IGCSE PHYSICS – ELECTRICITY PRACTICE TEST (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. A house uses a 5 kW heater for 2 hours. How much energy is consumed, in kWh?

A. 5 kWh

B. 2 kWh

C. 10 kWh

D. 20 kWh

2. The current through a component is directly proportional to the voltage across it. Which statement describes this aspect of Ohm's Law?

A. I V

B. V I^2

C. I R

D. V P

3. If 5 coulombs of charge pass and the voltage is 2 volts, what is the energy transferred?

A. 10 joules.

B. 7 joules.

C. 2 joules.

D. 5 joules.

4. Which device is a semiconductor that allows current to flow in only one direction?

A. Diode

B. Friction

C. Ohmic

D. LDR

5. A lamp is connected to a 240 V supply and has a power rating of 120 W. What is the current through the lamp?

A. 0.25 A

B. 0.4 A

C. 0.5 A

D. 0.6 A

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6. What term describes the difference in electrical potential energy between two points?

A. Voltage

B. Current

C. Resistance

D. Power

7. Which term describes a resistor whose resistance can be changed by adjusting the portion of the resistor the current travels through?

A. Variable resistor

B. Fixed resistor

C. Fixed value resistor

D. Potentiometer

8. What is the unit used to measure electrical power?

A. Watt

B. Joule

C. Volt

D. Ampere

9. Which materials are examples of insulators?

A. Glass, Plastic, Wood, Most non-metals

B. Copper, Silver, Gold

C. Water, Salt

D. Air and Water

10. A detector whose resistance decreases as light intensity increases is known as what?

A. LDR (Light Dependent Resistor)

B. Thermistor

C. Filament bulb

D. Diode

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Answers

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

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Explanations

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1. A house uses a 5 kW heater for 2 hours. How much energy is consumed, in kWh?

A. 5 kWh

B. 2 kWh

C. 10 kWh

D. 20 kWh

Energy used equals power multiplied by time. A 5 kW heater running for 2 hours uses 5 kW × 2 h = 10 kWh of energy. This is the standard way to express household energy consumption. If you needed joules, 10 kWh equals 3.6 × 10^7 J, but since the unit asked for is kWh, the final value is 10 kWh.

2. The current through a component is directly proportional to the voltage across it. Which statement describes this aspect of Ohm's Law?

A. I V

B. V I^2

C. I R

D. V P

Ohm's law shows that current through a component is directly proportional to the voltage across it when the resistance stays the same. Write V = IR, so rearranging gives I = V/R. If R is constant, doubling the voltage doubles the current, which is exactly what a direct proportionality I V means. The constant of proportionality is 1/R, linking how easily current flows to the resistance present. This is why the statement I V correctly describes this aspect of Ohm's law. If you see a different relationship, like V I^2 or I R, those don't describe the straightforward, linear link between voltage and current for a fixed resistor. And V P isn't the basic Ohm's-law relationship either, since power involves both voltage and current (P = VI).

3. If 5 coulombs of charge pass and the voltage is 2 volts, what is the energy transferred?

A. 10 joules.

B. 7 joules.

C. 2 joules.

D. 5 joules.

When a charge moves through a potential difference, the energy transferred equals the work done on that charge, which is E = QV (energy = charge × voltage). Here, 5 coulombs passing through 2 volts gives E = 5 × 2 = 10 joules. So the energy transferred is 10 J. The other numbers don't fit E = QV with the given values.

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4. Which device is a semiconductor that allows current to flow in only one direction?

A. Diode

B. Friction

C. Ohmic

D. LDR

A diode is a semiconductor device that conducts current in only one direction because of its p-n junction. When the anode is more positive than the cathode (forward bias), the depletion region narrows and charge carriers can cross, so current flows. If the polarity is reversed (reverse bias), the depletion region widens and very little current can pass, so the current is effectively blocked. This one-way conduction is why a diode is used to control the direction of current in circuits. Other options don't fit this role: friction produces static electricity but isn't a controlled conduction path; an Ohmic device like a resistor follows Ohm's law and does not restrict current to one direction; a light-dependent resistor changes its resistance with light, not the direction of current.

5. A lamp is connected to a 240 V supply and has a power rating of 120 W. What is the current through the lamp?

A. 0.25 A

B. 0.4 A

C. 0.5 A

D. 0.6 A

Power is the product of voltage and current ($P = V \times I$). With a lamp rated at 120 W on a 240 V supply, the current is $I = P / V = 120 / 240 = 0.5$ A. This also checks out because $240 \text{ V} \times 0.5 \text{ A} = 120 \text{ W}$. So the lamp draws 0.5 A at 240 V.

6. What term describes the difference in electrical potential energy between two points?

A. Voltage

B. Current

C. Resistance

D. Power

Voltage describes the difference in electrical potential energy between two points. Think of each charge having potential energy depending on its position in an electric field. When there's a difference in potential between two points, charges experience a push that can drive them from one point to the other. This push is what we call voltage (also known as potential difference). The unit is the volt, which equals one joule per coulomb of charge. In circuits, this potential difference across a component provides the energy that moves charges and powers the device. The other terms describe different things: current is the rate of charge flow, resistance is how much a material opposes that flow, and power is the rate at which energy is transferred. So the term for the difference in potential energy between two points is voltage.

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7. Which term describes a resistor whose resistance can be changed by adjusting the portion of the resistor the current travels through?

A. Variable resistor

B. Fixed resistor

C. Fixed value resistor

D. Potentiometer

Being able to adjust resistance means the device lets you change how much of the resistive material the current travels through. For a uniform resistor, the resistance is proportional to the length of the path the current takes. So by moving a contact along the resistor to pick a different portion of the track, you change the length the current flows through and thus change the resistance. This is the hallmark of a variable resistor. A potentiometer is a specific type of variable resistor with a sliding contact, and it's often used as a voltage divider. When used as a two-terminal component, it also behaves as a variable resistor, but its main common use is as a three-terminal device for dividing voltage. The other options describe resistors whose resistance is fixed and does not change.

8. What is the unit used to measure electrical power?

A. Watt

B. Joule

C. Volt

D. Ampere

Power is the rate at which energy is transferred or used in a circuit, so the unit must express energy per unit time. In electricity, power equals current times potential difference ($P = V \times I$). The units volt and ampere multiply to give volt-ampere, which is defined as a watt. Since a watt is one joule per second, the watt is the unit for electrical power. The joule is an energy unit, not a rate; the volt measures potential difference, and the ampere measures current.

9. Which materials are examples of insulators?

A. Glass, Plastic, Wood, Most non-metals

B. Copper, Silver, Gold

C. Water, Salt

D. Air and Water

Insulators resist the flow of electricity because their electrons are tightly bound and not free to move. Glass, plastic and wood are classic insulators, so they do not allow charge to pass easily. Most non-metals behave like this too, having high resistance to current. In contrast, metals such as copper, silver and gold have free electrons that move easily, making them good conductors rather than insulators. Water conducts electricity when it contains ions (from impurities or dissolved salt); pure water is only a weak conductor, but it's not a reliable insulator. Air is a very good insulator, but because water isn't, a choice that pairs air with water isn't purely insulative. So the materials that are insulators are glass, plastic, wood, and most non-metals.

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10. A detector whose resistance decreases as light intensity increases is known as what?

A. LDR (Light Dependent Resistor)

B. Thermistor

C. Filament bulb

D. Diode

Light affects a detector's ability to conduct electricity through a property called photoconductivity. In a light-dependent resistor, darkness leaves the material with few charge carriers, giving it a high resistance. When light shines on it, photons provide energy that frees more charge carriers, so conductivity increases and resistance falls. The stronger the light, the lower the resistance becomes, making it a straightforward light sensor. Other components don't respond to light in this same way. A thermistor changes resistance with temperature, not light—and it can either rise or fall with heat depending on the type. A filament bulb's resistance increases as it heats up, which is a thermal effect, not a light-detection behavior. A diode mainly governs current in one direction and isn't defined by a simple decrease in resistance with light, though some light-sensitive devices exist, the described detector is the light-dependent resistor.

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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://igcsephysicselectricity.examzify.com

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

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