NCEA Level 2 Physics Practice Exam (Sample)

Study Guide

BY EXAMZIFY

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. 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 can be said about the change of momentum in one mass during a collision?**

   A. It is equal to the change of momentum of the other mass

   B. It is always greater than the other mass

   C. It does not affect the overall momentum

   D. It cancels out the momentum of the entire system

2. **What happens to the magnetic field lines when the electric current is increased?**

   A. The field lines become denser

   B. The field lines disappear

   C. The field lines become shorter

   D. The field lines rotate

3. **Which two factors are used to measure the turning effect of a torque?**

   A. Weight and distance

   B. Force and leverage distance

   C. Mass and acceleration

   D. Power and area

4. **How does a projectile move in terms of force acting on it?**

   A. With continuous force

   B. Under the influence of gravity only

   C. With accelerating force

   D. With an external engine

5. **Which of the following statements correctly reflects the movement of a projectile in relation to gravity?**

   A. It accelerates upward

   B. It decelerates due to air resistance

   C. It only moves downward

   D. It follows a curved path due to gravity

6. **What is the unit of resistance?**

    A. Coulombs

    B. Volts

    C. Ohms

    D. Amperes

7. **What is the weight of an object in space where gravity is negligible?**

    A. 10N

    B. 1N

    C. 0N

    D. 5N

8. **What occurs when unlike poles of magnets are approached?**

    A. They repel each other

    B. They attract each other

    C. They remain unaffected

    D. They create a stronger field

9. **What formula is commonly used to find the vertical time of a projectile?**

    A. t = Vhor/a

    B. t = Vvert/a

    C. t = d/Vvert

    D. t = 2Vvert/a

10. **What is required to maintain a state of equilibrium?**

    A. More anti-clockwise torques than clockwise

    B. All forces being unbalanced

    C. An equal sum of clockwise and anti-clockwise torques

    D. A constant external force

Answers

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

Explanations

1. **What can be said about the change of momentum in one mass during a collision?**

   A. It is equal to the change of momentum of the other mass

   B. It is always greater than the other mass

   C. It does not affect the overall momentum

   D. It cancels out the momentum of the entire system

In a collision, the principle of conservation of momentum states that the total momentum of a closed system remains constant if no external forces act on it. During a collision, when one mass changes its momentum, the other mass must experience a change in momentum of equal magnitude but opposite direction. This is because momentum is a vector quantity, which means it has both magnitude and direction. When one object collides with another, the forces they exert on each other are equal in magnitude and opposite in direction (according to Newton's Third Law). As a result, the change in momentum of the first object is exactly counterbalanced by the change in momentum of the second object. This relationship ensures that the total momentum of the system before and after the collision remains constant. This concept is essential for understanding how objects interact in collisions and forms the basis for many calculations in physics related to dynamics and kinematics. Thus, the statement that the change of momentum in one mass during a collision is equal to the change of momentum of the other mass accurately reflects this fundamental principle of momentum conservation.

2. **What happens to the magnetic field lines when the electric current is increased?**

   A. The field lines become denser

   B. The field lines disappear

   C. The field lines become shorter

   D. The field lines rotate

When the electric current in a conductor is increased, the strength of the magnetic field generated around it also increases. This is a direct consequence of Ampère's circuital law, which states that the magnetic field strength around a current-carrying conductor is proportional to the amount of current flowing through it. As the current increases, more magnetic field lines are produced, and these lines become denser, meaning they are closer together. This density is visually represented by the closer spacing of the magnetic field lines around the conductor, indicating a stronger magnetic field. In summary, increasing the current results in a stronger magnetic field, represented by a greater density of the magnetic field lines surrounding the conductor.

3. Which two factors are used to measure the turning effect of a torque?

A. Weight and distance

B. Force and leverage distance

C. Mass and acceleration

D. Power and area

The turning effect of a torque is fundamentally related to two essential factors: the force applied and the distance from the point of rotation, commonly referred to as the lever arm or moment arm. Torque is calculated as the product of the force and the perpendicular distance from the line of action of that force to the axis of rotation. This relationship shows that both the magnitude of the force and how far that force is applied from the pivot point significantly influence the overall torque. When you apply a larger force or increase the distance at which the force is applied, you enhance the ability of a force to cause rotational motion. This principle is crucial in mechanics, as it allows us to understand how different configurations of forces can either encourage or resist rotation in different systems, such as levers, wheels, and gears.

4. How does a projectile move in terms of force acting on it?

A. With continuous force

B. Under the influence of gravity only

C. With accelerating force

D. With an external engine

A projectile moves primarily under the influence of gravity once it has been launched. When an object is projected into the air, it typically follows a curved trajectory known as a parabolic path. The only force acting on it during its flight, after being launched, is the force of gravity pulling it downward. Initially, when the projectile is launched, it may have an initial force (thrust) that propels it. However, once the projectile is in motion and the influence of that initial force has diminished, gravity becomes the sole force acting on it until it reaches the ground. This is why the correct answer focuses on gravity; it clearly delineates the behavior of the projectile once it's in its flight path, unaffected by continuous propelling forces or external engines. Additionally, options that suggest continuous force or accelerating force imply persistent external influence which does not apply to an object in free fall after its initial launch. The concept that a projectile moves under gravity only accurately reflects the fundamental physics principles governing projectile motion in an idealized scenario where air resistance is negligible.

5. Which of the following statements correctly reflects the movement of a projectile in relation to gravity?

A. It accelerates upward

B. It decelerates due to air resistance

C. It only moves downward

D. It follows a curved path due to gravity

A projectile under the influence of gravity will follow a curved path, which is known as a parabolic trajectory. This occurs because the only force acting on the projectile after it has been launched is gravity, which pulls it downward towards the Earth. While the projectile moves forward due to its initial horizontal velocity, gravity constantly accelerates it downwards, resulting in the characteristic curved path.   The projectile experiences a vertical acceleration of approximately 9.81 m/s² downward, which alters its position over time. Initially, it will rise until gravity's influence overcomes its initial upward velocity, at which point it will begin to descend, creating the overall parabolic shape of the trajectory.   This description aligns with the principles of projectile motion, where the horizontal motion is uniform and the vertical motion is uniformly accelerated due to gravity. Understanding this interaction between initial velocity and gravitational acceleration is key to predicting the path of any projectile.

6. What is the unit of resistance?

A. Coulombs

B. Volts

C. Ohms

D. Amperes

Resistance is a measure of how much an object opposes the flow of electric current. The unit of resistance is defined as the ohm, symbolized by the Greek letter omega (Ω). One ohm is equivalent to the resistance that allows one ampere of current to flow when a voltage of one volt is applied across a component.   This relationship is captured in Ohm's Law, which states that voltage (V) equals current (I) times resistance (R), or $V = I \times R$. Therefore, when you think about how we measure resistance, the ohm serves as a crucial unit in the context of electric circuits to quantify this opposition to current flow. Recognizing the specific unit in use helps in understanding and calculating electrical parameters effectively.

7. What is the weight of an object in space where gravity is negligible?

A. 10N

B. 1N

C. 0N

D. 5N

When considering the weight of an object, it's important to understand that weight is the gravitational force acting on that object. Weight is calculated using the formula: \[\text{Weight} (W) = \text{mass} (m) \times \text{gravitational field strength} (g) \] In space, particularly in regions far from any massive celestial bodies, the gravitational field strength can be extremely low, often approaching zero. In such environments, the force of gravity is negligible, meaning that the gravitational field strength is effectively zero. Since weight is directly dependent on the gravitational field strength, if the gravitational field strength is zero, the weight of any object in that area will also be zero. Consequently, regardless of the mass of the object, if the gravitational pull is negligible, it will not exert any weight. This understanding confirms that in a scenario where gravity is negligible, the weight of the object would indeed be zero, making the correct answer the case where the weight is 0N.

8. What occurs when unlike poles of magnets are approached?

A. They repel each other

B. They attract each other

C. They remain unaffected

D. They create a stronger field

When unlike poles of magnets are approached, they attract each other. This phenomenon can be explained by the fundamental principles of magnetism. Magnets have two poles: a north pole and a south pole. According to the law of magnetism, opposite poles attract each other, while like poles repel one another. Thus, when a north pole of one magnet is brought near the south pole of another magnet, a force pulls them together, resulting in an attractive force.   This attraction occurs because the magnetic field lines from the north pole and south pole connect, allowing energy to transfer between the two magnets. The interaction between these magnetic fields is what leads to the attraction. With this understanding, the other options can be considered less accurate in describing what happens with unlike poles.

9. What formula is commonly used to find the vertical time of a projectile?

A. t = Vhor/a

B. t = Vvert/a

C. t = d/Vvert

D. t = 2Vvert/a

To find the vertical time of a projectile, the formula used is derived from the basic kinematic relationship that connects velocity, acceleration, and time. In this context, the vertical component of the projectile's motion is influenced by gravitational acceleration. The formula $t = V_{vert} / a$ indicates that the time can be calculated by dividing the vertical velocity by the vertical acceleration. Here, V_{vert} represents the initial vertical velocity of the projectile, and a is the acceleration due to gravity (which is typically taken as negative because it acts downwards). This relationship captures how long it takes for a projectile to ascend to its peak height (where vertical velocity is zero) or descend back to the initial height. In projectile motion, particularly when analyzing the vertical motion separately from horizontal motion, understanding this relationship is crucial. The upward motion will experience negative acceleration due to gravity, leading to a deceleration until the projectile reaches its highest point. For calculations regarding both ascent and descent, knowing the initial vertical velocity and the constant downward acceleration allows for precise determination of the time of flight for the vertical component of motion.

10. What is required to maintain a state of equilibrium?

A. More anti-clockwise torques than clockwise

B. All forces being unbalanced

C. An equal sum of clockwise and anti-clockwise torques

D. A constant external force

To maintain a state of equilibrium, specifically in a rotational context, it is essential that the sum of clockwise torques equals the sum of anti-clockwise torques. This condition ensures that there is no net torque acting on the object, allowing it to remain in a stable position without rotating. When the torques are balanced, the object experiences no rotational acceleration, thus keeping its current state of motion—either at rest or moving uniformly. This principle applies not only to static situations, where an object is at rest, but also to dynamic scenarios where an object is moving at a constant angular velocity. In contrast, if there were more anti-clockwise torques than clockwise, the object would start to rotate in the anti-clockwise direction. Likewise, if the forces are unbalanced, it would lead to linear acceleration not equilibrium. A constant external force alone does not contribute to rotational balance, as it affects the linear motion of the entire system rather than the rotational aspects necessary for equilibrium.

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!