

Assessment and Qualifications Alliance (AQA) GCSE Biology Paper 1 Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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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

- 1. Why is the upper epidermis of a leaf transparent?**
 - A. To prevent water loss**
 - B. To allow light to reach the palisade layer**
 - C. To protect against UV rays**
 - D. To aid in gas exchange**
- 2. What is the role of lactic acid accumulation in muscle fatigue?**
 - A. To improve muscle contraction**
 - B. To signal the need for rest**
 - C. To enhance muscle growth**
 - D. To facilitate oxygen delivery**
- 3. In gas exchange, what leaves the bloodstream and enters the alveoli?**
 - A. Oxygen**
 - B. Carbon dioxide**
 - C. Nitrogen**
 - D. Water vapor**
- 4. During the Biuret Test, what indicates the presence of proteins?**
 - A. The solution turns blue**
 - B. The solution changes from blue to pink or purple**
 - C. The solution remains clear**
 - D. The solution changes to yellow**
- 5. Why might someone need an artificial heart valve?**
 - A. To increase blood pressure**
 - B. To replace damaged or leaky natural valves**
 - C. To improve oxygen storage**
 - D. To support blood cell production**

- 6. What happens to blood pressure as blood moves from arteries to veins?**
- A. It remains the same**
 - B. It increases significantly**
 - C. It decreases**
 - D. It fluctuates constantly**
- 7. What role does bile play in fat digestion?**
- A. Increases fat size for digestion**
 - B. Breaks down proteins into amino acids**
 - C. Emulsifies fats into smaller pieces**
 - D. Neutralises bile acids**
- 8. What is Rose Black Spot primarily responsible for in rose plants?**
- A. It strengthens the plant's growth**
 - B. It causes purple/black spots on leaves**
 - C. It enhances photosynthesis efficiency**
 - D. It attracts beneficial insects for pollination**
- 9. How does the body deal with high levels of lactic acid?**
- A. It stores it in the muscles**
 - B. It converts it to glucose in the liver**
 - C. It expels it through urine**
 - D. It oxidizes it for energy**
- 10. What is an inhibition zone in the context of antibiotic testing?**
- A. An area where bacteria thrive**
 - B. A clear area where bacteria have died due to antibiotic effects**
 - C. An area of increased bacterial growth**
 - D. A zone where bacterial replication is unaffected**

Answers

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

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Explanations

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1. Why is the upper epidermis of a leaf transparent?

- A. To prevent water loss
- B. To allow light to reach the palisade layer**
- C. To protect against UV rays
- D. To aid in gas exchange

The upper epidermis of a leaf is transparent primarily to allow light to reach the palisade layer. This layer is rich in chloroplasts, where photosynthesis occurs, making it vital for the plant's ability to convert light energy into chemical energy. The transparency of the upper epidermis ensures that maximum light penetration is achieved, optimizing the photosynthetic process. While the functions of preventing water loss, offering protection against UV rays, and aiding in gas exchange are important for overall leaf function and plant health, they do not relate directly to the transparency of the upper epidermis. The primary role of this transparency is to facilitate light absorption in the tissues beneath it, highlighting its crucial role in the leaf's ability to produce food through photosynthesis.

2. What is the role of lactic acid accumulation in muscle fatigue?

- A. To improve muscle contraction
- B. To signal the need for rest**
- C. To enhance muscle growth
- D. To facilitate oxygen delivery

Lactic acid accumulation in muscles during intense exercise plays a crucial role in signaling the need for rest. When you engage in strenuous physical activity, your muscles require energy, which they typically derive from aerobic respiration. However, if the oxygen supply is insufficient to meet the energy demands, anaerobic respiration kicks in, resulting in the production of lactic acid. As lactic acid builds up, it contributes to the sensation of fatigue in the muscles. This accumulation serves as a biological signal that indicates to the body that it's time to stop the exertion or slow down the activity to allow for recovery. While it does indicate that muscles are under stress, it also provides a cue for the body to restore homeostasis, clear the lactic acid, and replenish oxygen levels. This is why the correct choice emphasizes the role of lactic acid in signaling the need for rest during periods of high physical strain.

3. In gas exchange, what leaves the bloodstream and enters the alveoli?

- A. Oxygen**
- B. Carbon dioxide**
- C. Nitrogen**
- D. Water vapor**

In the process of gas exchange in the lungs, carbon dioxide leaves the bloodstream and enters the alveoli. This occurs during the process of respiration. Blood that flows through the pulmonary capillaries has a higher concentration of carbon dioxide compared to the air in the alveoli, allowing for diffusion. As a result, carbon dioxide moves from the blood, where there is a higher partial pressure, to the alveoli, where the partial pressure of carbon dioxide is lower, thus facilitating its removal from the body. Oxygen is absorbed from the alveoli into the bloodstream during this process, while nitrogen is generally inert and does not participate in gas exchange. Water vapor is present in the air we breathe but is not a primary focus in the exchange of gases involved in respiration. Therefore, the correct choice is that carbon dioxide leaves the bloodstream and enters the alveoli during gas exchange.

4. During the Biuret Test, what indicates the presence of proteins?

- A. The solution turns blue**
- B. The solution changes from blue to pink or purple**
- C. The solution remains clear**
- D. The solution changes to yellow**

In the Biuret Test, the presence of proteins is indicated by a color change in the solution. When a protein is present, the solution changes color from blue to pink or purple due to the reaction between the copper ions in the Biuret reagent and the peptide bonds present in the proteins. The copper ions form a complex with the proteins, resulting in this distinct color change, which is a positive indicator of proteins in the sample. This color transformation is specific; a solution that remains blue suggests a lack of peptide bonds, indicating no proteins are present. Similarly, if the solution changes to yellow, this is not characteristic of protein presence and typically indicates the presence of other substances, such as reducing sugars or does not relate to proteins at all. Thus, the transition to pink or purple distinctly signals the presence of proteins in the tested solution.

5. Why might someone need an artificial heart valve?

- A. To increase blood pressure
- B. To replace damaged or leaky natural valves**
- C. To improve oxygen storage
- D. To support blood cell production

An artificial heart valve is used primarily to replace damaged or leaky natural valves. The heart has four valves that play a crucial role in ensuring that blood flows in the correct direction. When these valves become diseased, they can either fail to open fully (stenosis) or fail to close completely (regurgitation), leading to compromised blood flow and overall heart function. Replacing the damaged valve with an artificial one helps restore normal blood flow and alleviate symptoms associated with valve dysfunction, such as fatigue, shortness of breath, and heart palpitations. The artificial valve can be made from synthetic materials or biologically derived tissues, and it performs the essential function of a natural valve by allowing blood to flow through while preventing backflow, ultimately improving the efficiency of the heart. The other options do not accurately reflect the primary purpose of an artificial heart valve. Increasing blood pressure or improving oxygen storage pertains to different aspects of cardiovascular health, while supporting blood cell production is related more to bone marrow and overall blood health, rather than the function of heart valves.

6. What happens to blood pressure as blood moves from arteries to veins?

- A. It remains the same
- B. It increases significantly
- C. It decreases**
- D. It fluctuates constantly

As blood moves from arteries to veins, blood pressure decreases. This change occurs primarily due to the structure and function of the blood vessels. Arteries, which carry blood away from the heart, have thick, elastic walls that withstand and maintain high pressure generated by the heart's pumping action. As blood travels through the smaller and more numerous arterioles and capillaries, resistance increases due to the reduced diameter of these vessels, which leads to a drop in pressure. In the capillaries, where nutrient and gas exchange occurs, blood pressure decreases even further as blood flows into the venous system. Veins have thinner walls and are less muscular than arteries, which means they do not require high pressure to transport blood back to the heart. The lower pressure in veins is sufficient for this function, as the blood is assisted by factors such as muscle contraction and the presence of valves that prevent backflow. Thus, the overall trend is a continual decrease in blood pressure from arteries to veins, reflecting the differences in vessel structure and the physiological roles they play in the circulatory system.

7. What role does bile play in fat digestion?

- A. Increases fat size for digestion**
- B. Breaks down proteins into amino acids**
- C. Emulsifies fats into smaller pieces**
- D. Neutralises bile acids**

Bile plays a crucial role in the digestion of fats by emulsifying them into smaller droplets. This emulsification process significantly increases the surface area of the fat, allowing digestive enzymes, particularly lipases, to work more effectively. By breaking down the fats into smaller pieces, bile makes it easier for the enzymes to access and digest the fats, facilitating their absorption in the intestines. The correct answer highlights the specific function of bile in the digestion process, focusing on its role in fat emulsification, which is essential for efficient fat absorption. In contrast, the other options do not accurately represent the role of bile. They either relate to different processes or suggest incorrect functions that do not pertain to bile's established role in fat digestion.

8. What is Rose Black Spot primarily responsible for in rose plants?

- A. It strengthens the plant's growth**
- B. It causes purple/black spots on leaves**
- C. It enhances photosynthesis efficiency**
- D. It attracts beneficial insects for pollination**

Rose Black Spot is a fungal disease that affects rose plants, primarily characterized by the appearance of purple or black spots on the leaves. This condition is caused by the fungus *Diplocarpon rosae*, which can significantly hinder the plant's health. When infected, the leaves may also turn yellow and eventually fall off, leading to reduced photosynthesis as fewer leaves are available for this vital process. This damage can weaken the overall plant vigor and flower production. The spots themselves are a clear indicator of the infection, making this answer the most accurate. In contrast, the other choices do not reflect the impact of Rose Black Spot; the disease does not strengthen growth, enhance photosynthesis, or attract beneficial insects for pollination. Instead, it poses a threat to the plant's health and aesthetic appeal.

9. How does the body deal with high levels of lactic acid?

- A. It stores it in the muscles
- B. It converts it to glucose in the liver**
- C. It expels it through urine
- D. It oxidizes it for energy

When the body experiences high levels of lactic acid, particularly after intense exercise, it primarily converts lactic acid back into glucose in the liver through a process known as gluconeogenesis. This conversion is crucial because lactic acid can accumulate in the muscles and blood, leading to muscle fatigue and discomfort. The liver takes up the lactic acid from the bloodstream and transforms it back into glucose, allowing it to be either stored as glycogen or re-released into the bloodstream for energy use by other tissues. This mechanism helps to clear lactic acid from the body and restore normal biochemical function after intense activity. In contrast, storing lactic acid in muscles or expelling it through urine are not effective ways to manage elevated levels since they wouldn't properly address the metabolic needs following strenuous exercise. Additionally, while it is true that the body does oxidize lactic acid for energy during lower intensity or prolonged activities, this is less of a direct response to high lactic acid levels compared to converting it into glucose, which is a more significant and controllable pathway for managing lactic acid buildup.

10. What is an inhibition zone in the context of antibiotic testing?

- A. An area where bacteria thrive
- B. A clear area where bacteria have died due to antibiotic effects**
- C. An area of increased bacterial growth
- D. A zone where bacterial replication is unaffected

An inhibition zone refers to a clear area surrounding an antibiotic disc on an agar plate where bacteria cannot grow due to the effects of the antibiotic. When an antibiotic is applied to the bacteria, it acts to inhibit their growth or kill them, creating a space devoid of bacterial colonies. This zone reflects the effectiveness of the antibiotic; a larger inhibition zone indicates a more potent antibiotic against the tested bacteria. In terms of context, while bacteria may thrive in other areas on the agar plate, the inhibition zone specifically represents the lack of bacterial growth in response to the antibiotic. Therefore, the correct answer highlights the result of antibacterial activity, distinguishing it from any zones of increased bacterial growth or regions where replication remains unaffected. Understanding this concept is crucial for evaluating the effectiveness of antibiotics in killing or inhibiting bacterial strains.

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://aqa-gcse-biologypaper1.examzify.com>

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