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

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

This is a sample study guide. To access the full version with hundreds of questions,

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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.

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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. Don’t worry about getting everything right, 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, and take breaks to retain information better.

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.

7. Use Other Tools

Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

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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!

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Questions

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1. **What is the force exerted by a column of liquid in a unit surface area known as?**

   A. Hydrostatic pressure

   B. Liquid pressure

   C. Fluid dynamics

   D. Gravity pressure

2. **What is the opposite of 'emit' as defined in energy processes?**

   A. Transmit

   B. Absorb

   C. Reflect

   D. Radiate

3. **Which of the following statements is true about cosmic microwave background radiation?**

   A. It varies significantly across the universe

   B. It is the same temperature everywhere

   C. It is only produced during solar flares

   D. It originates from nuclear reactions in stars

4. **What is the S.I. unit for measuring magnetic flux density?**

   A. Newton

   B. Volt

   C. Tesla

   D. Weber

5. **Which type of radiation has high ionization but low penetration ability?**

   A. Alpha radiation

   B. Beta radiation

   C. Gamma radiation

   D. Neutron radiation

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6. What does power measure in terms of work?

A. The total work done over time

B. The efficiency of a device

C. The rate of doing work

D. The amount of energy stored

7. What is the name of the electricity generated by flowing water?

A. Wave power

B. Hydroelectric power

C. Tidal power

D. Geothermal energy

8. What is an object that revolves around another object in space called?

A. Moon

B. Planet

C. Satellite

D. Asteroid

9. In physics, what unit is commonly used for measuring angles?

A. Radians

B. Degrees

C. Both radians and degrees

D. Milliradians

10. According to Hooke's law, what is the relationship between the force applied to a spring and its extension?

A. Inversely proportional

B. Directly proportional

C. Dependent

D. Quadratic

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Answers

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

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Explanations

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1. What is the force exerted by a column of liquid in a unit surface area known as?

A. Hydrostatic pressure

B. Liquid pressure

C. Fluid dynamics

D. Gravity pressure

The correct answer describes the force exerted by a column of liquid on a unit surface area as hydrostatic pressure. Hydrostatic pressure specifically refers to the pressure exerted at a particular depth in a fluid due to the weight of the fluid above that point. This concept is critical in understanding how fluids behave under gravity and how pressure increases with depth in a fluid column. When considering liquid in a container or any situation involving a fluid at rest, hydrostatic pressure can be calculated using the formula $P = h\rho g$, where P is the pressure, h is the height of the liquid column, ρ is the density of the liquid, and g is the acceleration due to gravity. This highlights how the pressure is dependent on both the depth and the density of the liquid. Liquid pressure, while it may refer to pressure in a liquid, does not specifically emphasize the relationship of that pressure to the height of the liquid column, which is crucial in the context of hydrostatic conditions. Fluid dynamics pertains more to the behavior of fluids in motion rather than static conditions influencing pressure. Gravity pressure is not a commonly used term in physics literature, relevant context being provided by hydrostatic pressure instead. Thus, understanding how hydrostatic pressure operates leads to recognizing how pressure acts in

2. What is the opposite of 'emit' as defined in energy processes?

A. Transmit

B. Absorb

C. Reflect

D. Radiate

The term 'emit' refers to the process of releasing or sending out energy, typically in the form of light, heat, or electromagnetic radiation. In the context of energy processes, the opposite action would be to take in or capture energy rather than releasing it. This is where 'absorb' comes into play. When a material or medium absorbs energy, it takes in light or heat, preventing it from being emitted into the surrounding environment. For example, a black surface will absorb more heat and light energy than a reflective surface, which would send that energy back out rather than taking it in. This makes absorption a process distinct from emission, as it is a way of retaining energy instead of letting it escape. The other terms relate to energy processes but do not serve as direct opposites to emitting energy. Transmitting refers to the transfer of energy from one point to another, reflecting involves bouncing back the energy without absorbing it, and radiating is similar to emitting in that it refers to giving off energy. Therefore, 'absorb' is the most fitting opposite to 'emit' in the context of energy processes.

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3. Which of the following statements is true about cosmic microwave background radiation?

A. It varies significantly across the universe

B. It is the same temperature everywhere

C. It is only produced during solar flares

D. It originates from nuclear reactions in stars

The statement that cosmic microwave background radiation is the same temperature everywhere is correct because this radiation is a relic from the early universe, specifically from the time shortly after the Big Bang. The cosmic microwave background (CMB) is a uniform field of radiation that fills the universe and has a remarkably consistent temperature of about 2.7 Kelvin. This uniformity is a key piece of evidence supporting the Big Bang theory, as it indicates that the early universe was hot, dense, and in thermal equilibrium. While there are minor fluctuations in the temperature of the CMB—often referred to as anisotropies—these variations are extremely small compared to the overall uniform temperature across the cosmos. The CMB is not produced by solar flares or nuclear reactions in stars; instead, it is left over from the time when the universe became transparent to radiation, allowing photons to travel freely. These characteristics highlight the significance of the CMB as a fundamental component in understanding the evolution of the universe.

4. What is the S.I. unit for measuring magnetic flux density?

A. Newton

B. Volt

C. Tesla

D. Weber

The S.I. unit for measuring magnetic flux density is the Tesla. Magnetic flux density represents the amount of magnetic flux passing through a unit area perpendicular to the direction of the magnetic field. It is crucial in understanding how strong or weak a magnetic field is in a given space. The Tesla is defined as one weber per square meter, which ties it directly to the concept of magnetic flux (measured in webers) and area (measured in square meters). This relationship highlights that flux density varies with both the strength of the magnetic field and the area over which the magnetic field is distributed. Magnetic fields that are stronger, such as those created by large magnets or electromagnets, will have higher flux densities measured in Teslas. Understanding this unit is essential for applications in physics and engineering, where magnetic fields play a significant role.

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5. Which type of radiation has high ionization but low penetration ability?

A. Alpha radiation

B. Beta radiation

C. Gamma radiation

D. Neutron radiation

Alpha radiation is characterized by its high ionization power and low penetration ability. This type of radiation consists of helium nuclei, which are positively charged particles made up of two protons and two neutrons. Due to their larger mass and charge, alpha particles interact with matter more effectively than other types of radiation, leading to significant ionization of atoms along their path. However, this heavy and positively charged nature also means that alpha particles are not able to penetrate materials very well. They can be stopped by a sheet of paper or even the outer layer of human skin. This limited penetration ability contrasts with beta radiation, which is more penetrating, and gamma radiation, which can pass through thicker materials. Neutron radiation also has unique properties, but it does not exhibit high ionization levels like alpha particles.

6. What does power measure in terms of work?

A. The total work done over time

B. The efficiency of a device

C. The rate of doing work

D. The amount of energy stored

Power measures the rate at which work is done or energy is transferred over a specific period of time. It quantifies how quickly work is performed, thus providing an understanding of energy usage and conversion in various systems. When a device or system has a high power output, it can complete more work in a shorter time frame compared to a device with lower power output. In practical terms, power can be calculated using the formula: $\text{Power} = \frac{\text{Work}}{\text{Time}}$. This formula highlights the connection between work, time, and power, making it clear that power is fundamentally about how work is distributed over time, rather than merely the total amount of work done or the efficiency of a device.

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7. What is the name of the electricity generated by flowing water?

A. Wave power

B. Hydroelectric power

C. Tidal power

D. Geothermal energy

The type of electricity generated by flowing water is known as hydroelectric power. This form of energy harnesses the kinetic and potential energy of moving water, typically from rivers or dams, to generate electricity. As water flows, it passes through turbines, which convert the movement of water into mechanical energy. This mechanical energy is then transformed into electrical energy through generators. Hydroelectric power is one of the most widely used forms of renewable energy because it is efficient and has a lower environmental impact compared to fossil fuels. The other options refer to different sources of energy: wave power involves energy from surface waves on water, tidal power is generated by the movement of tides, and geothermal energy comes from heat originating from the Earth's internal processes. Each of these forms utilizes a different natural process to generate energy, but hydroelectric power specifically pertains to the generation of electricity from flowing water.

8. What is an object that revolves around another object in space called?

A. Moon

B. Planet

C. Satellite

D. Asteroid

An object that revolves around another object in space is termed a satellite. This term broadly includes both natural satellites, like moons, and artificial ones, such as human-made spacecraft. In this context, the essential characteristic of a satellite is its orbit around a larger body due to gravitational attraction. For example, the Moon is a natural satellite of Earth, while GPS satellites are artificial satellites that orbit Earth. This distinction as a satellite highlights the object's role in the gravitational system surrounding the planet or star it orbits. The other options, while related, do not encompass the full definition. Moons can be considered a type of satellite, but the term "satellite" applies to a broader category of orbiting objects. Planets are larger celestial bodies that also orbit stars but are not objects that revolve around other bodies in the same sense that satellites do. Asteroids, while they might orbit the Sun or a planet, are not defined by their revolving characteristics in the same way that satellites are. Hence, the designation of satellite is the most accurate choice for an object that revolves around another object in space.

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9. In physics, what unit is commonly used for measuring angles?

A. Radians

B. Degrees

C. Both radians and degrees

D. Milliradians

The most appropriate choice for measuring angles in physics is that both radians and degrees are commonly used units. Radians are particularly favored in many physics applications because they provide a direct relationship between the length of an arc and the radius of the circle, making calculations involving circular motion and oscillations more straightforward. Degrees, on the other hand, are more commonly used in everyday contexts and for practical applications where angles are measured in terms of fractions of a circle. While both units serve their purposes, radians are more convenient in mathematical equations and trigonometric functions used in physics. Milliradians are another unit used for measuring small angles, but they are less commonly referenced in general physics contexts compared to radians and degrees. Therefore, understanding that both radians and degrees can be valid units for measuring angles in physics is essential for applying the appropriate unit based on context.

10. According to Hooke's law, what is the relationship between the force applied to a spring and its extension?

A. Inversely proportional

B. Directly proportional

C. Dependent

D. Quadratic

Hooke's law states that the extension of a spring is directly proportional to the force applied to it, provided the limit of proportionality is not exceeded. This means that if you double the force applied to the spring, the extension also doubles. The relationship can be described mathematically as F = kx, where F is the force applied, k is the spring constant, and x is the extension of the spring. This linear relationship emphasizes that as the force increases, the extension increases in a predictable, proportional manner, highlighting the simple and direct relationship dictated by Hooke's law.

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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-physics.examzify.com

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

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