known as species evenness. Species evenness provides insight into how evenly individuals are distributed among the different species within a given area. A community where all species have a similar number of individuals exhibits high evenness, indicating a balanced ecosystem. Conversely, if one or a few species dominate the community while others are present in very low numbers, the evenness is low. This term is often used in conjunction with species richness, which refers to the number of different species present in a community. While species richness focuses solely on the count of species, species evenness emphasizes the distribution of individuals among those species, providing a more nuanced understanding of ecological balance and diversity. Therefore, species evenness is a critical aspect of ecological studies and assessments of biodiversity in a community.

SAMPLE

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://asu-bio320exam3.examzify.com

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

SAMPLE