

LMS SUBSTATION 1ST YEAR, LEVEL II PRACTICE TEST (SAMPLE)

STUDY GUIDE



Prepare with structure. Pass with confidence



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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. What happens to the current flowing through a resistance if the source voltage is increased?**
 - A. The current decreases
 - B. The current remains unchanged
 - C. The current increases
 - D. The current doubles
- 2. What is indicated by the movement of 1 coulomb of charge in a circuit?**
 - A. The completion of a circuit
 - B. The measurement of voltage
 - C. The measurement of current
 - D. The measurement of resistance
- 3. What system is formed by whole numbers and operations such as addition, subtraction, multiplication, and division?**
 - A. Binary
 - B. Decimal
 - C. Hexadecimal
 - D. Octal
- 4. What is a circuit called when current takes an alternate path back to the source?**
 - A. Closed circuit
 - B. Open circuit
 - C. Short circuit
 - D. Series circuit
- 5. What is the voltage reading when the selector is in the 30 DCV position?**
 - A. 2 VDC
 - B. 3 VDC
 - C. 5 VDC
 - D. 4 VDC

- 6. What typically signifies a failure in circuit integrity?**
- A. Closed circuit
 - B. Short circuit
 - C. Open circuit
 - D. Bypass circuit
- 7. Which of the following statements is true about conductors?**
- A. They typically have 7 or 8 valence electrons.
 - B. They usually possess 1 or 2 valence electrons.
 - C. They have no valence electrons.
 - D. They generally have more than 8 valence electrons.
- 8. If 500 watts is consumed, what is its horsepower equivalent?**
- A. 0.67 HP
 - B. 0.75 HP
 - C. 1 HP
 - D. 1.5 HP
- 9. Are unlike charges repelled by each other?**
- A. Yes
 - B. No
 - C. Only in magnets
 - D. It depends on the distance
- 10. What is the usual number of valence electrons in an insulator?**
- A. 1 or 2
 - B. 3 to 6
 - C. 7 or 8
 - D. 9 or 10

Answers

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

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Explanations

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1. What happens to the current flowing through a resistance if the source voltage is increased?

- A. The current decreases
- B. The current remains unchanged
- C. The current increases**
- D. The current doubles

When the source voltage is increased while the resistance remains constant, the current flowing through that resistance will increase. This relationship is governed by Ohm's law, which states that the current (I) through a conductor between two points is directly proportional to the voltage (V) across the two points and inversely proportional to the resistance (R). The mathematical expression for Ohm's law is $I = V/R$. In this scenario, if you increase the voltage while keeping the resistance unchanged, the quotient of voltage and resistance results in a higher current value. Therefore, as voltage increases, the current increases correspondingly. Understanding this principle is crucial in electronics and electrical engineering since it illustrates how voltage changes directly impact current flow in a circuit.

2. What is indicated by the movement of 1 coulomb of charge in a circuit?

- A. The completion of a circuit
- B. The measurement of voltage
- C. The measurement of current**
- D. The measurement of resistance

The movement of 1 coulomb of charge in a circuit is directly related to the measurement of current. Current, defined as the flow of electric charge, is measured in amperes, where 1 ampere is equivalent to 1 coulomb of charge passing through a point in a circuit in one second. This means that when 1 coulomb of charge moves, it provides a clear measurement of how much charge is flowing within that time frame, thus representing the flow of electric current. The other options refer to different electrical concepts. The completion of a circuit does not specifically convey information about charge movement, as a circuit can be completed without any current flow. Voltage represents the difference in electric potential energy per unit charge, while resistance is a property of a material that opposes the flow of current. Each of these concepts plays a role in the overall functioning of electrical systems, but the movement of charge specifically identifies the flow of current.

3. What system is formed by whole numbers and operations such as addition, subtraction, multiplication, and division?

- A. Binary
- B. Decimal**
- C. Hexadecimal
- D. Octal

The system formed by whole numbers and operations such as addition, subtraction, multiplication, and division is the decimal system, which is the most commonly used number system in daily life. The decimal system is based on ten digits (0 through 9) and is a base-10 system. This system is essential for performing arithmetic operations that are foundational for various applications in mathematics, science, and engineering. While other systems like binary, hexadecimal, and octal are used in computing and specific mathematical representations, they consist of different bases. The binary system operates with two digits (0 and 1) and is predominantly utilized in digital circuits and computing, while the octal system uses eight digits (0 through 7) and the hexadecimal system employs sixteen digits (0 through 9 and A through F). These systems are not typically used for general mathematical operations or everyday calculations in the same way the decimal system is. Thus, the decimal system is the correct choice as it encapsulates the use of whole numbers along with the defined operations.

4. What is a circuit called when current takes an alternate path back to the source?

- A. Closed circuit
- B. Open circuit
- C. Short circuit**
- D. Series circuit

A circuit where current takes an alternate path back to the source is known as a short circuit. In electrical terms, a short circuit occurs when there is an unintended low-resistance connection between two points in an electric circuit, typically the positive and negative terminals. This allows current to bypass the normal load, which can create a large amount of current flow that can lead to overheating, equipment damage, or potentially fire hazards. In contrast to short circuits, closed circuits are complete paths with no breaks, allowing current to flow normally to the load. Open circuits interrupt the flow of current completely, preventing it from returning to its source. Series circuits consist of components connected end-to-end in a single path for current to flow. In summary, a short circuit specifically refers to the phenomenon where an alternate path is created inadvertently, allowing current to flow back to its source without following the intended circuit path.

5. What is the voltage reading when the selector is in the 30 DCV position?

- A. 2 VDC**
- B. 3 VDC
- C. 5 VDC
- D. 4 VDC

In this context, when the selector is in the 30 DCV position, it indicates that the multimeter is set to measure voltage in a range that allows for a maximum reading of 30 volts in direct current (DC). The answer of 2 VDC implies that the measured voltage in the circuit is 2 volts, which is within the permissible range of the 30 DCV setting. When using a multimeter, each setting corresponds to a certain range of measurable values. A reading of 2 VDC means that the voltage present in the circuit being tested is 2 volts. This reading is clear and accurate within the selected range and reflects the basic functionality of measuring electrical voltage. Different voltage readings during measurement (like 3 VDC, 5 VDC, or 4 VDC) fall outside the stated reading of 2 VDC and may not accurately reflect the actual condition of the circuit under test at that moment if chosen as the answer. Thus, 2 VDC correctly indicates a plausible and valid voltage measurement under that selected range.

6. What typically signifies a failure in circuit integrity?

- A. Closed circuit
- B. Short circuit
- C. Open circuit**
- D. Bypass circuit

A failure in circuit integrity is typically indicated by an open circuit. An open circuit occurs when there is a break in the conductive path, preventing current from flowing. This can happen due to various reasons such as a broken wire, a malfunctioning component, or a disconnection. The result is that the circuit cannot perform its intended function, which is crucial for maintaining the reliability and performance of electrical systems. In contrast, a closed circuit allows current to flow, and a short circuit represents an unintended low-resistance connection that can lead to excessive current, often causing damage or a failure to components within the circuit. A bypass circuit can also function under normal conditions without indicating failure; it typically allows power to flow around a faulty component but does not signify a failure in circuit integrity itself. Thus, identifying an open circuit as a failure provides the most direct indication that there is an integrity issue within the circuit.

7. Which of the following statements is true about conductors?

- A. They typically have 7 or 8 valence electrons.
- B. They usually possess 1 or 2 valence electrons.**
- C. They have no valence electrons.
- D. They generally have more than 8 valence electrons.

Conductors, such as metals, are characterized by their ability to efficiently transfer electrical current due to the presence of free-moving valence electrons. The correct statement mentions that conductors usually possess 1 or 2 valence electrons. This is important because the presence of fewer valence electrons allows these electrons to move freely within the metal lattice, making it easier for electric current to flow. In metals, the outermost electrons are not tightly bound to their respective atoms, which contributes to the high electrical and thermal conductivity associated with these materials. Elements from groups 1 and 2 of the periodic table, including sodium and magnesium, exemplify this behavior, further supporting the assertion that conductors have 1 or 2 valence electrons. The other statements do not accurately reflect the characteristics of conductors. For instance, having 7 or 8 valence electrons would make an element more likely to be an insulator or semiconductor, as these electrons are typically more stable and not readily available for conduction. Similarly, claiming that conductors have no valence electrons or more than 8 valence electrons is inconsistent with the fundamental properties that define conductive materials.

8. If 500 watts is consumed, what is its horsepower equivalent?

A. 0.67 HP

B. 0.75 HP

C. 1 HP

D. 1.5 HP

To convert watts to horsepower, it is essential to know the conversion factor. One horsepower is equivalent to approximately 746 watts. Therefore, to find the horsepower equivalent of 500 watts, you can use the formula: $\text{Horsepower (HP)} = \text{Watts} / 746$. By performing the calculation: $\text{HP} = 500 \text{ watts} / 746 \text{ watts/HP}$, $\text{HP} \approx 0.67$. This implies that 500 watts is approximately 0.67 horsepower, which aligns with the first choice. This conversion is fundamental in understanding power units, particularly in comparing electrical power with mechanical power outputs. The other options represent higher horsepower values that exceed the conversion derived from 500 watts, making them unattainable given the established relationship between watts and horsepower.

9. Are unlike charges repelled by each other?

A. Yes

B. No

C. Only in magnets

D. It depends on the distance

Unlike charges, such as a positive charge and a negative charge, attract each other due to the fundamental principles of electrostatics. This attraction occurs because opposite charges generate electric fields that exert forces on each other according to Coulomb's Law. The principle can be visualized with the idea that the positive charge seeks stability and pulls in the negative charge towards it, while the negative charge does the same for the positive. The incorrect options revolve around misinterpretations of electrostatic forces. The assertion that unlike charges are repelled is fundamentally flawed, as it contradicts the well-established behavior of electric charges. Options referencing distance do not affect the basic principle that opposites attract; rather, distance influences the strength of the force according to an inverse square law, but it does not change the nature of the interaction between unlike charges. Thus, understanding the core principle that unlike charges attract is critical in the study of electricity and magnetism.

10. What is the usual number of valence electrons in an insulator?

A. 1 or 2

B. 3 to 6

C. 7 or 8

D. 9 or 10

In the context of materials science and solid-state physics, insulators are characterized by their inability to conduct electricity under normal conditions. This property is significantly influenced by the number of valence electrons present in the constituent atoms. Atoms with a full valence shell, commonly possessing 7 or 8 valence electrons, typically behave as insulators. Elements with 8 valence electrons, which is the case for noble gases like neon and argon, are particularly stable and do not readily form bonds or allow electrons to move freely. Even elements with 7 valence electrons, such as halogens, tend to resist conduction due to their tendency to gain an electron to complete their valence shell fully. This stable electron configuration contributes to the overall electrical insulation properties of materials. In contrast, materials that fall into the categories of conductors or semiconductors usually have fewer than 7 valence electrons, enabling more electron mobility. Consequently, the presence of 7 or 8 valence electrons is a key factor in classifying a material as an insulator, highlighting why this range is the most indicative of insulative behavior.

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://lmssubstation1stylvl2.examzify.com>

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

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