

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

STUDY GUIDE



Prepare with structure. Pass with confidence



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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. During which process do undifferentiated cells divide to become new cells?**
 - A. Meiosis
 - B. Mitosis
 - C. Fission
 - D. Apoptosis
- 2. Where in the plant does photosynthesis occur?**
 - A. In the roots
 - B. In the stem
 - C. In the leaves
 - D. Within the chloroplasts
- 3. Which of the following best describes the role of blood?**
 - A. Remove waste products only
 - B. Transport nutrients and gases
 - C. Maintain body temperature
 - D. Digest food
- 4. What is the primary function of adrenaline in the body?**
 - A. Stimulating appetite
 - B. Preparing the body for 'fight or flight'
 - C. Regulating sleep patterns
 - D. Controlling body temperature
- 5. Why do leaves change color in autumn?**
 - A. Reduction in soil nutrients
 - B. Decrease in chlorophyll production
 - C. Increase in rainfall during autumn
 - D. Increased temperatures in autumn
- 6. What is the primary function of petals in flowering plants?**
 - A. To support the flower structure
 - B. To absorb water and nutrients
 - C. To attract pollinators such as bees
 - D. To store food for the plant

- 7. What change occurs when someone uses hallucinogens?**
- A. Improved decision-making
 - B. Altered perception of reality
 - C. Decreased appetite
 - D. Increased serotonin production
- 8. What potential uses do stem cells have in medicine?**
- A. Curing colds and flu
 - B. Treating brain damage and type 1 diabetes
 - C. Enhancing muscle growth
 - D. Improving skin aesthetics
- 9. Which of the following describes a voluntary response in humans?**
- A. A rapid muscle contraction
 - B. Speaking a word
 - C. The reflex action of blinking
 - D. An involuntary shiver
- 10. What is the first step of diffusion?**
- A. Particles move from lower to higher concentration
 - B. Particles move in a linear fashion
 - C. Particles move randomly from higher to lower concentration
 - D. Particles only move in specific directions

Answers

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

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Explanations

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1. During which process do undifferentiated cells divide to become new cells?

- A. Meiosis
- B. Mitosis**
- C. Fission
- D. Apoptosis

The process in which undifferentiated cells divide to create new cells is mitosis. Mitosis is a form of cellular division that results in two genetically identical daughter cells, each with the same number of chromosomes as the original cell. This process is vital for growth, development, and tissue repair in multicellular organisms. During mitosis, a single cell undergoes a series of phases, including prophase, metaphase, anaphase, and telophase, before ultimately splitting into two. This is particularly important in the context of stem cells, which are often undifferentiated and have the potential to develop into various cell types in the body. The other processes mentioned do not involve the division of undifferentiated cells in the same context. Meiosis, for example, is a specialized type of cell division that leads to the production of gametes (sperm and eggs), which have half the number of chromosomes. Fission is a type of asexual reproduction seen in some single-celled organisms, where the organism splits into two new organisms. Apoptosis refers to programmed cell death, which is a process that eliminates damaged or unnecessary cells, rather than generating new ones.

2. 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.

3. Which of the following best describes the role of blood?

- A. Remove waste products only
- B. Transport nutrients and gases**
- C. Maintain body temperature
- D. Digest food

The role of blood is best described by its function in transporting nutrients and gases throughout the body. Blood acts as a vital fluid that circulates through the cardiovascular system, delivering essential substances such as oxygen and glucose to cells, while also transporting carbon dioxide and other waste products away from those cells for elimination. This transport is crucial for maintaining cellular function and overall homeostasis in the body. While blood does help with waste removal, its primary role encompasses much more than that; it is fundamentally involved in the distribution of nutrients and gases, which directly support metabolic processes and energy production in cells. Furthermore, although blood plays a part in maintaining body temperature and is involved in digestion indirectly through the transport of nutrients absorbed from the digestive system, these functions are secondary to its main roles in transportation.

4. What is the primary function of adrenaline in the body?

- A. Stimulating appetite
- B. Preparing the body for 'fight or flight'**
- C. Regulating sleep patterns
- D. Controlling body temperature

The primary function of adrenaline, also known as epinephrine, is to prepare the body for 'fight or flight' responses. When faced with a stressful situation, the adrenal glands release adrenaline into the bloodstream, which triggers a series of physiological changes. This includes an increase in heart rate, dilation of the air passages, and heightened alertness, all of which help the body respond quickly to threats. Additionally, adrenaline boosts the availability of energy sources by increasing blood sugar levels and enhancing muscle strength and performance. This state of heightened arousal and readiness is crucial for survival in dangerous situations, allowing individuals to either confront a threat or escape from it effectively. The other options represent functions that are not primarily associated with adrenaline. For instance, while appetite regulation is influenced by other hormones, adrenaline is not directly responsible for stimulating appetite. Similarly, sleep patterns are primarily controlled by hormones like melatonin, and body temperature regulation is managed by different mechanisms involving the hypothalamus, rather than being a direct action of adrenaline.

5. Why do leaves change color in autumn?

- A. Reduction in soil nutrients
- B. Decrease in chlorophyll production**
- C. Increase in rainfall during autumn
- D. Increased temperatures in autumn

Leaves change color in autumn primarily due to a decrease in chlorophyll production. During the growing season, chlorophyll, the pigment responsible for the green color in leaves, is abundant as it plays a crucial role in photosynthesis, allowing plants to absorb sunlight and convert it into energy. As daylight hours shorten and temperatures cool in autumn, chlorophyll breaks down and is not replaced. As the chlorophyll fades, other pigments that were present in the leaves all along become more visible. These pigments include carotenoids, which produce yellow and orange hues, and anthocyanins, which can create red and purple shades. This pigment shift illustrates the process of senescence in leaves, preparing trees for winter when they conserve resources by shedding leaves that can no longer efficiently carry out photosynthesis due to limited sunlight and water availability. The other options do not directly contribute to the color change process. Soil nutrient reduction may impact leaf health in general, but it is not a primary factor for color change. Rainfall increases and temperature rises generally occur in spring and summer and do not play a significant role in the autumnal color transformation context.

6. What is the primary function of petals in flowering plants?

- A. To support the flower structure
- B. To absorb water and nutrients
- C. To attract pollinators such as bees**
- D. To store food for the plant

Petals play a crucial role in the reproductive process of flowering plants by primarily attracting pollinators, such as bees, butterflies, and other insects. Their vibrant colors and often pleasant scents are designed to catch the attention of these creatures, which are essential for the process of pollination. When pollinators visit the flower to collect nectar, they inadvertently pick up pollen and transfer it from one flower to another, facilitating fertilization and the production of seeds. The other functions mentioned in the choices are associated with different parts of the plant. The supportive structures of the flower are typically provided by sepals and modified stems. The plant's ability to absorb water and nutrients predominantly occurs through roots, while the storage of food is usually managed by specialized tissues in the leaves or roots, not the petals. Thus, the primary function of petals is, indeed, to attract pollinators, ensuring the continuation of the species through successful reproduction.

7. What change occurs when someone uses hallucinogens?

- A. Improved decision-making
- B. Altered perception of reality**
- C. Decreased appetite
- D. Increased serotonin production

When someone uses hallucinogens, altered perception of reality is a significant change that occurs. Hallucinogens affect the brain's neurotransmitter systems, especially those involved with perception and sensory information. As their name suggests, these substances can cause users to experience distortions of reality, including visual and auditory hallucinations, changes in thought processes, and an altered sense of time and space. This can lead to a profound experience of the environment that is not consistent with objective reality. The other options, while they may relate to different effects of various substances, do not accurately describe the primary impact of hallucinogens. Improved decision-making is generally not associated with their use, as hallucinogens often impair cognitive functions and judgement. Decreased appetite may occur in some contexts but is not a hallmark of hallucinogen use. Increased serotonin production is not typically a direct result of hallucinogens; rather, they often mimic serotonin or interfere with its normal functioning in the brain.

8. What potential uses do stem cells have in medicine?

- A. Curing colds and flu
- B. Treating brain damage and type 1 diabetes**
- C. Enhancing muscle growth
- D. Improving skin aesthetics

Stem cells have the unique ability to differentiate into various cell types, which is what makes them particularly valuable in medical applications. One of the most promising uses is in treating conditions like brain damage and type 1 diabetes. In brain damage, stem cells can potentially help repair or regenerate damaged tissue, aiding in recovery and restoring function. For type 1 diabetes, researchers are exploring how stem cells can be used to generate insulin-producing beta cells in the pancreas, which could restore normal blood sugar levels and reduce the need for insulin injections. The other options do not align with the established therapeutic potential of stem cells. While improving skin aesthetics may encompass some aspects of tissue regeneration, it does not utilize the fundamental regenerative capabilities of stem cells for significant medical conditions. Similarly, curing common illnesses like colds and flu is not within the scope of stem cell therapy, as these are viral infections that typically resolve without the need for such interventions. Enhancing muscle growth is more related to exercise and nutritional factors rather than stem cell applications. Thus, the use of stem cells in treating serious medical conditions like brain damage and type 1 diabetes represents a crucial area of ongoing research and potential development in regenerative medicine.

9. Which of the following describes a voluntary response in humans?

- A. A rapid muscle contraction
- B. Speaking a word**
- C. The reflex action of blinking
- D. An involuntary shiver

The choice of speaking a word accurately describes a voluntary response in humans. A voluntary response is one that is consciously controlled and involves deliberate decision-making. When you speak, you are actively engaging your brain to choose the words and control the movements of your speech organs, such as the tongue, lips, and vocal cords. This process requires cognitive awareness and input, making it a distinctly voluntary action. In contrast, the other options involve reflexive or involuntary actions. A rapid muscle contraction may relate to reflexes or automatic responses, while the reflex action of blinking happens without conscious thought, triggered by stimuli like bright lights or objects approaching the eye. Similarly, an involuntary shiver is a body response to cold, which occurs automatically without conscious control. Thus, speaking a word stands out as the only option that requires intention and conscious effort, clearly fitting the definition of a voluntary response.

10. What is the first step of diffusion?

- A. Particles move from lower to higher concentration
- B. Particles move in a linear fashion
- C. Particles move randomly from higher to lower concentration
- D. Particles only move in specific directions

The first step of diffusion involves particles moving randomly from areas of higher concentration to areas of lower concentration. This process occurs as a result of the natural kinetic energy of particles, causing them to move and collide with one another. When there is a concentration gradient, where one area has a higher concentration of particles than another, the particles will spontaneously spread out to achieve equilibrium. This movement continues until the concentration of particles is uniform throughout the space. Understanding this fundamental concept is essential, as it explains how substances such as gases and nutrients move across cell membranes and within various environments. The other choices do not accurately represent the process of diffusion. Movement from lower to higher concentration contradicts the natural tendency of particles to spread out. Additionally, indicating that particles move in a linear fashion or only in specific directions does not capture the random nature of their motion.

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

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

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