

ASSESSMENT AND QUALIFICATIONS ALLIANCE (AQA) GCSE BIOLOGY PAPER 1 PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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 occurs when blood reaches body cells?**
 - A. Oxygen is absorbed by red blood cells
 - B. Carbon dioxide diffuses into red blood cells
 - C. Oxygen is released from the red blood cells
 - D. Blood is filtered by the lungs
- 2. Which are the three types of blood vessels?**
 - A. Veins, arteries, and capillaries
 - B. Veins, arteries, and alveoli
 - C. Nerves, arteries, and veins
 - D. Capillaries, veins, and glands
- 3. What does the term 'optimum pH' refer to in enzymes?**
 - A. The pH level at which enzymes are least active
 - B. The pH level that inhibits enzyme activity
 - C. The ideal pH level for maximum enzyme activity
 - D. A fixed pH level for all enzymes
- 4. What role does life situation play in health?**
 - A. It only affects mental well-being
 - B. It has no impact on health
 - C. It can influence access to health resources
 - D. It determines genetic predisposition to disease
- 5. What is the primary action of T-lymphocytes in the immune response?**
 - A. They produce antibodies
 - B. They release histamines
 - C. They produce antitoxins
 - D. They recognize and destroy infected cells
- 6. Which feature of alveoli is critical for efficient gas exchange?**
 - A. Thick walls
 - B. Small surface area
 - C. Extensive surface area
 - D. Poor vascularization

7. What is a common symptom of plant diseases?

- A. Healthy leaf growth
- B. Abnormal growths such as lumps
- C. Increased flower production
- D. Bigger fruit size

8. What is a primary function of embryonic stem cells?

- A. Producing energy for cells
- B. Replacing faulty cells in sick people
- C. Transporting nutrients
- D. Fighting infections

9. What is a benefit of using paraffin heaters in greenhouses?

- A. They increase temperature only
- B. They increase carbon dioxide concentration
- C. They reduce water loss from the plants
- D. They enhance light penetration

10. What type of radiation exposure is known to increase cancer risk?

- A. Ultraviolet radiation
- B. Non-ionizing radiation
- C. Ionizing radiation
- D. Infrared radiation

Answers

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

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Explanations

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1. What occurs when blood reaches body cells?

- A. Oxygen is absorbed by red blood cells
- B. Carbon dioxide diffuses into red blood cells
- C. Oxygen is released from the red blood cells**
- D. Blood is filtered by the lungs

When blood reaches body cells, oxygen is released from the red blood cells. This process is a key part of cellular respiration, where body tissues utilize oxygen to produce energy. Red blood cells are equipped with hemoglobin, a protein that binds oxygen in the lungs and carries it through the bloodstream to various cells throughout the body. As blood flows into capillaries surrounding the body cells, the higher concentration of oxygen in the red blood cells drives diffusion, allowing oxygen to exit the red blood cells and enter the body cells where it is needed. Understanding the role of red blood cells in transporting oxygen is fundamental to grasping how the body functions in supplying energy for cellular activities. While carbon dioxide is indeed a byproduct of cellular respiration and does diffuse into red blood cells for transport back to the lungs, the primary function occurring as blood reaches body cells is the release of oxygen. Blood filtering by the lungs pertains to gas exchange in the respiratory system, and oxygen absorption by red blood cells occurs in the lungs, not at the level of body cells.

2. Which are the three types of blood vessels?

- A. Veins, arteries, and capillaries**
- B. Veins, arteries, and alveoli
- C. Nerves, arteries, and veins
- D. Capillaries, veins, and glands

The three types of blood vessels in the circulatory system are veins, arteries, and capillaries, each serving distinct functions critical for maintaining health and homeostasis. Arteries carry oxygen-rich blood away from the heart to the tissues of the body, typically characterized by thick, muscular walls that can withstand the high pressure of blood being pumped from the heart. Veins, on the other hand, are responsible for returning deoxygenated blood back to the heart. Their walls are generally thinner and have valves to prevent the backflow of blood, ensuring it moves in one direction against gravity. Capillaries are the smallest blood vessels and form a network that connects arteries and veins. They facilitate the exchange of oxygen, carbon dioxide, nutrients, and waste products between blood and the cells in tissues due to their thin walls. This classification, focusing on the structure and function of these vessels, highlights why A is the correct answer and underscores the essential roles these blood vessels play in the circulatory system. Other answer choices contain terms that are not types of blood vessels and therefore are not relevant to this question.

3. What does the term 'optimum pH' refer to in enzymes?

- A. The pH level at which enzymes are least active
- B. The pH level that inhibits enzyme activity
- C. The ideal pH level for maximum enzyme activity**
- D. A fixed pH level for all enzymes

The term 'optimum pH' refers specifically to the ideal pH level at which enzymes exhibit their maximum activity. Each enzyme has a unique structure, and its catalytic efficiency is greatly influenced by the surrounding pH level. At this optimum pH, the enzyme's active site is in the best condition for substrate binding and reaction, resulting in the highest rate of product formation. Deviations from this optimum pH—whether more acidic or more alkaline—can lead to changes in the enzyme's shape and charge, impacting its ability to catalyze reactions effectively. Therefore, understanding this concept is crucial in biochemistry and various applications, including enzyme kinetics and industrial enzyme use.

4. What role does life situation play in health?

- A. It only affects mental well-being
- B. It has no impact on health
- C. It can influence access to health resources**
- D. It determines genetic predisposition to disease

Life situation plays a significant role in health, particularly through its influence on access to health resources. A person's life situation encompasses various factors, such as socioeconomic status, living environment, education, and social support networks. These factors can greatly affect an individual's ability to access healthcare services, nutritious food, safe living conditions, and health education. For example, someone from a lower socioeconomic background may have limited access to quality healthcare facilities or may face barriers like transportation issues or lack of insurance, which can lead to poorer health outcomes. Similarly, those living in a community with abundant health resources can better manage their health and receive preventive care. This option highlights the broader context in which health exists, emphasizing that health is not solely determined by individual choices or biological factors, but is also greatly influenced by societal structures and available resources.

5. What is the primary action of T-lymphocytes in the immune response?

- A. They produce antibodies
- B. They release histamines
- C. They produce antitoxins**
- D. They recognize and destroy infected cells

The primary action of T-lymphocytes in the immune response is to recognize and destroy infected cells. T-lymphocytes, or T-cells, play a critical role in cell-mediated immunity. They can directly target and eliminate cells that have been infected by pathogens, such as viruses. This function is vital for controlling infections and preventing the spread of pathogens within the body. T-cells are equipped with receptors that allow them to identify infected cells displaying specific antigens on their surface. Once they recognize these antigens, they bind to the infected cells and can initiate a series of actions that lead to the destruction of the infected cells. This process is essential for maintaining the body's health and preventing disease. The other options involve different functions primarily associated with other components of the immune system. Antibodies are produced by B-lymphocytes, histamines are released during allergic responses and inflammation, and antitoxins can be produced by plasma cells which are derived from B-cells. Thus, option D accurately captures the primary role of T-lymphocytes in the immune response.

6. Which feature of alveoli is critical for efficient gas exchange?

- A. Thick walls
- B. Small surface area
- C. Extensive surface area**
- D. Poor vascularization

The extensive surface area of alveoli is critical for efficient gas exchange because it maximizes the amount of oxygen that can diffuse into the blood and carbon dioxide that can be removed from it. Alveoli are tiny, balloon-like structures in the lungs that significantly increase the surface area available for gas exchange. This large surface area allows for a greater number of gas molecules to be exchanged simultaneously, which is essential for meeting the oxygen demands of the body and expelling carbon dioxide efficiently. Additionally, the thin walls of the alveoli (one cell thick) facilitate rapid diffusion of gases due to a short distance for gas molecules to travel. The extensive surface area, combined with this thin barrier, creates an ideal environment for gas exchange, ensuring that the respiratory system can function effectively.

7. What is a common symptom of plant diseases?

- A. Healthy leaf growth
- B. Abnormal growths such as lumps**
- C. Increased flower production
- D. Bigger fruit size

A common symptom of plant diseases is indeed the presence of abnormal growths such as lumps. These abnormal growths, which can manifest as galls, swelling, or tumors on plant tissues, often arise due to pathogenic organisms like bacteria, fungi, or viruses affecting the plant. These pathogens can disrupt normal cellular development and growth patterns, leading to these irregular formations. Healthy leaf growth, increased flower production, and bigger fruit size are typically indicators of a plant's good health and can be part of the normal growth process. However, when a plant is diseased, these positive growth indicators are usually diminished or affected negatively, making the presence of abnormal growths a significant symptom of underlying issues. Recognizing these abnormal growths enables gardeners and farmers to identify and respond to plant health issues promptly.

8. What is a primary function of embryonic stem cells?

- A. Producing energy for cells
- B. Replacing faulty cells in sick people**
- C. Transporting nutrients
- D. Fighting infections

Embryonic stem cells have a primary function in the capacity to differentiate into various cell types, which allows them to potentially replace faulty or damaged cells in sick individuals. This characteristic is crucial in regenerative medicine and therapeutic applications, as these cells can develop into any type of tissue needed for treatment, such as nerve cells, muscle cells, or pancreatic cells that produce insulin. This ability to transform into specialized cells underscores their significance in addressing a variety of diseases and injuries. The other options mention functions that stem cells do not possess. For example, while cells do require energy, the production of energy is a role typically associated with mitochondria and not a specific function of embryonic stem cells. Similarly, the transportation of nutrients falls under the role of blood cells and the circulatory system, and fighting infections is primarily carried out by the immune system and its components, not by stem cells. Thus, the unique regenerative capability of embryonic stem cells to replace defective cells is the reason option B is the correct choice.

9. What is a benefit of using paraffin heaters in greenhouses?

- A. They increase temperature only
- B. They increase carbon dioxide concentration**
- C. They reduce water loss from the plants
- D. They enhance light penetration

Using paraffin heaters in greenhouses provides the significant benefit of increasing carbon dioxide concentration within the environment. When paraffin is burned, it produces carbon dioxide as a byproduct. This increase in carbon dioxide concentration is beneficial for plants because carbon dioxide is a key ingredient in photosynthesis, the process by which plants convert light energy into chemical energy, producing glucose and oxygen. Higher levels of carbon dioxide can lead to improved plant growth and yield, as plants become more efficient in photosynthesis when more of this gas is available. In contrast, while increasing temperature may also be a desirable effect of heating, the primary unique advantage of paraffin heaters is their contribution to carbon dioxide concentration. The other options—reducing water loss from plants and enhancing light penetration—do not directly relate to the operation of paraffin heaters and their primary function, which is to provide heat and an increase in carbon dioxide levels.

10. What type of radiation exposure is known to increase cancer risk?

- A. Ultraviolet radiation
- B. Non-ionizing radiation
- C. Ionizing radiation**
- D. Infrared radiation

Ionizing radiation is known to increase cancer risk due to its ability to remove tightly bound electrons from atoms, creating charged particles called ions. This process can lead to damage in DNA and other critical cellular components, which can result in mutations. Over time, these mutations can accumulate and disrupt normal cellular functions, potentially leading to uncontrolled cell growth and cancer. In contrast, while ultraviolet radiation is considered a risk factor for skin cancer, it is a type of ionizing radiation at certain wavelengths and is not classified in the same manner as other forms of ionizing radiation like X-rays or gamma rays, which have a more direct impact on cellular structures. Non-ionizing radiation, such as radio waves and microwaves, typically does not have enough energy to displace electrons and thus does not cause the same level of biological damage. Infrared radiation, primarily associated with heat, also falls under the non-ionizing category and does not significantly contribute to cancer risk in the same way that ionizing radiation does.

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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.

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

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