Key Stage 3 (KS3) Physics Practice Test (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. 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.

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 type of energy is stored in food?

A. Mechanical

B. Gravitational potential

C. Chemical

D. Thermal

2. If a pin has a force of 30N and an area of 0.2mm², what is the pressure exerted?

A. 60N/mm²

B. 150N/mm²

C. 300N/mm²

D. 75N/mm²

3. Which component turns off the circuit?

A. A closed switch

B. An open switch

C. A battery

D. A resistor

4. What is inertia?

A. The force that makes objects move

B. The property of matter that causes it to resist changes in motion

C. The speed at which an object travels

D. The gravitational force acting on an object

5. What is contained within a battery?

A. One cell

B. Two cells

C. Multiple resistors

D. A circuit breaker

6. What does a white object do with colours of light?

A. Absorbs all colours

B. Reflects all colours

C. Reflects none of the colours

D. Reflects only certain colours

7. In energy conservation practices, what is often encouraged to reduce wasted energy?

A. Increased use of fossil fuels

B. Adopting renewable energy sources

C. Maintaining inefficient machinery

D. Using more complex technology

8. What determines the pitch of a sound?

A. The amplitude of the sound wave

B. The speed of sound in air

C. The frequency of the sound wave

D. The wavelength of the sound wave

9. Which type of energy is typically wasted when using a drill?

A. Electrical energy

B. Kinetic energy

C. Heat and sound energy

D. Chemical energy

10. The colour of an object is determined by what property?

A. The colour of the light it emits

B. The colour of the light it reflects

C. The colour of the light it absorbs

D. The intensity of the light

Answers

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

Explanations

1. What type of energy is stored in food?

A. Mechanical

B. Gravitational potential

C. Chemical

D. Thermal

Food contains energy in the form of chemical energy. This type of energy is stored in the bonds between atoms and molecules within the food. When we consume food, our bodies break down these chemical bonds during digestion, releasing the stored energy that can be used for metabolic processes, growth, and physical activity. Chemical energy is crucial for powering all biological functions, as it can be transformed into kinetic energy (movement), thermal energy (heat), and other forms of energy necessary for life. Understanding that food provides chemical energy helps explain why we need to consume nutrients for energy and health. Other forms of energy mentioned, such as mechanical, gravitational potential, and thermal, do not pertain to how energy is stored in food. Mechanical energy relates to the energy of movement, gravitational potential energy relates to an object's position in a gravitational field, and thermal energy pertains to the energy associated with the temperature of a substance.

2. If a pin has a force of 30N and an area of 0.2mm², what is the pressure exerted?

A. 60N/mm²

B. 150N/mm²

C. 300N/mm²

D. 75N/mm²

To calculate the pressure exerted by the pin, you can use the formula for pressure, which is: Pressure = Force / Area In this case, the force is given as 30N and the area is 0.2mm². However, to maintain consistency in units and to perform the calculation correctly, it is essential to convert the area from mm² to m². 1 mm² is equal to \(1 \times 10^{-6}\) m². Therefore: 0.2 mm² = 0.2 × \(1 \times 10^{-6}\) m² = \(2 \times 10^{-7}\) m². Next, we can calculate the pressure: Pressure = 30N / \(2 \times 10^{-7}\) m² = 150,000,000 N/m², or 150 N/mm². In this context, when using N/mm², the units are consistent since you are dividing the force in Newtons by the area in mm². Thus, the correct choice reflects the calculated pressure of 150N/mm², demonstrating how the units and values work together to derive the answer.

3. Which component turns off the circuit?

A. A closed switch

B. An open switch

C. A battery

D. A resistor

An open switch is the component that turns off the circuit. When a switch is open, it breaks the conductive path through which the electric current can flow, effectively stopping the flow of electricity. This lack of current flow means that any devices powered by that circuit will not operate, as they require a closed loop to function properly. In contrast, a closed switch allows electricity to flow freely through the circuit. A battery serves as a source of electrical energy, supplying power to the circuit, while a resistor affects the flow of current but does not turn off the circuit by itself. These components work together to control and manage the circuit's operation, but only an open switch specifically interrupts the current flow.

4. What is inertia?

A. The force that makes objects move

B. The property of matter that causes it to resist changes in motion

C. The speed at which an object travels

D. The gravitational force acting on an object

Inertia is best described as the property of matter that causes it to resist changes in motion. This means that an object at rest will stay at rest until acted upon by an external force, and an object in motion will continue moving at a constant speed in a straight line unless a force is applied to change its state of motion. This concept is rooted in Newton's First Law of Motion, which states that an object will not change its state of motion without a net external force. Therefore, the essence of inertia is fundamentally about the tendency of objects to maintain their current state, whether that state is at rest or in uniform motion. Inertia is not a force; it is a characteristic of matter related to mass, which is why other options do not accurately capture the definition. Objects with greater mass have greater inertia, making them more resistant to changes in their motion, whereas lighter objects require less force to change their motion.

5. What is contained within a battery?

A. One cell

B. Two cells

C. Multiple resistors

D. A circuit breaker

A battery is essentially a device that stores electrical energy and consists of multiple electrochemical cells connected in series or parallel. Each cell contains its own chemical components that facilitate the chemical reaction necessary for producing electricity. When these cells are combined within a single unit, like in a battery, they work together to provide a higher voltage or greater capacity. Typically, a standard battery used in everyday applications—like AA, AAA, or a car battery—contains multiple cells. For instance, a common household battery may contain several smaller cells working in unison to provide the necessary power output. This is why the notion of a battery containing two or more cells is accurate; it brings together the output and functionality of these cells into one cohesive unit to deliver electricity effectively. While a single cell can operate as a battery, it wouldn't be classified as a "battery" in the more common sense of the term, which implies an assembly of cells. The other options do not accurately represent the primary makeup of a battery; resistors are components used to manage current flow but aren't part of the battery's structure, and a circuit breaker serves a different function in an electrical system, protecting circuits rather than being a component of a battery itself.

6. What does a white object do with colours of light?

A. Absorbs all colours

B. Reflects all colours

C. Reflects none of the colours

D. Reflects only certain colours

A white object reflects all colours of light that fall upon it. This is because the surface of a white object is able to scatter and bounce back the full spectrum of visible light, which includes red, orange, yellow, green, blue, indigo, and violet. When all of these colours are reflected equally, our eyes perceive the object as white. In contrast, an object that absorbs all colours would appear black to the human eye, while an object that reflects only certain colours would show specific hues corresponding to the colours it reflects. Therefore, the defining characteristic of a white object is its ability to reflect all wavelengths of visible light, making it look white.

7. In energy conservation practices, what is often encouraged to reduce wasted energy?

A. Increased use of fossil fuels

B. Adopting renewable energy sources

C. Maintaining inefficient machinery

D. Using more complex technology

Adopting renewable energy sources is encouraged in energy conservation practices because these sources, such as solar, wind, and hydroelectric power, have a lower environmental impact and contribute to a sustainable energy future. Unlike fossil fuels, which deplete natural resources and contribute significantly to greenhouse gas emissions, renewable energy sources help reduce reliance on finite resources while delivering energy in a cleaner manner. By utilizing these alternatives, we can take steps towards sustainable energy management, decrease pollution, and mitigate climate change, ultimately leading to energy conservation on a larger scale. The other options tend to either perpetuate energy waste or rely on outdated practices that do not align with modern energy conservation goals.

8. What determines the pitch of a sound?

A. The amplitude of the sound wave

B. The speed of sound in air

C. The frequency of the sound wave

D. The wavelength of the sound wave

The pitch of a sound is determined by the frequency of the sound wave. Frequency refers to the number of vibrations or cycles that occur in a sound wave per second, measured in hertz (Hz). Higher frequency sounds correspond to higher pitches, such as a whistle or a flute, while lower frequency sounds result in lower pitches, like a bass drum or an organ pipe. Therefore, a sound wave with a frequency of 500 Hz will be perceived as a higher pitch than one with a frequency of 250 Hz. While amplitude, speed of sound, and wavelength are all related to sound waves, they influence different aspects of sound. Amplitude affects the loudness or intensity of the sound, with greater amplitude leading to louder sounds. The speed of sound in air is a constant factor under typical conditions, influencing how quickly sound travels but not its pitch. Wavelength is also tied to frequency, as these two properties are inversely related in a sound wave; however, it is the frequency that our ears interpret directly as pitch. Thus, frequency is the key determinant in how we perceive the pitch of a sound.

9. Which type of energy is typically wasted when using a drill?

A. Electrical energy

B. Kinetic energy

C. Heat and sound energy

D. Chemical energy

When using a drill, the primary type of energy that is typically wasted is heat and sound energy. As the drill operates, some of the electrical energy that powers it is converted into mechanical energy to spin the drill bit. However, not all of that energy goes into the useful work of drilling; a significant portion is lost as heat due to friction in the motor and between the drill and the material being drilled. In addition, the operation of the drill generates sound energy as a result of the movement and interaction of its components, as well as the drilling action itself. This waste of energy is common in many mechanical devices, where energy is inevitably lost in forms that do not contribute to the primary function of the equipment. In the case of a drill, while some energy is effectively transformed into kinetic energy that performs the drilling, the energy that emerges as heat and sound does not help in achieving the desired outcome and is thus considered wasted.

10. The colour of an object is determined by what property?

A. The colour of the light it emits

B. The colour of the light it reflects

C. The colour of the light it absorbs

D. The intensity of the light

The colour of an object is determined by the light that it reflects. When light falls on an object, certain wavelengths are absorbed by the material while others are reflected. The wavelengths that are reflected determine the observed colour of the object. For instance, a ripe banana appears yellow because it reflects yellow wavelengths of light and absorbs other wavelengths. This principle is a key aspect of how our eyes perceive colour based on the interaction between light and materials. The other options are not suitable because they focus on properties that do not align with our perception of colour. The light an object emits does not define its inherent colour; instead, the emitted light can change based on the object's temperature or energy state. Similarly, the colour of the light absorbed is not visible to us, as we see the reflected light instead. Intensity relates to how bright the light appears, not its colour. Therefore, the reflection of light is fundamental to determining the colour we perceive.

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://keystage3-physics.examzify.com

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