

NCEA LEVEL 2 PHYSICS PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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. The shape of the Earth's gravitational field is best described as which of the following?
 - A. Circular
 - B. Flat
 - C. Radial
 - D. Scale
2. What does net force refer to?
 - A. The resulting force after all individual forces acting on an object are combined
 - B. The total mass of an object
 - C. The gravitational force acting on an object
 - D. The force exerted by an object in motion
3. What describes a projectile's vertical motion?
 - A. Constant velocity
 - B. Uniform acceleration
 - C. Constant acceleration due to gravity
 - D. Zero acceleration
4. If an object is 'released' instead of 'launched', what is its initial velocity?
 - A. 10 m/s
 - B. 5 m/s
 - C. 0 m/s
 - D. 15 m/s
5. How do you determine the total time of flight for a projectile?
 - A. Multiply the time to peak by two
 - B. Add time to launch and descent
 - C. Take the time to peak as is
 - D. Double the height of the projectile
6. How can you calculate the horizontal distance of a projectile?
 - A. $d = V_{\text{hor}} \times t$
 - B. $d = V_{\text{vert}} \times t$
 - C. $d = a \times t^2$
 - D. $d = 0.5 \times a \times t^2$

- 7. What is the visual representation of a magnetic field called?**
- A. Magnetic flux
 - B. Field lines
 - C. Wave patterns
 - D. Force diagrams
- 8. 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
- 9. What does impulse define in terms of momentum?**
- A. Change in velocity
 - B. Change in energy
 - C. Change in acceleration
 - D. Change in momentum
- 10. What is the definition of a vector quantity?**
- A. Quantity with only magnitude
 - B. Quantity that shows no change
 - C. Quantity with both magnitude and direction
 - D. Quantity that is always constant

Answers

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

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Explanations

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1. The shape of the Earth's gravitational field is best described as which of the following?

- A. Circular
- B. Flat
- C. Radial
- D. Scale

The gravitational field of the Earth is best described as radial because the force of gravity acts towards the center of the Earth from every point in space around it. This radial nature means that the gravitational field lines emanate outward in all directions, resembling a sphere. The gravitational attraction decreases with the square of the distance from the center of the Earth, resulting in the field being symmetrical and uniform in its effects around the planet. This characteristic is fundamentally linked to the nature of gravitational forces acting between masses; as mass attracts other mass, the spherical symmetry and uniformity of Earth's gravity create a radial field. For example, imagine how the gravitational pull of a sphere affects objects surrounding it equally from all sides, leading to the conclusion that the field lines behave radially, pointing inward towards Earth's center. In contrast to other options, a circular field would imply a two-dimensional effect, which does not accurately represent the three-dimensional nature of gravity. A flat gravitational field would suggest a constant strength across a large area, which is not the case near a massive object like Earth. Similarly, the term "scale" does not pertain to the characteristics of the gravitational field itself, but rather might refer to measurements or dimensions. Hence, the radial description effectively captures the essence

2. What does net force refer to?

- A. The resulting force after all individual forces acting on an object are combined
- B. The total mass of an object
- C. The gravitational force acting on an object
- D. The force exerted by an object in motion

Net force refers to the resulting force after all individual forces acting on an object are combined. In physics, when multiple forces are applied to an object, each force can either assist or oppose the motion. The net force takes into account both the magnitudes and directions of all these forces, resulting in a single vector that represents the overall effect on the object's motion. This concept is crucial because it determines whether an object will accelerate, remain at rest, or move at a constant velocity, according to Newton's second law of motion. If the net force is zero, the object will not change its state of motion. If it is greater than zero, the object will accelerate in the direction of the net force. The other options do not accurately describe net force. The total mass of an object, for instance, is a separate physical property and does not involve forces. Gravitational force specifically refers only to the force exerted by gravity on an object, while the force exerted by an object in motion does not encapsulate the concept of net force, as it doesn't consider all the individual forces acting on it.

3. What describes a projectile's vertical motion?

- A. Constant velocity
- B. Uniform acceleration
- C. Constant acceleration due to gravity**
- D. Zero acceleration

A projectile's vertical motion is characterized by constant acceleration due to gravity. This acceleration is approximately 9.81 m/s^2 downward near the Earth's surface. When an object is projected into the air, it experiences the force of gravity pulling it downwards throughout its flight. This means that as the projectile rises, it slows down until it reaches its maximum height, and then it accelerates downward as it falls back to the ground. Constant acceleration due to gravity is significant because it leads to well-defined equations of motion, which can be used to predict various characteristics of the projectile's path, such as the time it takes to reach maximum height or how far it will travel horizontally before hitting the ground. While it may seem intuitive to think of vertical motion as exhibiting constant velocity, this is not the case when gravity is acting on the projectile. Instead, the projectile's vertical velocity changes continuously as it rises and falls. An idea of zero acceleration applies in scenarios where no forces act on an object, but in the case of a projectile, gravity is an ever-present force influencing its motion. Thus, the description of vertical motion as having uniform acceleration due to the constant force of gravity is indeed the most accurate representation of what occurs in projectile motion.

4. If an object is 'released' instead of 'launched', what is its initial velocity?

- A. 10 m/s
- B. 5 m/s
- C. 0 m/s**
- D. 15 m/s

When an object is described as being 'released', it means that the object is allowed to fall or move freely under the influence of gravity without any initial propulsion force applied to it. In this case, the term "released" implies that the object starts from rest. Therefore, the initial velocity of the object at the moment it is released is 0 m/s. This situation can be contrasted with the term "launched," which would suggest that the object is given an initial speed or velocity directed in a specific direction. The lack of an initial speed in the case of a release aligns with the definition of initial velocity being zero. In summary, since 'released' indicates that the object has not been given any initial speed, it is appropriate to conclude that its initial velocity is 0 m/s.

5. How do you determine the total time of flight for a projectile?

- A. Multiply the time to peak by two**
- B. Add time to launch and descent
- C. Take the time to peak as is
- D. Double the height of the projectile

To find the total time of flight for a projectile, you can multiply the time taken to reach the peak height by two. This is because a projectile's motion is symmetrical in the absence of air resistance. When a projectile is launched, it ascends to a peak height where its vertical velocity becomes zero before it starts descending back to its original launch height. The time taken to ascend to the peak is equal to the time taken to descend back down. Therefore, the total time of flight is simply the time to reach the highest point multiplied by two. This method works well for uniformly accelerated motion, like that of projectiles under the influence of gravity. It's important to note that this applies only when the projectile is launched and lands at the same vertical height. In cases where the launch and landing heights differ, other calculations must be employed to determine the total time of flight.

6. How can you calculate the horizontal distance of a projectile?

- A. $d = V_{\text{hor}} \times t$**
- B. $d = V_{\text{vert}} \times t$
- C. $d = a \times t^2$
- D. $d = 0.5 \times a \times t^2$

To calculate the horizontal distance traveled by a projectile, you utilize the horizontal component of its initial velocity and the total time the projectile spends in the air. The formula $d = V_{\text{hor}} \times t$ indicates that the horizontal distance (d) is equal to the horizontal velocity (V_{hor}) multiplied by the time (t) of flight. In projectile motion, the horizontal motion occurs independently of the vertical motion. The horizontal velocity remains constant throughout the flight, assuming there is no air resistance. By knowing the horizontal velocity and the duration of the projectile's flight, you can directly compute the distance covered in the horizontal direction. In contrast, the other options involve vertical motion or include acceleration factors which do not apply to horizontal distance in projectile motion. The vertical velocity is relevant to vertical distance but not for calculating how far the projectile goes horizontally. Thus, the formula for horizontal distance must focus on the constant horizontal velocity and the time of flight.

7. What is the visual representation of a magnetic field called?

- A. Magnetic flux
- B. Field lines**
- C. Wave patterns
- D. Force diagrams

The visual representation of a magnetic field is referred to as field lines. Field lines are a way to illustrate the direction and strength of a magnetic field in a two-dimensional or three-dimensional space. They show the path a positive magnetic pole would take, indicating the direction from the north pole of a magnet to its south pole. The density of these lines represents the strength of the magnetic field: closer lines signify a stronger field, while lines that are further apart indicate a weaker field. This representation helps in understanding how magnetic fields interact with magnets and charges, making it a fundamental concept in physics. Magnetic flux pertains to the quantity of magnetic field passing through a surface but does not visually represent the field itself. Wave patterns are associated with the behavior of waves, such as light or sound, rather than any magnetic property. Force diagrams illustrate forces acting on an object but do not specifically represent the characteristics of magnetic fields.

8. 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.

9. What does impulse define in terms of momentum?

- A. Change in velocity
- B. Change in energy
- C. Change in acceleration
- D. Change in momentum**

Impulse is defined as the change in momentum of an object when a force is applied over a specific time interval. Mathematically, impulse can be expressed as the product of the average force applied to an object and the time duration during which the force acts. According to the impulse-momentum theorem, the impulse experienced by an object is equal to the change in its momentum. Momentum itself is the product of an object's mass and its velocity. Therefore, when a force is applied to an object, causing it to change speed or direction, its momentum changes. Impulse quantifies this effect, showing how much momentum is transferred or altered. In summary, when discussing impulse in the context of momentum, it is the measure of the change in an object's momentum due to the application of a force over time.

10. What is the definition of a vector quantity?

- A. Quantity with only magnitude
- B. Quantity that shows no change
- C. Quantity with both magnitude and direction**
- D. Quantity that is always constant

A vector quantity is defined as one that possesses both magnitude and direction. This definition emphasizes that vectors are not just about how much (magnitude), but also the way in which that quantity is oriented in space (direction). For example, velocity is a vector: you can have a speed of 60 km/h (magnitude) to the north (direction). Understanding vector quantities is essential in physics, as they are used to describe various phenomena such as forces, displacement, and momentum, all of which require both how much and in which direction to give a complete picture of the situation.

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://ncealvl2physics.examzify.com>

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

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