NCEA LEVEL 2 PHYSICS PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED 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. 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!

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Questions

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1. What does Ohm's Law state about the relationship between voltage and current?

A. They are directly proportional

B. They are inversely proportional

C. They are equal

D. They are unrelated

2. In a series circuit, how does current behave?

A. The current is divided among components

B. The current varies at different points

C. The current is the same at all points

D. The current is zero

3. What is the unit for measuring the spring constant?

A. N/m

B. J/m

C. kg/m

D. J/N

4. What direction of current flow creates a clockwise magnetic field when viewed from above?

A. Upwards

B. Downwards

C. Left to right

D. Right to left

5. During an elastic collision, which statement is correct?

A. Kinetic energy is lost

B. Kinetic energy remains constant

C. Some kinetic energy is transformed into thermal energy

D. All kinetic energy is transformed into potential energy

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6. What can electric current generate?

A. Magnetic fields
B. Sound
C. Light
D. Heat

7. What is the term for the curve traced by a projectile in flight?

A. Line
B. Circle
C. Parabola
D. Wave

8. What happens when like poles of a magnet are brought together?

A. They attract each other
B. They repel each other
C. They neutralize each other
D. They spin around each other

9. When two objects collide, which of the following could happen?

A. Both objects will always lock together
B. Both objects will bounce off each other
C. Both go backwards
D. Both end up stationary or may lock together and move off

10. What is electric current?

A. a flow of protons
B. a moving flow of charge
C. static charge accumulation
D. a type of voltage

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Answers

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

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Explanations

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1. What does Ohm's Law state about the relationship between voltage and current?

A. They are directly proportional

B. They are inversely proportional

C. They are equal

D. They are unrelated

Ohm's Law is a fundamental principle in electrical engineering and physics that describes the relationship between voltage, current, and resistance in a circuit. It states that the current flowing through a conductor between two points is directly proportional to the voltage across the two points, provided the temperature and material properties remain constant. This relationship can be expressed mathematically as V = IR, where V is the voltage, I is the current, and R is the resistance. When voltage increases in a circuit while resistance remains constant, the current also increases. This directly proportional relationship means that if you were to double the voltage applied to a circuit, the current would also double, assuming the resistance does not change. This principle is crucial for understanding how to analyze electrical circuits effectively and design them for various applications.

2. In a series circuit, how does current behave?

A. The current is divided among components

B. The current varies at different points

C. The current is the same at all points

D. The current is zero

In a series circuit, the current behaves in such a way that it remains the same at all points throughout the circuit. This is due to the principle of conservation of charge, which states that electric charge cannot accumulate at a point in a conductor. As a result, regardless of the number of components (such as resistors, bulbs, or any other devices) connected in series, the amount of current flowing through each component is identical. When components are connected in series, they follow a single path for the current to flow. This means that every electron that enters the series circuit must eventually pass through every component. Therefore, the current does not change; it is consistent as it travels through each element of the circuit. Since the potential difference across each component can differ depending on the resistance, the voltage may be different from one component to another, yet the current remains constant. This uniformity in current makes series circuits particularly simple to analyze when understanding how voltage and resistance interact, as well as helping clarify concepts such as Ohm's Law.

3. What is the unit for measuring the spring constant?

A. N/m

B. J/m

C. kg/m

D. J/N

The spring constant measures the stiffness of a spring, indicating how much force is required to stretch or compress the spring by a unit distance. In terms of its definition, the spring constant (often represented by the symbol k) is derived from Hooke's Law, which states that the force exerted by a spring is directly proportional to its displacement from the equilibrium position. This relationship can be expressed mathematically as: $$F = k \cdot x$$ where F is the force applied to the spring in newtons (N), x is the displacement in meters (m), and k is the spring constant in newtons per meter (N/m). In this context, the units of force (newtons) divided by the units of displacement (meters) gives us the unit for the spring constant: $$\text{Units of } k = \frac{\text{N}}{\text{m}} = \text{N/m}$$ Thus, the spring constant is measured in newtons per meter, making this the correct and appropriate unit for quantifying spring behavior under applied forces.

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4. What direction of current flow creates a clockwise magnetic field when viewed from above?

A. Upwards

B. Downwards

C. Left to right

D. Right to left

The direction of current flow that creates a clockwise magnetic field when viewed from above is indeed downward. This conclusion can be drawn from the right-hand rule, which is a common method for determining the direction of the magnetic field around a current-carrying conductor. When you point your thumb in the direction of the current (which is downward in this case), your fingers curl in the direction of the magnetic field lines. If you visualize looking down from above, the magnetic field lines would circulate in a clockwise motion around the wire. Understanding the relationship between current and magnetic fields is crucial in electromagnetism and plays a significant role in applications such as electric motors and generators, where the orientation and direction of magnetic fields are essential for their operation.

5. During an elastic collision, which statement is correct?

A. Kinetic energy is lost

B. Kinetic energy remains constant

C. Some kinetic energy is transformed into thermal energy

D. All kinetic energy is transformed into potential energy

In an elastic collision, the defining characteristic is that both momentum and kinetic energy are conserved throughout the interaction. When two objects collide elastically, they rebound off each other without any permanent deformation or generation of heat. As a result, the total kinetic energy before the collision is equal to the total kinetic energy after the collision. This conservation of kinetic energy implies that, unlike in inelastic collisions where kinetic energy may be lost to other forms such as heat or sound, during an elastic collision, there is no loss of kinetic energy. Thus, the correct statement is that kinetic energy remains constant throughout the process. This principle applies to ideal scenarios in physics, where external forces and energy transformations are absent.

6. What can electric current generate?

A. Magnetic fields

B. Sound

C. Light

D. Heat

Electric current can generate several phenomena, and one of the fundamental effects of electric current is the generation of magnetic fields. When an electric current flows through a conductor, it creates a magnetic field around it due to the motion of charged particles. This relationship between electricity and magnetism is a cornerstone of electromagnetism. In addition to magnetic fields, electric current can also produce sound. This is demonstrated in devices such as speakers, where the movement of the diaphragm generated by an electric current creates sound waves. Furthermore, electric current can produce light, as seen in incandescent bulbs, fluorescent lights, and LEDs, where the energy from the current excites particles and produces visible light. Lastly, electric current can generate heat due to the resistance it encounters within a conductor, which is described by Joule's law. When current flows through a resistor, energy is transformed into thermal energy, which raises the temperature of the resistor. This process is used in electric heaters, toasters, and similar appliances. Given this context, the correct answer is that electric current can generate magnetic fields, as this is a fundamental principle of electromagnetism that encompasses various applications in technology and physics.

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7. What is the term for the curve traced by a projectile in flight?

A. Line

B. Circle

C. Parabola

D. Wave

The correct term for the curve traced by a projectile in flight is a parabola. This is because when an object is projected into the air, it moves under the influence of gravity and follows a curved path. The path can be described mathematically by a quadratic equation, which results in a parabolic shape. This occurs because the horizontal component of the projectile's motion is uniform (constant velocity), while the vertical component is influenced by gravitational acceleration, leading to a change in velocity over time. In summary, the unique combination of these two types of motion—horizontal constant velocity and vertical acceleration due to gravity—results in the characteristic curved trajectory of a projectile, aptly represented as a parabola.

8. What happens when like poles of a magnet are brought together?

A. They attract each other

B. They repel each other

C. They neutralize each other

D. They spin around each other

When like poles of a magnet are brought together, they repel each other. Magnets possess two poles: North and South. According to the principles of magnetism, like poles (North-North or South-South) experience a repulsive force. This occurs because the magnetic field lines generated by the like poles push against each other, leading to a force that pushes the magnets apart. This property is fundamental to understanding how magnets interact with one another and is crucial in various applications, such as magnetic levitation and electric motor design. The repulsion contrasts with the behavior of unlike poles, which attract each other due to the interaction of opposite magnetic fields.

9. When two objects collide, which of the following could happen?

A. Both objects will always lock together

B. Both objects will bounce off each other

C. Both go backwards

D. Both end up stationary or may lock together and move off

In a collision, several outcomes are possible depending on the characteristics of the objects involved (such as mass, velocity, shape, and material properties) and the type of collision (elastic or inelastic). The scenario where both objects end up stationary or lock together and move off is possible in inelastic collisions. In such collisions, momentum is conserved, but kinetic energy is not necessarily conserved. This means that the two objects can collide and stick together due to the effects of friction or other forces, resulting in a common velocity as they move off together. Additionally, it's important to note that some collisions may result in the objects being momentarily stationary, particularly in perfectly inelastic collisions where they stick together, thereby absorbing some momentum and energy. This aligns with the option that describes multiple outcomes effectively, including both the possibility of locking together and moving off or coming to a stop when external forces are negligible after the collision. This reflects the complexity of real-world collisions, whereas the other options describe more specific or limited situations that do not account for the wide range of potential outcomes in such events.

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10. What is electric current?

A. a flow of protons

B. a moving flow of charge

C. static charge accumulation

D. a type of voltage

Electric current is defined as the flow of electric charge, which typically occurs in a conductor such as a wire when a potential difference (voltage) is applied. The charge that primarily moves in a circuit is usually carried by electrons, which are negatively charged particles. When we say that current is a "moving flow of charge," it encapsulates the essence of how current operates in electrical circuits. In a practical sense, electric current is measured in amperes (A), which quantify the amount of charge passing through a point in the circuit per unit of time. Understanding that current is essentially the movement of charged particles helps to clarify how electrical circuits function, facilitating the operation of devices and appliances we rely on. The option that describes electric current accurately highlights the dynamic aspect of charge movement, distinguishing it from static scenarios or the inherent characteristics of voltage. It is this continuous movement of charge that enables the transfer of energy in electrical systems, making it a foundational concept in electricity and electronics.

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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:

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

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