

OCR GENERAL CERTIFICATE OF SECONDARY EDUCATION (GCSE) BIOLOGY PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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

<https://ocr-gcse-biology.examzify.com>



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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 percentage of nitrogen is present in the atmosphere?**
 - A. 50%
 - B. 78%
 - C. 90%
 - D. 99%
- 2. In what form are proteins primarily stored in the body?**
 - A. Amino acids
 - B. Simple sugars
 - C. Fatty acids
 - D. Polymers
- 3. When does an embryo become a fetus?**
 - A. Upon reaching the second trimester
 - B. When muscle and skin cells form
 - C. When the heart starts beating
 - D. After fertilization
- 4. Why is it dangerous if body conditions vary significantly from normal levels?**
 - A. It can cause weight fluctuations
 - B. It can disrupt metabolic reactions
 - C. It can enhance physical performance
 - D. It can reduce energy consumption
- 5. Where in the plant does photosynthesis occur?**
 - A. In the roots
 - B. In the stem
 - C. In the leaves
 - D. Within the chloroplasts
- 6. Why are extremities cooler than the core of the body?**
 - A. They have a larger surface area compared to their size
 - B. They are made of less dense tissues
 - C. They contain less blood than the core
 - D. They are farther from the heart

7. What is one example of a stimulant?

- A. Heroin
- B. Alcohol
- C. Caffeine
- D. Marijuana

8. How does synovial fluid function in a joint?

- A. Protects the bone structure
- B. Lubricates the joint to reduce friction
- C. Facilitates bone growth
- D. Enhances muscle movement

9. What does biodiversity refer to?

- A. The variety of life and species
- B. The total number of organisms in an ecosystem
- C. The different types of habitats in an area
- D. The genetic differences within a single species

10. What challenges arise when treating brain problems?

- A. Neurons readily repair themselves
- B. Accessibility of the nervous system
- C. Simplicity of treatment methods
- D. All treatments are completely safe

Answers

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

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Explanations

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1. What percentage of nitrogen is present in the atmosphere?

- A. 50%
- B. 78%**
- C. 90%
- D. 99%

The atmosphere is composed of a mixture of gases, with nitrogen being the most prevalent. Approximately 78% of the atmosphere is nitrogen, which plays a crucial role in various biological and environmental processes. This percentage indicates that nitrogen is critical for life, as it is a fundamental component of amino acids and nucleic acids, which are essential for the structure and function of proteins and genetic material in organisms. In contrast, the other percentages listed do not reflect the accurate composition of the atmosphere. For example, while oxygen makes up about 21% of the atmosphere, the remaining percentages attributed to other gases, such as argon and carbon dioxide, are much smaller. Therefore, knowing that nitrogen constitutes about 78% of the atmosphere is vital for understanding ecological and biological systems.

2. In what form are proteins primarily stored in the body?

- A. Amino acids**
- B. Simple sugars
- C. Fatty acids
- D. Polymers

Proteins are primarily stored in the body in the form of amino acids. When proteins are consumed through diet, they are broken down during digestion into their constituent amino acids. These amino acids serve as the building blocks for new proteins, supporting various essential functions in the body, such as tissue repair, muscle building, and the production of enzymes and hormones. Amino acids can also be stored in the body and utilized as needed for protein synthesis or converted into other substances when required. This storage and reutilization process is crucial for maintaining the body's protein levels and overall metabolic functions. Other forms like simple sugars and fatty acids refer to carbohydrates and fats, respectively, which serve different roles in energy storage and metabolism, while polymers are larger molecules that do not accurately represent the primary form of protein storage in the body.

3. When does an embryo become a fetus?

- A. Upon reaching the second trimester
- B. When muscle and skin cells form**
- C. When the heart starts beating
- D. After fertilization

An embryo is classified as a fetus when significant developmental milestones are reached, particularly the formation of critical structures. The transition from embryo to fetus primarily occurs after the formation of physical and functional structures that distinguish the later stages of development. When muscle and skin cells begin to form, it signifies that the embryo has progressed into a more advanced stage of development, reflective of the development of organ systems and the general readiness for the subsequent growth phases associated with fetal development. The process of fetal development follows the embryonic stage, which encompasses the initial formations that occur after fertilization, including the development of the heart and early organ systems. While the heartbeat and certain cellular formations are crucial steps in overall development, it is primarily the formation of the muscle and skin cells that allows for the classification of the developing organism as a fetus. This change marks an important transition in the developmental timeline, highlighting the complexity and advancement of the organism.

4. Why is it dangerous if body conditions vary significantly from normal levels?

- A. It can cause weight fluctuations
- B. It can disrupt metabolic reactions**
- C. It can enhance physical performance
- D. It can reduce energy consumption

The correct answer highlights that significant variations from normal body conditions can disrupt metabolic reactions. The human body relies on a tightly regulated internal environment, known as homeostasis, to function effectively. This includes maintaining stable conditions such as temperature, pH, hydration levels, and concentrations of various biochemicals. When these conditions shift drastically, it can lead to a cascade of effects that negatively impact enzymes and metabolic pathways. Enzymes, which are crucial for catalyzing biochemical reactions, often have an optimal range for temperature and pH. Deviations can lead to reduced enzyme activity or denaturation, causing metabolic processes to become inefficient or halt altogether. This disruption can affect everything from energy production to the synthesis of essential molecules, ultimately resulting in compromised health and potentially life-threatening situations. The context of the other options includes factors like weight fluctuations being a potential consequence of metabolic disruption but not the primary reason it is considered dangerous. Enhancing physical performance is generally not a result of significant deviations from normal body conditions; rather, extreme conditions usually impair functioning. Reduced energy consumption may occur in specific situations but is not a typical result of significant fluctuations, particularly in a harmful manner. Thus, the most direct and critical danger lies in the disruption of metabolic reactions.

5. Where in the plant does photosynthesis occur?

- A. In the roots
- B. In the stem
- C. In the leaves
- D. Within the chloroplasts**

Photosynthesis occurs primarily within the chloroplasts, which are specialized organelles found in plant cells. Chloroplasts contain chlorophyll, the green pigment that captures sunlight, and are essential for converting light energy into chemical energy through the process of photosynthesis. Although leaves are the main sites of photosynthesis because they contain a high concentration of chloroplasts and are often optimized for light capture and gas exchange, chloroplasts themselves are the specific structures where the biochemical reactions of photosynthesis take place. Therefore, identifying chloroplasts as the location emphasizes the cellular level at which photosynthesis occurs, highlighting their crucial role in the overall process. While roots and stems play essential roles in a plant's growth and nutrient uptake, they do not contain the chlorophyll-rich structures required for photosynthesis. Thus, focusing on chloroplasts directly addresses the mechanism by which plants convert light energy into glucose and oxygen, the fundamental outputs of photosynthesis.

6. Why are extremities cooler than the core of the body?

- A. They have a larger surface area compared to their size
- B. They are made of less dense tissues
- C. They contain less blood than the core
- D. They are farther from the heart

The correct answer highlights the relationship between surface area and heat loss in the body. Extremities, such as hands and feet, have a larger surface area relative to their volume compared to the body's core. This increased surface area allows for more heat to be dissipated into the environment through processes such as radiation, conduction, and convection. As a result, these areas tend to be cooler than the core, which is insulated by body tissues and maintains a higher temperature to support vital organ functions. While the other options mention relevant factors, they do not fully account for the primary reason. For example, the density of tissues does not necessarily influence temperature directly, and while extremities might contain less blood at times, the core maintains a higher volume of warm blood to keep its temperature stable. The distance from the heart can affect blood flow, but the fundamental reason for the temperature difference remains the larger surface area of the extremities, which facilitates greater heat loss.

7. What is one example of a stimulant?

- A. Heroin
- B. Alcohol
- C. Caffeine
- D. Marijuana

Caffeine is a classic example of a stimulant, a substance that increases activity in the central nervous system. It enhances alertness, reduces fatigue, and can improve concentration and focus. Caffeine achieves these effects by blocking adenosine receptors in the brain, which normally promote sleep and relaxation. As a result, when you consume caffeine, such as in coffee or tea, you can experience increased energy levels and heightened mental acuity. In contrast, the other substances listed have different classifications. Heroin is classified as an opioid and is known for its depressant effects on the nervous system, leading to pain relief and a sense of euphoria, but also significant sedation. Alcohol is also a depressant that primarily inhibits central nervous system activity, resulting in relaxation and impaired function. Marijuana has complex effects but is often categorized as having both depressant and hallucinogenic properties, rather than being classified strictly as a stimulant.

8. How does synovial fluid function in a joint?

- A. Protects the bone structure
- B. Lubricates the joint to reduce friction
- C. Facilitates bone growth
- D. Enhances muscle movement

Synovial fluid plays a crucial role in joint health and function primarily by lubricating the joint. This lubrication minimizes friction between the articulating surfaces of the bones during movement, which is essential for smooth and pain-free motion. The fluid coats the cartilage surfaces, allowing them to glide against each other without causing wear or damage, thus preserving joint integrity over time. Without adequate lubrication from synovial fluid, joints would undergo increased friction, leading to damage of the cartilage and potentially resulting in conditions such as arthritis. This protective measure is particularly important during physical activities that involve repetitive movements. While synovial fluid contributes to overall joint health, it does not directly protect bone structure or facilitate bone growth. It also does not enhance muscle movement, as those functions are primarily related to muscle contraction and motor control.

9. What does biodiversity refer to?

- A. The variety of life and species
- B. The total number of organisms in an ecosystem
- C. The different types of habitats in an area
- D. The genetic differences within a single species

Biodiversity refers to the variety of life in all its forms, including the different species of plants, animals, fungi, and microorganisms in a given area. This encompasses not only the number of species present but also the complex ecosystems they inhabit and the relationships they have with one another and their environment. Option A captures this broad concept well, as it emphasizes the diversity of species themselves. Biodiversity is fundamentally about the richness and variety of life on Earth, which is vital for ecosystem resilience, providing essential services such as pollination, nutrient cycling, and habitat provision. The other options each highlight important aspects of ecological science but do not encompass the full definition of biodiversity. The total number of organisms in an ecosystem relates to abundance but does not address the variety of species. Different habitats contribute to the complexity of ecosystems but do not define biodiversity itself. Genetic differences within a single species pertain to genetic biodiversity, which is a part of the overall biodiversity concept but does not encompass all levels of biological diversity such as species and ecosystem diversity. Therefore, the correct answer effectively conveys the essence of biodiversity as the variety of life and species.

10. What challenges arise when treating brain problems?

- A. Neurons readily repair themselves
- B. Accessibility of the nervous system
- C. Simplicity of treatment methods
- D. All treatments are completely safe

The accessibility of the nervous system presents significant challenges when treating brain problems. The brain is encased in the skull, making it difficult for medical professionals to reach it directly with surgical interventions or therapeutic agents. Additionally, the blood-brain barrier acts as a protective shield, restricting the movement of many substances from the bloodstream into the brain tissue. This can limit the effectiveness of medications intended to treat neurological conditions, as many drugs cannot penetrate this barrier. In contrast, while some neurons exhibit some capacity for repair, the broader structure and function of the nervous system are complex, and repair mechanisms can be inadequate in many cases. Treatment methods for brain problems are often complicated and require careful planning and execution rather than being straightforward. Moreover, treatments for brain issues can carry varying degrees of risk and do not guarantee safety, further complicating decision-making in managing neurological conditions.

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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