

REGISTERED ELECTRICAL ENGINEERING LICENSURE PRACTICE EXAM (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE

<https://electricalengineeringlicensure.examzify.com>



Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	16

SAMPLE

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

SAMPLE

- 1. What does the primary purpose of a contactor in motor control involve?**
 - A. To conduct power directly to the motor.
 - B. To provide overload protection.
 - C. To connect and disconnect power to the motor.
 - D. To control the speed of the motor.

- 2. Which statement best describes the operation of a synchronous motor?**
 - A. It requires periodic speed adjustments
 - B. It is powered directly by solar energy
 - C. It runs constantly in sync with the power line frequency
 - D. It is limited to heavy-duty industrial applications

- 3. In what type of electrical machine would you typically find wound rotors?**
 - A. Induction motors
 - B. Synchronic motors
 - C. Direct current motors
 - D. Any type of motor

- 4. What does a transformer ratio of 20:1 signify?**
 - A. 20 turns on the secondary for every 1 turn on the primary.
 - B. 20 turns on the primary for every 1 turn on the secondary.
 - C. 20 volts on the secondary for every 1 volt on the primary.
 - D. The output current is 20 times greater than the input current.

- 5. What does an ammeter measure?**
 - A. Voltage across components
 - B. Current flowing through a circuit
 - C. Electrical resistance
 - D. Power consumption

- 6. What factors limit the size of an induction motor?**
 - A. Mechanical factors and weight
 - B. Branch circuit protection and network capacity
 - C. Cooling methods and heat dissipation
 - D. Voltage and current ratings

7. What is the primary function of a magnetic starter?

- A. To regulate voltage output
- B. To automatically start and stop motors
- C. To convert AC to DC
- D. To act as a fuse in circuits

8. What describes a lagging power factor in AC circuits?

- A. Current leads voltage
- B. Voltage leads current
- C. Current lags voltage
- D. Voltage and current are in phase

9. What is a characteristic of a short shunt connection in a generator?

- A. Series field connected in series with armature
- B. Field connected directly to the armature
- C. Shunt field connected across series field and armature
- D. Only the armature winding is used

10. What defines a power supply in electrical terms?

- A. A device that stores electrical energy
- B. A source providing electrical energy
- C. A circuit protection device
- D. A type of transformer

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What does the primary purpose of a contactor in motor control involve?

- A. To conduct power directly to the motor.
- B. To provide overload protection.
- C. To connect and disconnect power to the motor.**
- D. To control the speed of the motor.

The primary purpose of a contactor in motor control is to connect and disconnect power to the motor. Contactors are electromagnetically controlled switches designed specifically to handle the high starting and running currents of motors. By controlling the flow of electricity, contactors allow a motor to be powered on or off from a distance, typically through a control circuit. This feature makes them essential for remote operation and automated control of motors in various applications. When a control signal is applied, the contactor energizes and closes its contacts, allowing electrical current to flow to the motor. Conversely, when the control signal is removed, the contactor de-energizes, opening the contacts and cutting off power to the motor. This function is critical for ensuring the safe and effective operation of motor systems, especially in industrial and commercial settings. While overload protection is an important aspect of motor control, that function is typically fulfilled by overload relays, which work alongside contactors to prevent motor damage due to excessive current. Similarly, speed control is managed by variable frequency drives or other speed control devices, not by contactors themselves. Conducting power directly to the motor is also not the main function of a contactor, as it serves more as an intermediary device rather than a direct power

2. Which statement best describes the operation of a synchronous motor?

- A. It requires periodic speed adjustments
- B. It is powered directly by solar energy
- C. It runs constantly in sync with the power line frequency**
- D. It is limited to heavy-duty industrial applications

The operation of a synchronous motor is characterized by its ability to run at a speed that is directly synchronized with the frequency of the supply power line. This means that the motor's rotor turns at the same rate as the rotating magnetic field produced by the stator, which is determined by the frequency of the alternating current (AC) supply. This synchronization allows the motor to maintain a constant speed under varying load conditions, provided that the load does not exceed its design capacity. When considering other options, the requirement for periodic speed adjustments is not applicable to synchronous motors, as they are designed to maintain a stable operational speed in relation to supply frequency. Additionally, while some forms of power generation, such as solar energy, can be harnessed to drive motors, synchronous motors are not exclusively powered by this energy source. Furthermore, the use of synchronous motors is not limited to heavy-duty industrial applications; they can also be found in various settings, including commercial and residential, depending on power needs.

3. In what type of electrical machine would you typically find wound rotors?

- A. Induction motors**
- B. Synchronic motors
- C. Direct current motors
- D. Any type of motor

Wound rotors are typically found in induction motors, specifically in the design known as the wound rotor induction motor. This type of rotor consists of coils of wire wound around a core, allowing for external resistances to be added to the rotor circuit. This feature is particularly beneficial because it helps control the motor's starting torque and speed during operation. By adjusting the external resistances, engineers can modify the performance characteristics of the motor to suit various applications. In contrast, synchronous motors generally use either a permanent magnet or a wound rotor without additional resistors, optimizing them for constant speed applications. Direct current motors feature windings on either the stator or the rotor, but they operate differently than induction motors and do not typically utilize wound rotors the way induction motors do. The choice of "any type of motor" is too broad, as not all motors incorporate wound rotors in their designs.

4. What does a transformer ratio of 20:1 signify?

- A. 20 turns on the secondary for every 1 turn on the primary.
- B. 20 turns on the primary for every 1 turn on the secondary.**
- C. 20 volts on the secondary for every 1 volt on the primary.
- D. The output current is 20 times greater than the input current.

A transformer ratio of 20:1 signifies that there are 20 turns on the primary winding for every 1 turn on the secondary winding. This means that the transformer is designed to step down voltage. In this scenario, for every single turn in the secondary, there are 20 turns in the primary, leading to a higher voltage on the primary side compared to the secondary side. The transformer operates under the principle that the ratio of the voltages in the primary and secondary is equal to the ratio of the number of turns in the respective windings. Therefore, with a greater number of turns on the primary, the voltage on the primary side is increased compared to a smaller number of turns on the secondary side. This also has implications for current. Since power (the product of voltage and current) must be conserved (neglecting losses), a lower voltage on the secondary side corresponds to a higher current, as per the power equation ($P = VI$). Hence, if the voltage is stepped down from the primary, the current is stepped up proportionally. Overall, option B correctly captures the relationship implicit in the transformer's turns ratio.

5. What does an ammeter measure?

- A. Voltage across components
- B. Current flowing through a circuit**
- C. Electrical resistance
- D. Power consumption

An ammeter measures the current flowing through a circuit. This device is specifically designed to be connected in series with the circuit component experiencing the current flow, allowing it to display the amount of electric charge passing through per unit of time. The measurement is expressed in amperes (A), which is the unit of electric current. Understanding the function of an ammeter is fundamental in electrical engineering since monitoring current is critical for ensuring both the functionality and safety of electrical systems. Current measurement is vital for troubleshooting, performance analysis, and ensuring that components operate within their rated specifications. Other measurement options, such as voltage across components, electrical resistance, and power consumption, involve different instruments like voltmeters, ohmmeters, and wattmeters, respectively. Each of these devices serves a distinct purpose in the field of electronics and electrical engineering, highlighting the specialized use of ammeters for current measurements.

6. What factors limit the size of an induction motor?

- A. Mechanical factors and weight
- B. Branch circuit protection and network capacity**
- C. Cooling methods and heat dissipation
- D. Voltage and current ratings

The limiting factors of an induction motor include various technical and environmental considerations. The correct response highlights the significance of branch circuit protection and network capacity as determinants of motor size. Branch circuit protection refers to the protective devices that safeguard electrical circuits from overloads and short circuits. These devices must be appropriately rated to handle the inductive loads of motors. If the motor is too large for the available circuit protection, it can lead to nuisance tripping or insufficient protection, which could compromise safety and operational efficiency. Network capacity relates to the overall electrical infrastructure's ability to supply enough power to the motor. A larger motor requires more significant power, and if the network or supply lines cannot accommodate this increase without voltage drops or overloads, the motor's size must be limited to ensure reliability and effective operation in the existing system. While the other options mention valid considerations surrounding mechanical stress, cooling requirements, and voltage and current ratings, they do not solely dictate the functional constraints faced when determining the size of an induction motor in practical applications. The interplay of circuit protection and the overarching capacity of the electrical network remains a fundamental consideration in selecting and sizing induction motors for industrial applications.

7. What is the primary function of a magnetic starter?

- A. To regulate voltage output
- B. To automatically start and stop motors**
- C. To convert AC to DC
- D. To act as a fuse in circuits

The primary function of a magnetic starter is to automatically start and stop motors. Magnetic starters are essential devices used in motor control systems, consisting of contacts that can automatically switch on or off the power supply to the motor. They achieve this through an electromagnetic coil that, when energized, closes the contacts to allow current to flow to the motor, thereby starting it. When the coil is de-energized, the contacts open, stopping the motor. This functionality is critical for ensuring safe operation and protection of both motors and electrical circuits, as it can also incorporate overload protection features to prevent motor damage. The other options involve different functions that are not directly related to the primary role of a magnetic starter. Regulating voltage output pertains more to devices like voltage regulators or transformers, converting AC to DC is a task for rectifiers, and acting as a fuse is specifically the role of overcurrent protection devices.

8. What describes a lagging power factor in AC circuits?

- A. Current leads voltage
- B. Voltage leads current
- C. Current lags voltage**
- D. Voltage and current are in phase

A lagging power factor in AC circuits occurs when the current phase angle is behind the voltage phase angle. This situation is typically encountered in inductive loads, such as motors and transformers, where the inductance causes the current to take longer to reach its peak value compared to the voltage. In these scenarios, because the current lags, the peak of the current waveform occurs after the peak of the voltage waveform, resulting in a phase difference where the current is responding to the electric field created by the voltage but with a delay. The term "lagging" is thus associated with the current being behind the voltage in terms of phase, which directly leads to the definition given by the correct choice. Understanding this concept is essential, especially when analyzing power systems, as a lagging power factor can influence energy efficiency and the performance of electrical equipment. Conversely, leading power factors, typically observed in capacitive loads, display the opposite behavior, where the current waveform peaks before the voltage waveform.

9. What is a characteristic of a short shunt connection in a generator?

- A. Series field connected in series with armature
- B. Field connected directly to the armature
- C. Shunt field connected across series field and armature**
- D. Only the armature winding is used

In a short shunt connection for a generator, the characteristic that stands out is that the shunt field is connected across the series field and the armature. This type of connection allows for the shunt field to utilize the voltage generated by the armature directly, while also being influenced by the current flowing through the series field winding. This configuration is particularly useful because it combines the benefits of both the shunt and series fields. The shunt field provides a stable magnetic field, while the series field enhances the overall output under load conditions. When the load increases and more current flows through the series winding, the generated voltage from the armature also increases, which allows for better voltage regulation. In contrast, a connection that puts the series field in direct series with the armature does not take advantage of the voltage at the armature independently, which can affect performance, especially under variable load conditions. Similarly, having only the armature winding used would eliminate the benefits provided by the magnetic fields generated by the shunt or series connections, leading to a less efficient operation. Understanding the specific arrangement of the windings is critical for recognizing how a short shunt generator operates, particularly regarding its ability to maintain performance across varying load conditions. This characteristic facilitates better voltage

10. What defines a power supply in electrical terms?

- A. A device that stores electrical energy
- B. A source providing electrical energy**
- C. A circuit protection device
- D. A type of transformer

A power supply in electrical terms is fundamentally defined as a source providing electrical energy. This is because a power supply converts electrical energy from one form to another, supplying the necessary voltage and current to power electronic devices and systems. It can take various forms, including batteries, wall adapters, or power converters, each serving the essential function of delivering power to ensure the operation of electrical circuits and components. In contrast, a device that stores electrical energy, such as a battery or capacitor, may be part of a power supply system but is not the power supply itself. A circuit protection device, like a fuse or circuit breaker, serves to protect circuits and devices from current overloads but does not supply power. Additionally, while transformers can be part of a power supply system by altering voltage levels, they do not directly characterize what a power supply is, which is essentially about providing electrical energy.

SAMPLE

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://electricalengineeringlicensure.examzify.com>

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

SAMPLE