

# NEIEP POWER AND LOGIC (700) 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.

# 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 method is commonly used for efficient motor starting in high-capacity applications?**
  - A. Soft starters
  - B. Wye-Delta motor starting
  - C. Direct-on-line starting
  - D. Autotransformer starting
  
- 2. What technique involves dispatching elevators to different building levels for quicker service?**
  - A. Hoist motor fields
  - B. Zoning
  - C. Triplex
  - D. Suicide circuits
  
- 3. When might it be essential to utilize a wiring diagram?**
  - A. To analyze energy consumption data
  - B. For troubleshooting and installation purposes
  - C. To test the durability of wiring materials
  - D. For measuring the voltage of a circuit
  
- 4. What does "current leakage" in an electrical system imply?**
  - A. Excessive current flow
  - B. Unintended current through incorrect pathways
  - C. Efficient current transmission
  - D. Leakage of heat from components
  
- 5. What can cause inductors to behave differently in terms of inductive reactance?**
  - A. Voltage levels
  - B. Material type
  - C. Frequency of the current
  - D. Physical size of the inductor

- 6. What device is used to measure volts, ohms, and milliamperes?**
- A. Oscilloscope
  - B. VOM multimeter
  - C. Wattmeter
  - D. Analog ammeter
- 7. What role does a surge protector serve in electrical circuits?**
- A. To improve energy efficiency
  - B. To increase the voltage output
  - C. To divert excess voltage from power surges
  - D. To prevent electrical current from flowing
- 8. What is the primary function of a capacitor in an electrical circuit?**
- A. To resist electrical current
  - B. To store electrical energy
  - C. To convert AC to DC
  - D. To amplify signals
- 9. What system is described to help increase responsiveness in elevator services?**
- A. Zoning
  - B. Dispatching elevators
  - C. Reducing contact arcing
  - D. AC cycle reversal
- 10. What is a primary purpose of low oil timers in hydraulic systems?**
- A. To expedite system operations
  - B. To measure hydraulic pressure
  - C. To prevent motor damage
  - D. To adjust flow rates

## **Answers**

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

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## **Explanations**

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**1. Which method is commonly used for efficient motor starting in high-capacity applications?**

- A. Soft starters
- B. Wye-Delta motor starting**
- C. Direct-on-line starting
- D. Autotransformer starting

*The Wye-Delta motor starting method is widely used for efficiently starting high-capacity motors. This technique involves initially connecting the motor in a Wye (Y) configuration, which limits the voltage and current during startup, resulting in a smoother and reduced starting torque. Once the motor reaches a certain speed, typically about 80% of its full speed, the configuration is switched to Delta ( $\Delta$ ), allowing the motor to operate at its full capacity. This approach significantly reduces the inrush current that is typical with Direct-on-line starting methods, which can be detrimental in high-capacity scenarios due to the large electrical demand placed on the power source. Wye-Delta starting also minimizes mechanical stress on the motor and connected components, prolonging their lifespan and reducing maintenance costs. While other methods like Soft starters, Direct-on-line starting, and Autotransformer starting have their advantages, they either do not provide the same level of efficiency in high-capacity applications or do not effectively reduce inrush current and torque as Wye-Delta does.*

**2. What technique involves dispatching elevators to different building levels for quicker service?**

- A. Hoist motor fields
- B. Zoning**
- C. Triplex
- D. Suicide circuits

*The technique that involves dispatching elevators to different building levels for quicker service is zoning. Zoning refers to the strategic assignment of elevators to specific groups of floors within a building, which improves efficiency and reduces waiting times. By having certain elevators designated to serve only particular floors or groups of floors, the system can minimize travel time and optimize the use of resources, allowing for faster service to passengers. In high-rise buildings, this approach is particularly beneficial as it alleviates congestion in the elevator lobbies and ensures that people are served more efficiently based on their destinations. For instance, lower-level elevators can be set aside for the first several floors, while others might be reserved for the upper levels, streamlining the overall operation. The other options do not focus on the efficient dispatching of elevators across different levels in the context being described. Hoist motor fields pertain more to the specifics of lift motor technology rather than operational efficiency. Triplex can refer to systems with three components but doesn't directly correlate with zoning principles in elevator service. Suicide circuits usually relate to electrical wiring and safety protocols, which is unrelated to optimizing elevator service.*

### 3. When might it be essential to utilize a wiring diagram?

- A. To analyze energy consumption data
- B. For troubleshooting and installation purposes**
- C. To test the durability of wiring materials
- D. For measuring the voltage of a circuit

Utilizing a wiring diagram is essential primarily for troubleshooting and installation purposes because it provides a detailed visual representation of the electrical connections and components within a circuit. This diagram allows technicians and electricians to pinpoint where issues may arise during troubleshooting, identify the correct paths for wiring during installation, and ensure that all connections comply with electrical codes and regulations. By using a wiring diagram, one can easily follow the layout of the circuits, which is crucial when diagnosing problems or verifying that the installation aligns with the design specifications. It serves as a roadmap, simplifying complex electrical systems into understandable visuals. The other options focus on areas that, while important in their own right, do not require the specific guidance that a wiring diagram provides. Analyzing energy consumption or measuring voltage involves different tools and methods that do not necessitate a detailed wiring representation. Testing the durability of wiring materials, on the other hand, pertains to physical properties and performance characteristics rather than the layout or connections of the wiring itself.

### 4. What does "current leakage" in an electrical system imply?

- A. Excessive current flow
- B. Unintended current through incorrect pathways**
- C. Efficient current transmission
- D. Leakage of heat from components

"Current leakage" in an electrical system implies unintended current flow through incorrect pathways. This concept relates to situations where electrical current deviates from its intended route, potentially leading to safety hazards, equipment malfunction, or energy losses. For example, if insulation is compromised, or if there are faulty connections, the current might escape from the designated circuit, leading to inefficient operation and possible damage. This type of leakage can also create safety risks, such as electric shock or fire hazards, further emphasizing the importance of ensuring proper insulation and circuit integrity in electrical systems. The other answers do not accurately describe current leakage. Excessive current flow refers to overcurrent situations, which are different. Efficient current transmission relates to minimizing losses in properly functioning systems, while leakage of heat pertains to thermal issues rather than electrical current.

**5. What can cause inductors to behave differently in terms of inductive reactance?**

- A. Voltage levels
- B. Material type
- C. Frequency of the current**
- D. Physical size of the inductor

Inductive reactance is a measure of how much an inductor resists the flow of alternating current (AC) due to its inductance, and it is directly influenced by the frequency of the current passing through the inductor. The formula for inductive reactance is given by  $X_L = 2\pi f L$ , where  $X_L$  is the inductive reactance,  $f$  is the frequency of the AC signal, and  $L$  is the inductance. As the frequency increases, the inductive reactance also increases, which means that an inductor will oppose the flow of current more as the frequency of the AC increases. This behavior is crucial in applications involving AC circuits, as it affects how energy is stored and released in inductive components. Conversely, at lower frequencies, the reactance decreases, allowing more current to flow through the inductor. While factors such as voltage levels, material type, and physical size can influence the behavior of inductors in a circuit, it is the frequency of the current that has a direct mathematical relationship with the inductive reactance, making it the primary factor in how inductors behave in an AC environment.

**6. What device is used to measure volts, ohms, and milliamperes?**

- A. Oscilloscope
- B. VOM multimeter**
- C. Wattmeter
- D. Analog ammeter

A VOM multimeter, or Volt-Ohm-Milliammeter, is a versatile instrument specifically designed to measure voltage (volts), resistance (ohms), and current (milliamperes). This multifunctionality makes it an essential tool for electricians and technicians, allowing them to diagnose, troubleshoot, and test electrical circuits effectively. The device operates by allowing the user to select the type of measurement needed, whether it is voltage, resistance, or current. For voltage measurement, it connects in parallel across a circuit element. For resistance, it requires the component to be isolated from power; it measures the opposition to current flow. When measuring current, it is connected in series with the circuit. The other devices mentioned have specific functionalities but do not measure all three parameters. An oscilloscope primarily displays voltage waveforms over time and is more suited for analyzing signal shapes than for measuring resistance or current. A wattmeter measures electrical power in watts and does not directly measure voltage, ohms, or milliamperes. Lastly, an analog ammeter exclusively measures current and does not provide readings for voltage or resistance, limiting its application compared to a multimeter.

## 7. What role does a surge protector serve in electrical circuits?

- A. To improve energy efficiency
- B. To increase the voltage output
- C. To divert excess voltage from power surges**
- D. To prevent electrical current from flowing

A surge protector is designed specifically to protect electrical devices and circuits from damage caused by voltage spikes, which can occur during events such as lightning strikes or power outages. When a surge occurs, the device detects the excess voltage and redirects it away from the connected equipment, helping to prevent potential harm. This protective mechanism ensures that the devices remain safe and operational even when there are fluctuations in the electrical supply. While improving energy efficiency, increasing voltage output, or preventing current flow are important aspects of electrical systems, they are not the primary function of a surge protector. The main focus of a surge protector is to manage excess voltage, making it an essential component for protecting sensitive electronics from damage.

## 8. What is the primary function of a capacitor in an electrical circuit?

- A. To resist electrical current
- B. To store electrical energy**
- C. To convert AC to DC
- D. To amplify signals

The primary function of a capacitor in an electrical circuit is to store electrical energy. Capacitors are passive electronic components that can store and release energy quickly. They consist of two conductive plates separated by an insulating material called a dielectric. When a voltage is applied across the capacitor, an electric field forms between the plates, allowing it to hold a specific amount of electrical energy, known as capacitance. In various applications, capacitors play crucial roles such as smoothing out voltage fluctuations in power supply circuits, coupling and decoupling signals in audio electronics, and timing applications in oscillators and timers. Their ability to quickly charge and discharge makes them essential for maintaining stable operations in circuits. The other choices, while relevant to different components or materials, do not accurately describe the function of a capacitor. For instance, resistors are used to resist electrical current, diodes convert AC to DC, and amplifiers are designed to increase the strength of signals. These functions are accomplished through different types of components, each serving unique purposes within electrical and electronic systems.

## 9. What system is described to help increase responsiveness in elevator services?

- A. Zoning**
- B. Dispatching elevators
- C. Reducing contact arcing
- D. AC cycle reversal

The system that helps increase responsiveness in elevator services is zoning. This approach divides a building into different sections or zones, with each zone being served by specific elevators that are designated for those areas. By doing so, the elevators can operate more efficiently, as they are assigned to respond to calls within their designated zones rather than servicing the entire building indiscriminately. This reduces wait times for passengers, improves traffic management, and allows for a more tailored elevator service that matches passenger needs based on their locations. Since zoning focuses specifically on organizing elevator service according to different areas, it enhances the overall efficiency and responsiveness of the system. Other options, such as dispatching elevators or reducing contact arcing, may relate to elevator operations but do not specifically address the strategic organization of service that zoning entails. AC cycle reversal is also unrelated to improving elevator responsiveness in the context described in the question.

**10. What is a primary purpose of low oil timers in hydraulic systems?**

- A. To expedite system operations
- B. To measure hydraulic pressure
- C. To prevent motor damage**
- D. To adjust flow rates

*Low oil timers in hydraulic systems serve a crucial function in protecting the hydraulic motor from damage that can arise due to insufficient lubrication. When the oil level is low, there is a risk that the hydraulic system won't receive the necessary lubrication to operate smoothly. This can lead to increased friction, overheating, and ultimately, catastrophic failure of the motor. The low oil timer acts as a safeguard by monitoring oil levels. If the oil drops below a predetermined threshold, the timer can trigger an alarm, stop the system, or execute another safety protocol to prevent motor damage. This preventative action ensures that the hydraulic components maintain their integrity and function, extending the lifespan of the equipment and reducing maintenance costs. While low oil timers do not expedite system operations, measure hydraulic pressure, or adjust flow rates, their primary role is to ensure that adequate lubrication is always present, thereby preventing potential motor damage.*

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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](mailto:hello@examzify.com).

Or visit your dedicated course page for more study tools and resources:

<https://neiep700.examzify.com>

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

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