Assessment and Qualifications Alliance (AQA) GCSE Physics Paper 2 Practice Exam (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

Table of Contents

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. What force do objects experience when submerged in water?

A. Gravity

B. Weight

C. Upthrust

D. Friction

2. How is color perceived in objects?

A. An object reflects all colored light

B. An object absorbs all colored light

C. An object absorbs all colored light except the color it reflects

D. An object reflects all light without absorption

3. What is defined as the amplitude of a wave?

A. Distance from the trough to the crest

B. Height between undisturbed position and crest

C. Distance traveled by a wave

D. Frequency of the wave

4. What is the primary function of sonar technology?

A. To amplify sound in air

B. To detect objects underwater

C. To analyze seismic activity

D. To measure sound waves in solids

5. What are planets defined as in our solar system?

A. Objects that are large enough to support life

B. Large objects that orbit a star and clear their orbit

C. Small celestial bodies orbiting larger planets

D. Solid spherical bodies that emit their own light

6. What is the result when an incident ray travels parallel to the axis of a lens?

A. It continues in the same direction

B. It refracts through the principal focus

C. It diverges away from the lens

D. It gets absorbed by the lens

7. What is an electromagnet?

A. A magnet that is permanently magnetized

B. A magnet whose field is produced by electric current

C. A magnet that cannot be turned off

D. A natural occurring magnet

8. What characterizes a black dwarf?

A. It is a cooling phase of a white dwarf

B. It is a red giant that has imploded

C. It is a stage before becoming a neutron star

D. It is a newly formed protostar

9. What is one of the primary uses of X-rays in medicine?

A. Detecting broken bones

B. Scanning unborn babies

C. Ultrasound imaging

D. Killing bacteria

10. Which formula represents the relationship between frequency and period?

A. Frequency = Wavelength x Period

B. Frequency = 1/Period

C. Frequency = Amplitude/Period

D. Frequency = Speed/Wavelength

Answers

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

Explanations

1. What force do objects experience when submerged in water?

A. Gravity

B. Weight

C. Upthrust

D. Friction

When an object is submerged in water, it experiences a force known as upthrust, also referred to as buoyancy. This force is directed upward and acts against the weight of the object, which is pulled down by gravity. The phenomenon of upthrust can be explained using Archimedes' principle, which states that any object that is wholly or partially immersed in a fluid experiences an upward force equal to the weight of the fluid that the object displaces. This means that if an object is submerged in water, it displaces a certain volume of water, and the weight of that displaced water corresponds to the upthrust force acting on the object. It's important to recognize that while gravity exerts a downward force on the object (its weight), the upthrust acts in the opposite direction, influencing whether the object will sink or float. If the upthrust is greater than the weight, the object will rise or float; if the upthrust is less, it will sink. When considering the other forces, weight reflects the gravitational force on the object, but it does not account for the upward force of the displaced water. Friction, on the other hand, is a force that resists motion and is not primarily relevant

2. How is color perceived in objects?

A. An object reflects all colored light

B. An object absorbs all colored light

C. An object absorbs all colored light except the color it reflects

D. An object reflects all light without absorption

Color perception in objects is fundamentally tied to the way they interact with light. When light hits an object, the object interacts with different wavelengths of that light. The specific wavelengths that an object reflects determine the color that we perceive. When an object reflects all wavelengths of light, it appears white, while if it absorbs all wavelengths, it looks black. An object appears a particular color because it absorbs many of the wavelengths corresponding to other colors while reflecting the wavelength of the color that it is perceived as. For example, a red apple absorbs most colors in the spectrum except for red, which it reflects. This is why we see the apple as red. Therefore, the choice that states an object absorbs all colored light except the color it reflects accurately describes this phenomenon. It explains how our visual perception of color is dependent on the selective reflection and absorption of different wavelengths of light by the object.

3. What is defined as the amplitude of a wave?

A. Distance from the trough to the crest

B. Height between undisturbed position and crest

C. Distance traveled by a wave

D. Frequency of the wave

The amplitude of a wave is defined as the maximum height of the wave from its undisturbed position (or equilibrium position) to the crest. This measurement is a crucial characteristic of waves, as it reflects the energy carried by the wave; a larger amplitude indicates that the wave carries more energy. The amplitude is typically observed in both transverse waves, where the motion of the wave is perpendicular to the direction of energy transfer, and in longitudinal waves, where the motion is parallel. Understanding amplitude is important in various fields, such as sound and light waves, as it influences how we perceive volume or brightness. The other options describe different aspects of waves: the distance from the trough to the crest relates to the wave's height but does not specify the amplitude definition correctly, as it includes more than just the amplitude alone. The distance traveled by a wave is related to its wavelength and speed, while frequency refers to how many waves pass a point in a given time, neither of which defines amplitude.

4. What is the primary function of sonar technology?

A. To amplify sound in air

B. To detect objects underwater

C. To analyze seismic activity

D. To measure sound waves in solids

The primary function of sonar technology is to detect objects underwater. Sonar, which stands for Sound Navigation and Ranging, works by emitting sound waves into the water and then listening for the echoes that bounce back from underwater objects. This technology is particularly useful in navigation, fishing, and underwater exploration, allowing users to determine the distance, size, and shape of objects like submarines, underwater terrains, or schools of fish. The other options relate to different aspects of sound and technology but do not encompass the main purpose of sonar. Amplifying sound in air pertains more to audio equipment rather than sonar's focus on underwater applications. Analyzing seismic activity relates to geology and the study of earthquakes rather than underwater detection. Measuring sound waves in solids would involve different technologies and principles, relevant to acoustics rather than sonar's specific function in marine environments. Thus, sonar's ability to detect and interact with submerged objects in water highlights its essential purpose.

5. What are planets defined as in our solar system?

A. Objects that are large enough to support life

B. Large objects that orbit a star and clear their orbit

C. Small celestial bodies orbiting larger planets

D. Solid spherical bodies that emit their own light

In the context of our solar system, planets are defined as large objects that orbit a star and have cleared their orbit of other debris. This definition emphasizes two key characteristics: the orbiting of a star and the gravitational influence necessary to maintain a clear path in space. To be classified as a planet, an object must not only travel around a star, such as our Sun, but it must also be massive enough that its gravity has allowed it to dominate its orbital zone. This means that planets have the gravitational pull to remove smaller objects and significant debris from their vicinity, maintaining a relatively clear path along their orbital route. The other options do not accurately reflect the definition of planets. For instance, not all large objects that orbit a star can support life (which is a misconception highlighted in the first choice). Additionally, the third option incorrectly describes planets as small celestial bodies; in fact, planets are relatively large compared to smaller bodies like asteroids or comets. Lastly, while the fourth choice mentions solid spherical bodies, it incorrectly states that planets emit their own light; in reality, they reflect light from their star, unlike stars that produce light through nuclear fusion. Thus, defining planets by their ability to clear their orbits alongside their stellar orbits captures

6. What is the result when an incident ray travels parallel to the axis of a lens?

A. It continues in the same direction

B. It refracts through the principal focus

C. It diverges away from the lens

D. It gets absorbed by the lens

When an incident ray travels parallel to the axis of a lens, it will refract through the principal focus after passing through the lens. This is a fundamental property of lenses, specifically convex lenses, which are designed to converge light rays. As the parallel ray enters the lens, the shape of the lens causes it to bend towards the optical axis, specifically towards the point known as the principal focus. This focus is located on the opposite side of the lens from where the light originally enters. The refractive properties of the lens facilitate this bending of light, enabling the lens to bring the parallel rays to a single point of convergence. This behavior is essential in applications such as cameras and magnifying glasses, where focusing light onto a specific point is necessary for creating clear images. The other choices do not accurately describe what happens when a ray of light travels parallel to the optical axis of a lens.

7. What is an electromagnet?

A. A magnet that is permanently magnetized

B. A magnet whose field is produced by electric current

C. A magnet that cannot be turned off

D. A natural occurring magnet

An electromagnet is defined as a magnet whose magnetic field is produced by an electric current. When electric current flows through a coil of wire, it generates a magnetic field around the coil. The strength of this magnetic field can be controlled by adjusting the current flowing through the wire. This ability to turn the magnetic field on and off, as well as to vary its strength, makes electromagnets particularly useful in various applications, such as in electric motors, transformers, and magnetic locks. The other options describe different types of magnets that do not depict the characteristics of electromagnets. For instance, a permanently magnetized magnet does not rely on an electric current, whereas a magnet that cannot be turned off suggests a fixed magnetic field, which is not true for electromagnets that can be toggled by controlling the current. Lastly, natural occurring magnets refer to minerals like magnetite that possess inherent magnetic properties without the need for an electric current.

8. What characterizes a black dwarf?

A. It is a cooling phase of a white dwarf

B. It is a red giant that has imploded

C. It is a stage before becoming a neutron star

D. It is a newly formed protostar

A black dwarf is characterized as a cooling phase of a white dwarf. After a star like the Sun has exhausted its nuclear fuel, it expands into a red giant and then sheds its outer layers, leaving behind a hot core known as a white dwarf. Over time, this white dwarf emits its remaining heat into space and gradually cools down. Eventually, it reaches a point where it no longer emits significant heat or light, transforming into a black dwarf. This process can take billions of years, which is why none have been observed in the universe yet; the universe is not old enough for this stage to occur for any white dwarfs. The transition from white dwarf to black dwarf highlights the long-term cooling and fading of stellar remnants post-fuel consumption, underscoring the lifecycle of stars.

9. What is one of the primary uses of X-rays in medicine?

A. Detecting broken bones

B. Scanning unborn babies

C. Ultrasound imaging

D. Killing bacteria

One of the primary uses of X-rays in medicine is for detecting broken bones. X-rays are a form of electromagnetic radiation that can penetrate through body tissues and are absorbed by denser materials like bones. When an X-ray machine is used to take an image, the less dense tissues (muscle, fat, skin) appear darker, while the denser bones appear white on the X-ray film. This contrast allows healthcare professionals to easily identify fractures or breaks in the bones. In contrast, options related to ultrasound imaging or scanning unborn babies involve different technologies; ultrasound uses sound waves rather than X-rays, making it safe for monitoring fetal health. Additionally, while killing bacteria is a function of certain forms of radiation, X-rays specifically are not typically used for that purpose in medical contexts.

10. Which formula represents the relationship between frequency and period?

A. Frequency = Wavelength x Period

B. Frequency = 1/Period

C. Frequency = Amplitude/Period

D. Frequency = Speed/Wavelength

The correct formula representing the relationship between frequency and period is Frequency = 1/Period. This relationship indicates that frequency, which is the number of cycles per second, is inversely related to the period, which is the time taken for one cycle to occur. In essence, if you increase the period (the duration of one cycle), the frequency must decrease because fewer cycles can occur in a set time. Conversely, if the period decreases, the frequency rises, as more cycles fit into the same timeframe. This direct mathematical relationship emphasizes that frequency and period are key characteristics of periodic phenomena, such as waves. The other choices provided do not accurately reflect the relationship between frequency and period. For instance, the option that states frequency involves wavelength and period combines unrelated concepts in wave mechanics. Another suggestion that incorporates amplitude and period misrepresents how these properties interact. Lastly, the option related to speed and wavelength pertains to wave speed calculations rather than establishing a direct link to frequency and period.

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-physicspaper2.examzify.com

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