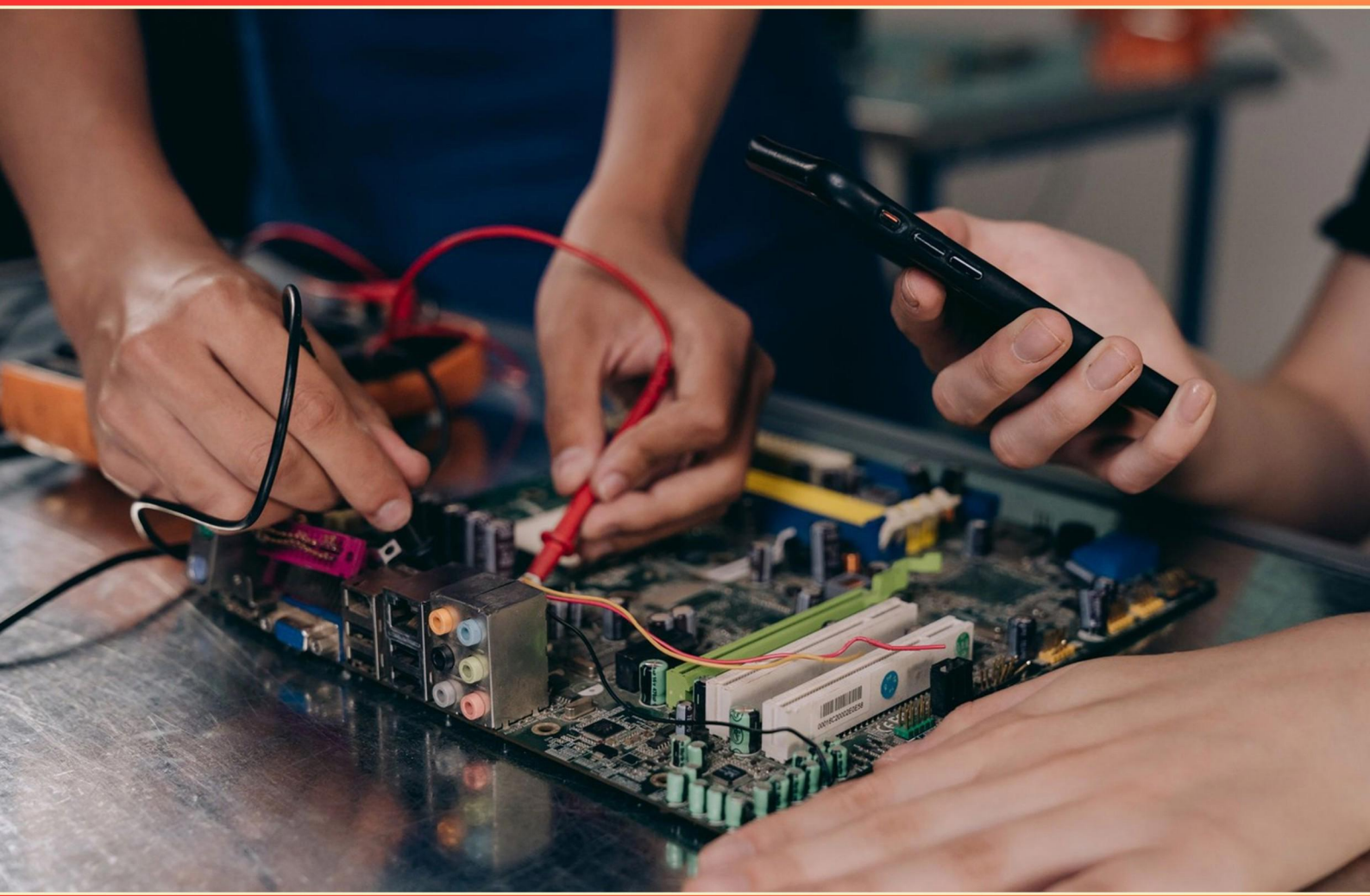
NEIEP ELECTRICAL FUNDAMENTALS (360) PRACTICE TEST (SAMPLE)

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. Why must you be very careful when connecting a single-phase line to the neutral of a controller supply?

A. If you have a wild leg it must be avoided because its higher voltage could damage controller equipment

B. Because it has no effect

C. Because it reduces efficiency

D. Because it will trip the breaker

2. Power factor improvement aims to move cos φ toward which value?

A. 0

B. 0.5

C. Unity (1)

D. -1

3. If N_p : N_s = 4 : 1 and V_p = 480 V in an ideal transformer, what are V_s and the current ratio I_s : I_p?

A. V_s = 120 V; I_s = 4 × I_p

B. V_s = 120 V; I_s = 0.25 × I_p

C. V_s = 960 V; I_s = 0.25 × I_p

D. V_s = 240 V; I_s = 2 × I_p

4. What is the peak value of 65 volts RMS?

A. 91.94 V

B. 65 V

C. 46.0 V

D. 130 V

5. In an alternator, the stationary armature is called what?

A. Rotor

B. Armature

C. Field winding

D. Stator

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6. The frequency of an AC signal is inversely related to what other quantity?

A. Resistance

B. Capacitance

C. Inductance

D. Period

7. Which statement describes a triangular wave?

A. It has equal rise and fall times and the peak occurs in the middle.

B. It has instantaneous transitions.

C. It is a sine wave.

D. It has exponential rise.

8. What is the peak value of an AC voltage whose RMS value is 300 V?

A. 141.4 V

B. 212.1 V

C. 300 V

D. 424.2 V

9. What is the peak value of a sine wave with RMS 50 V?

A. 50 V

B. 70.71 V

C. 35.36 V

D. 100 V

10. In a two-resistor parallel network, which expression gives the current through resistor R1 (I1)?

A. I1 = Itotal × (R1 / (R1 + R2))

B. I1 = Itotal × (R2 / (R1 + R2))

C. I1 = Itotal / (R1 + R2)

D. I1 = Itotal × (R1 × R2)

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Answers

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

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Explanations

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1. Why must you be very careful when connecting a single-phase line to the neutral of a controller supply?

A. If you have a wild leg it must be avoided because its higher voltage could damage controller equipment

B. Because it has no effect

C. Because it reduces efficiency

D. Because it will trip the breaker

In some three-phase delta systems, you can have a center-tapped winding that creates a neutral, but one of the three phases to neutral becomes a wild leg with a much higher voltage to neutral—about 208 V—while the other two legs read roughly 120 V to neutral. A controller that's designed for a 120 V single-phase supply expects to see ~120 V from line to neutral. If you connect to the wild leg, the controller would receive about 208 V, which can damage insulation, overheat components, or shorten the device's life. That's why you must avoid the wild leg when wiring a 120 V controller to a neutral. The other choices aren't accurate: the situation does have an effect (overvoltage risk); efficiency isn't the main concern here; and while miswiring can trip a breaker, the core hazard is applying too high a voltage to the controller.

2. Power factor improvement aims to move cos φ toward which value?

A. 0

B. 0.5

C. Unity (1)

D. -1

Power factor is the cosine of the angle between voltage and current, so improving it means moving cos φ toward 1. When the current is in phase with voltage, the phase angle is zero and cos φ equals 1, giving unity power factor. This is the condition where all the power drawn from the source does useful work, with no reactive power that causes extra current flow. Choosing unity (cos φ = 1) as the target makes sense because values like 0 or 0.5 indicate significant phase difference and reactive power: cos φ = 0 would mean the current lags or leads by 90 degrees with no real power transfer, and cos φ = 0.5 corresponds to a substantial portion of apparent power not doing useful work. A negative value like -1 would imply the current is exactly opposite in phase to the voltage, which is not practical for normal operation and would reverse power flow.

3. If $N_p : N_s = 4 : 1$ and $V_p = 480$ V in an ideal transformer, what are V_s and the current ratio $I_s : I_p$?

A. $V_s = 120$ V; $I_s = 4 \times I_p$

B. $V_s = 120$ V; $I_s = 0.25 \times I_p$

C. $V_s = 960$ V; $I_s = 0.25 \times I_p$

D. $V_s = 240$ V; $I_s = 2 \times I_p$

In an ideal transformer, the voltage ratio follows the turns ratio: $V_p / V_s = N_p / N_s$. With $N_p:N_s = 4:1$, the secondary voltage is $V_s = V_p \times (N_s/N_p) = 480 \times (1/4) = 120$ V. Power is conserved, so $V_p I_p = V_s I_s$. Since V_p is four times V_s, the current on the secondary must be four times the primary current: $I_s = 4 I_p$. Therefore, the secondary current is four times the primary current.

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4. What is the peak value of 65 volts RMS?

A. 91.94 V

B. 65 V

C. 46.0 V

D. 130 V

For a sine wave, the RMS value is the peak value divided by sqrt(2). So the peak value equals the RMS value times sqrt(2). With 65 V RMS, the peak is 65 × sqrt(2) ≈ 65 × 1.41421356 ≈ 91.92 V, which rounds to 91.94 V. That's why 91.94 V is the correct peak value. The other numbers come from mixing up the conversion: 65 V is the RMS itself, not the peak; 46.0 V would be 65 divided by sqrt(2), which would be the RMS if the peak were 65 V; and 130 V would be 2 × 65, which uses a factor of 2 instead of sqrt(2).

5. In an alternator, the stationary armature is called what?

A. Rotor

B. Armature

C. Field winding

D. Stator

In an alternator, the winding where the output voltage is generated sits with the machine's stationary part. That stationary assembly is called the stator. The rotating part carries the magnetic field (field winding), which creates the rotating magnetic flux that induces voltage in the stator windings. So the stationary armature windings are housed in the stator, making it the correct term.

6. The frequency of an AC signal is inversely related to what other quantity?

A. Resistance

B. Capacitance

C. Inductance

D. Period

Frequency and period are reciprocal ideas. Frequency is how many cycles occur each second, while period is how long one complete cycle takes. By definition, f = 1/T, so they are inversely related: when the period gets longer, fewer cycles fit into a second, and the frequency drops; when the period shortens, the frequency rises. For a quick sense: a cycle that lasts 0.01 seconds gives 100 cycles per second (100 Hz). If that same cycle takes 0.02 seconds, you get 50 Hz. The other quantities—resistance, capacitance, and inductance—affect how a circuit behaves and can influence frequency in specific configurations (like LC resonant circuits where f = 1/(2π√(LC))), but the universal inverse relationship is between frequency and period.

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7. Which statement describes a triangular wave?

A. It has equal rise and fall times and the peak occurs in the middle.

B. It has instantaneous transitions.

C. It is a sine wave.

D. It has exponential rise.

A triangular wave is defined by linear ramps up and down with equal durations for rising and falling portions, so the peak occurs halfway through the period. This symmetry—equal rise and fall times and the peak in the middle—matches the classic shape of a triangular waveform. The other descriptions don't fit: instantaneous transitions would create vertical edges like a square wave, a sine wave is smooth and curved, and an exponential rise is not a straight-line ramp.

8. What is the peak value of an AC voltage whose RMS value is 300 V?

A. 141.4 V

B. 212.1 V

C. 300 V

D. 424.2 V

For a sinusoidal AC voltage, the RMS value is related to the peak value by Vrms = Vpeak / √2. To get the peak, multiply the RMS by √2: Vpeak = 300 × √2 ≈ 300 × 1.4142 ≈ 424.2 V. So the peak value is about 424.2 volts. The other numbers come from mixing up peak and RMS or misapplying the relationship (e.g., dividing by √2 or treating peak and RMS as the same).

9. What is the peak value of a sine wave with RMS 50 V?

A. 50 V

B. 70.71 V

C. 35.36 V

D. 100 V

A sine wave's peak value is larger than its RMS value by a factor of √2. For a sine wave, Vrms = Vpeak / √2, so Vpeak = Vrms × √2. With Vrms = 50 V, Vpeak = 50 × √2 ≈ 70.71 V. That's why the peak value is about 70.71 V. The other numbers come from mixing up RMS and peak or applying the wrong factor.

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10. In a two-resistor parallel network, which expression gives the current through resistor R1 (I1)?

A. I1 = Itotal × (R1 / (R1 + R2))

B. I1 = Itotal × (R2 / (R1 + R2))

C. I1 = Itotal / (R1 + R2)

D. I1 = Itotal × (R1 × R2)

Current in a parallel network splits in proportion to the other branch's resistance because both resistors share the same voltage. Let the total current be Itotal and the resistors be R1 and R2 in parallel. The voltage across both is V, so I1 = V/R1 and I2 = V/R2, with Itotal = I1 + I2. From Itotal = V(1/R1 + 1/R2) = V(R1 + R2)/(R1R2), solve for V and substitute back into I1 = V/R1. You get I1 = Itotal × (R2 / (R1 + R2)). This shows the current through R1 equals the total current scaled by the other resistor's value over the sum of the two resistances, which also matches the intuition that the branch with the smaller resistance draws more current.

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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://neiep360.examzify.com

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

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