

NCEA LEVEL 1 ENERGY PRACTICE TEST (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. Which quantity is measured in joules?
 - A. Distance
 - B. Speed
 - C. Energy
 - D. Time
2. In the equation $F = mg$, what does g represent?
 - A. velocity
 - B. distance
 - C. acceleration due to gravity
 - D. mass
3. An LED consumes 5 J of electrical energy. If its efficiency is 20% for light, how much light energy is produced?
 - A. 0.5 J
 - B. 4 J
 - C. 2 J
 - D. 1 J
4. A magnet and coil generator produce electricity. Identify the energy transformations that occur.
 - A. Mechanical energy (rotational) is converted to electrical energy via electromagnetic induction.
 - B. Electrical energy is converted to chemical energy.
 - C. Thermal energy is converted to electrical energy.
 - D. Nuclear energy is converted to kinetic energy.
5. A 1.0 kg ball falls from height 2.0 m. What is its kinetic energy just before impact?
 - A. 9.8 J
 - B. 39.2 J
 - C. 0 J
 - D. 19.6 J

6. Which device heats food primarily by microwave radiation?

- A. Toaster oven
- B. Steam oven
- C. Conventional oven
- D. Microwave oven

7. Which equation represents the work done by a constant force?

- A. $W = F \times d$
- B. $W = F / d$
- C. $W = m g h$
- D. $W = F + d$

8. What energy transformation occurs in photosynthesis?

- A. Electrical energy to light energy
- B. Thermal energy to chemical energy
- C. Light energy is converted into chemical energy stored in glucose.
- D. Chemical energy to light energy

9. In a circuit with a 12 V supply and two resistors in series, 3 Ω and 9 Ω , what is the current and voltage drop across each resistor?

- A. $I = 1 \text{ A}$; V across 3 $\Omega = 3 \text{ V}$; across 9 $\Omega = 9 \text{ V}$
- B. $I = 0.5 \text{ A}$; V across 3 $\Omega = 1.5 \text{ V}$; across 9 $\Omega = 4.5 \text{ V}$
- C. $I = 2 \text{ A}$; V across 3 $\Omega = 6 \text{ V}$; across 9 $\Omega = 18 \text{ V}$
- D. $I = 1 \text{ A}$; V across 3 $\Omega = 9 \text{ V}$; across 9 $\Omega = 3 \text{ V}$

10. Regarding current, which statement is true for series vs parallel circuits?

- A. Series = Stays the same, Parallel = Splits
- B. Series = Splits, Parallel = Stays the same
- C. Current is not defined in a circuit
- D. In both series and parallel, current splits equally

Answers

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

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Explanations

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1. Which quantity is measured in joules?

- A. Distance
- B. Speed
- C. Energy
- D. Time

Joules measure energy. The joule is the unit used for energy—it's the amount of energy required to do work or the amount of energy a system has. Work itself is force times distance, and energy can take forms like kinetic or potential energy, all expressed in joules. The other quantities use different units: distance in meters, speed in meters per second, and time in seconds. So energy is the quantity measured in joules.

2. In the equation $F = mg$, what does g represent?

- A. velocity
- B. distance
- C. acceleration due to gravity
- D. mass

Weight is the gravitational force acting on a mass, found by multiplying the mass by the acceleration due to gravity. The symbol g represents how quickly gravity accelerates a mass near Earth's surface, not how fast the object is moving (that's velocity), nor a distance, nor the mass itself. The value of g is about 9.8 m/s^2 , so heavier objects have greater weight because the same acceleration acts on more mass.

3. An LED consumes 5 J of electrical energy. If its efficiency is 20% for light, how much light energy is produced?

- A. 0.5 J
- B. 4 J
- C. 2 J
- D. 1 J

Key idea: efficiency is the fraction of input energy that becomes light. If 20% of the electrical energy is converted to light, you multiply the input energy by 0.20. So with 5 joules of electrical energy, light energy produced = $5 \times 0.20 = 1$ joule. The remaining energy isn't light (it's wasted as heat or other losses). The other numbers would come from using different fractions (for example, 0.10 would give 0.5 J, 0.80 would give 4 J, and 0.40 would give 2 J).

4. A magnet and coil generator produce electricity. Identify the energy transformations that occur.

A. Mechanical energy (rotational) is converted to electrical energy via electromagnetic induction.

B. Electrical energy is converted to chemical energy.

C. Thermal energy is converted to electrical energy.

D. Nuclear energy is converted to kinetic energy.

A generator converts mechanical energy into electrical energy through electromagnetic induction. When the magnet and coil move relative to each other, the magnetic flux through the coil changes. This changing flux induces an electromotive force in the coil, causing current to flow in a closed circuit. The energy that drives this induction comes from the mechanical energy you supply to keep the rotation going, so kinetic/mechanical energy is transformed into electrical energy. Some energy may be lost as heat due to resistance, but the primary transformation is mechanical energy to electrical energy. This differs from conversions like chemical energy to electrical, thermal energy to electrical, or nuclear energy to kinetic energy, which require different devices or setups.

5. A 1.0 kg ball falls from height 2.0 m. What is its kinetic energy just before impact?

A. 9.8 J

B. 39.2 J

C. 0 J

D. 19.6 J

When something falls, gravity transfers its stored potential energy into kinetic energy (assuming no air resistance). Because energy is conserved, the kinetic energy just before impact equals the initial gravitational potential energy: $KE = m g h$. Here, $m = 1.0 \text{ kg}$, $g \approx 9.8 \text{ m/s}^2$, and $h = 2.0 \text{ m}$, so $KE = 1 \times 9.8 \times 2 = 19.6 \text{ J}$. The other numbers would come from different fall heights: 9.8 J if it fell 1 m, 39.2 J if it fell 4 m, and 0 J only if there was no fall. If you want the speed just before impact, $v = \sqrt{2 g h} \approx \sqrt{39.2} \approx 6.3 \text{ m/s}$.

6. Which device heats food primarily by microwave radiation?

A. Toaster oven

B. Steam oven

C. Conventional oven

D. Microwave oven

Microwave heating works by using microwave radiation to excite water and other polar molecules inside food. The microwaves cause these molecules to rotate rapidly, and that motion turns into heat inside the food itself. The device that does this primarily is the microwave oven, because it generates microwaves with a magnetron and the energy is deposited mainly inside the food rather than from hot surfaces or surrounding air. Other appliances heat food mainly through radiant heat from hot elements, hot air convection, or steam transfer, not by microwave radiation. So the one that heats food primarily by microwave radiation is the microwave oven.

7. Which equation represents the work done by a constant force?

A. $W = F \times d$

B. $W = F / d$

C. $W = m g h$

D. $W = F + d$

When a constant force moves an object in the same direction as the displacement, the work done is found by multiplying the force by the distance moved. This gives $W = F \times d$, and it also links to the idea that work (in joules) equals force (in newtons) times distance (in meters). The general idea is that pushing harder or pushing farther adds more work. The other options don't describe this scenario: dividing force by distance would not give energy in joules; $m g h$ is the gravitational potential energy for lifting against gravity (a specific case, not the general work by any constant force); and adding force and distance has no physical meaning for work.

8. What energy transformation occurs in photosynthesis?

A. Electrical energy to light energy

B. Thermal energy to chemical energy

C. Light energy is converted into chemical energy stored in glucose.

D. Chemical energy to light energy

Photosynthesis takes light energy from the sun and stores it as chemical energy in glucose. Chlorophyll captures light and drives reactions that first produce energy carriers (ATP and NADPH) and then use them to assemble carbon dioxide and water into glucose. The important point is that the energy ends up stored in the chemical bonds of glucose, not as light or heat. So of the options, the correct one describes light energy being converted into chemical energy stored in glucose. The other ideas don't match what happens in photosynthesis: it isn't turning electrical energy into light, nor heat into chemical energy, and it doesn't convert chemical energy into light energy.

9. In a circuit with a 12 V supply and two resistors in series, 3 Ω and 9 Ω , what is the current and voltage drop across each resistor?

A. $I = 1$ A; V across 3 $\Omega = 3$ V; across 9 $\Omega = 9$ V

B. $I = 0.5$ A; V across 3 $\Omega = 1.5$ V; across 9 $\Omega = 4.5$ V

C. $I = 2$ A; V across 3 $\Omega = 6$ V; across 9 $\Omega = 18$ V

D. $I = 1$ A; V across 3 $\Omega = 9$ V; across 9 $\Omega = 3$ V

In a series circuit, the same current flows through every component, and the total resistance is the sum of the individual resistances. Here, the resistors are 3 Ω and 9 Ω , so the total resistance is 12 Ω . With a 12 V supply, the current is $12 \text{ V} \div 12 \Omega = 1 \text{ A}$. The voltage drop across each resistor is found from $V = I \times R$. So the 3 Ω resistor drops $1 \text{ A} \times 3 \Omega = 3 \text{ V}$, and the 9 Ω resistor drops $1 \text{ A} \times 9 \Omega = 9 \text{ V}$. The drops add up to the supply voltage ($3 \text{ V} + 9 \text{ V} = 12 \text{ V}$), which confirms the calculations.

10. Regarding current, which statement is true for series vs parallel circuits?

A. Series = Stays the same, Parallel = Splits

B. Series = Splits, Parallel = Stays the same

C. Current is not defined in a circuit

D. In both series and parallel, current splits equally

In a circuit, current behaves differently depending on the arrangement. In a series circuit, the same current flows through every component because there's only one path for charge to take. In a parallel circuit, the current splits into the different branches, and the amount that goes through each branch depends on that branch's resistance; the total current is the sum of all branch currents. So the statement that series keeps the current the same and parallel splits the current accurately describes how current behaves in these two setups. The other ideas aren't correct because current is defined in a circuit, in series it doesn't split, and in parallel the current does split—often not equally unless the branches have equal resistance.

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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://ncealevel1energy.examzify.com>

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

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