

ASSESSMENT AND QUALIFICATIONS ALLIANCE (AQA) GCSE BIOLOGY PAPER 1 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. How does the infection affecting plants from Tobacco Mosaic Virus (TMV) impact their growth?**
 - A. It increases nutrient absorption
 - B. It restricts photosynthesis
 - C. It promotes rapid leaf growth
 - D. It enhances root structure
- 2. During binary fission, what occurs after the cell gets bigger?**
 - A. Cytoplasm divides
 - B. New cell walls begin to form
 - C. DNA is replicated
 - D. Bacteria undergo meiosis
- 3. How does coronary heart disease develop?**
 - A. Due to poor diet and exercise
 - B. From the blocking of coronary arteries by fatty deposits
 - C. Due to high blood pressure alone
 - D. From viral infections affecting the heart
- 4. What happens when Sudan III stain solution is added to a food sample containing lipids?**
 - A. The mixture turns blue
 - B. It separates into two layers with a bright red top layer
 - C. The mixture remains unchanged
 - D. A precipitate forms in the solution
- 5. What is a consequence of excessive alcohol consumption?**
 - A. Improved cognitive function
 - B. Reduction in nerve cell damage
 - C. Liver disease
 - D. Enhanced memory retention

6. What effect do leaves that drop or curl when touched serve in plants?

- A. To attract more insects
- B. To help knock insects off the leaves
- C. To enhance photosynthesis
- D. To increase root absorption

7. How does the heart pump blood around the body?

- A. By expanding and contracting the aorta
- B. By utilizing the diaphragm
- C. By contracting the ventricles and pushing blood through valves
- D. By filtering blood through the kidneys

8. What are organs composed of?

- A. Cells that work independently
- B. Groups of tissues that perform specific functions
- C. Only muscle tissues
- D. Only epithelial tissues

9. Which of the following is true about nerve cells?

- A. They are specialized for nutrient absorption
- B. They carry electrical signals across the body
- C. They primarily aid in the production of energy
- D. They are the smallest cell type

10. Which of the following describes monoclonal antibodies when used in therapy?

- A. They cannot be produced in large quantities
- B. They provide a broad spectrum of treatment
- C. They must bind to a specific tumor marker to be effective
- D. They work by suppressing the immune system

Answers

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

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Explanations

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1. How does the infection affecting plants from Tobacco Mosaic Virus (TMV) impact their growth?

- A. It increases nutrient absorption
- B. It restricts photosynthesis**
- C. It promotes rapid leaf growth
- D. It enhances root structure

The impact of Tobacco Mosaic Virus (TMV) on plants is significant, particularly in how it restricts photosynthesis. TMV infects plant cells, leading to damage in the plant's ability to carry out photosynthesis effectively. This virus attacks the chloroplasts—the structures responsible for photosynthesis—resulting in the discoloration of leaves and a reduction in chlorophyll content. As photosynthesis is crucial for producing the energy and organic compounds that plants need for growth, any restriction in this process can severely limit the plant's overall growth and vitality. Consequently, the consequences of TMV infection can include stunted growth, reduced yield, and overall health decline in the plant. Therefore, recognizing that the virus undermines a fundamental process like photosynthesis clarifies why this answer is correct.

2. During binary fission, what occurs after the cell gets bigger?

- A. Cytoplasm divides
- B. New cell walls begin to form**
- C. DNA is replicated
- D. Bacteria undergo meiosis

In binary fission, which is the asexual reproduction method commonly used by bacteria, the process begins with the cell increasing in size. After the cell grows larger, the next critical step is the replication of DNA. This ensures that each daughter cell receives an exact copy of the genetic material. Following this replication, the cell prepares to divide. The correct sequence is that after the cell reaches its appropriate size, DNA replication occurs, ensuring both resulting cells have the necessary genetic information. Subsequently, the cytoplasm divides, allowing for the physical separation of the two new cells, which involves the formation of new cell walls as a final step. Choosing "new cell walls begin to form" as the answer would imply that the cell walls are forming before the cytoplasm has divided and the DNA has been replicated. However, it is essential to understand that cell wall formation is part of the process that finalizes the division into two separate entities. Thus, the actual sequence of events following cell growth begins with DNA replication, then cytoplasm division, and finally the formation of new cell walls to separate the daughter cells.

3. How does coronary heart disease develop?

- A. Due to poor diet and exercise
- B. From the blocking of coronary arteries by fatty deposits**
- C. Due to high blood pressure alone
- D. From viral infections affecting the heart

Coronary heart disease develops primarily from the blocking of coronary arteries by fatty deposits. This process is known as atherosclerosis, where plaques made of fat, cholesterol, and other substances accumulate on the artery walls. As these deposits build up, they narrow the coronary arteries, decreasing blood flow to the heart muscle. Reduced blood flow can lead to chest pain (angina) and can increase the risk of heart attacks, as the heart may not receive enough oxygen-rich blood. While factors such as poor diet and lack of exercise can contribute to the risk of developing coronary heart disease, it is the accumulation of fatty deposits that directly leads to the blockage of the coronary arteries, making this the most accurate and specific answer. Other options, like high blood pressure or viral infections, may play a role in cardiovascular health but are not the primary mechanism by which coronary heart disease progresses.

4. What happens when Sudan III stain solution is added to a food sample containing lipids?

- A. The mixture turns blue
- B. It separates into two layers with a bright red top layer**
- C. The mixture remains unchanged
- D. A precipitate forms in the solution

When Sudan III stain solution is added to a food sample containing lipids, the correct outcome is that it separates into two layers with a bright red top layer. This is due to the property of Sudan III, which is a dye that specifically stains lipids. Lipids, which include fats and oils, are hydrophobic (water-repelling) substances. When Sudan III is introduced to a mixture containing lipids, it interacts with the lipid molecules and forms a complex that is colored red. Consequently, the lipids rise to the top of the solution because they are less dense than water, resulting in the formation of a distinct red top layer. This indicates the presence of fats in the sample. Thus, the observation of a bright red top layer is a clear and visible indication of lipids present in the food sample, illustrates Sudan III's effectiveness as a lipid stain, and underscores the importance of this test in biological assessments of food content.

5. What is a consequence of excessive alcohol consumption?

- A. Improved cognitive function
- B. Reduction in nerve cell damage
- C. Liver disease**
- D. Enhanced memory retention

Excessive alcohol consumption is known to have numerous detrimental effects on health, and one significant consequence is liver disease. The liver is responsible for metabolizing alcohol, and when an individual drinks excessively, the liver can become overwhelmed. This can lead to conditions such as fatty liver disease, alcoholic hepatitis, and eventually cirrhosis, which is the severe scarring and damage to the liver. The liver plays a crucial role in detoxifying harmful substances, and chronic alcohol intake can severely impair its function, leading to serious health complications. In contrast, the other choices do not accurately reflect the effects of excessive alcohol consumption. Improved cognitive function and enhanced memory retention are not seen with heavy drinking; rather, excessive alcohol typically leads to cognitive impairments. Additionally, nerve cell damage is likely to increase, rather than decrease, with high levels of alcohol consumption. Thus, liver disease is a well-documented and serious consequence of excessive alcohol intake.

6. What effect do leaves that drop or curl when touched serve in plants?

- A. To attract more insects
- B. To help knock insects off the leaves**
- C. To enhance photosynthesis
- D. To increase root absorption

When leaves drop or curl when touched, this rapid movement serves as a defense mechanism that helps to dislodge potential herbivores or insects that might be feeding on the plant. This response is particularly observed in certain plants, like the sensitive plant (*Mimosa pudica*), which reacts to stimuli in order to protect itself from damage. The curling or drooping of leaves makes it more difficult for insects to establish a foothold, thus allowing the plant to reduce herbivory and enhance survival. The other options do not accurately capture the primary function of this movement. For instance, attracting more insects or enhancing photosynthesis are not direct consequences of leaf movement in response to touch, nor does this behavior play a role in increasing root absorption. The primary goal is indeed to deter and potentially remove pests, thereby protecting the plant's overall health.

7. How does the heart pump blood around the body?

- A. By expanding and contracting the aorta
- B. By utilizing the diaphragm
- C. By contracting the ventricles and pushing blood through valves**
- D. By filtering blood through the kidneys

The heart pumps blood around the body primarily through the contraction of the ventricles. When the ventricles contract, they generate the pressure needed to push blood into the arteries. This process involves the opening and closing of heart valves that ensure blood flows in the correct direction and prevents any backflow. The ventricles play a crucial role in this function. The right ventricle pumps deoxygenated blood to the lungs where it receives oxygen, while the left ventricle pumps oxygenated blood to the rest of the body. This coordinated contraction and the systemic relaxation of the heart muscle leads to an efficient circulatory process. Ultimately, this is a vital function of the heart, allowing for nutrient and oxygen distribution and waste removal throughout the body, which is essential for maintaining overall health.

8. What are organs composed of?

- A. Cells that work independently
- B. Groups of tissues that perform specific functions**
- C. Only muscle tissues
- D. Only epithelial tissues

Organs are made up of groups of tissues that work together to perform specific functions. Each organ in the body carries out a particular role necessary for maintaining homeostasis and overall health. For example, the heart consists of muscle tissue that enables it to pump blood, connective tissue that provides structure, and nervous tissue that helps regulate its beating. By functioning together, these different types of tissues allow the organ to fulfill its purpose effectively. This concept is fundamental in biology, as it highlights the organization of life—from cells that make up tissues, to tissues that form organs, and ultimately to organs that create entire systems within the body. Understanding this hierarchical structure of biological organization is essential for comprehending how complex living organisms operate.

9. Which of the following is true about nerve cells?

- A. They are specialized for nutrient absorption
- B. They carry electrical signals across the body**
- C. They primarily aid in the production of energy
- D. They are the smallest cell type

Nerve cells, or neurons, are specialized cells designed to transmit information throughout the body. They accomplish this through the generation and propagation of electrical signals, known as action potentials. This capability to carry electrical signals is fundamental to the functioning of the nervous system, enabling communication between different body parts and coordinating responses to stimuli. Nerve cells have unique structures, including the cell body, dendrites, and axon, which facilitate this transmission of signals. The axon can be quite long, allowing signals to travel significant distances, which is essential for sending messages from the brain to various body parts and vice versa. The other options do not accurately describe the primary functions of nerve cells. While nutrient absorption is related to cells like epithelial cells in the digestive system, energy production is more characteristic of cells in metabolic organs such as the liver. As for size, neurons are not the smallest cell type; in fact, many other cell types, such as red blood cells and bacteria, are smaller. This context emphasizes why the correct answer focuses on the defining role of nerve cells in signal transmission.

10. Which of the following describes monoclonal antibodies when used in therapy?

- A. They cannot be produced in large quantities
- B. They provide a broad spectrum of treatment
- C. They must bind to a specific tumor marker to be effective**
- D. They work by suppressing the immune system

Monoclonal antibodies are specialized proteins that can bind to specific targets, known as antigens, often found on the surface of cells, including cancer cells. For therapeutic use, they are designed to recognize and attach to specific tumor markers—molecules that are uniquely expressed or overexpressed in certain types of cancer. This targeted binding allows the monoclonal antibodies to mark the cancer cells for destruction by the immune system or to deliver a therapeutic payload directly to the tumor. Through this mechanism, monoclonal antibodies can directly affect the growth and spread of tumors, making their specificity for tumor markers a crucial factor in their therapeutic effectiveness. This precise targeting is what differentiates monoclonal antibodies from other treatments that may act more broadly and indiscriminately. In contrast, the other options do not accurately represent how monoclonal antibodies function in therapy.

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

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

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