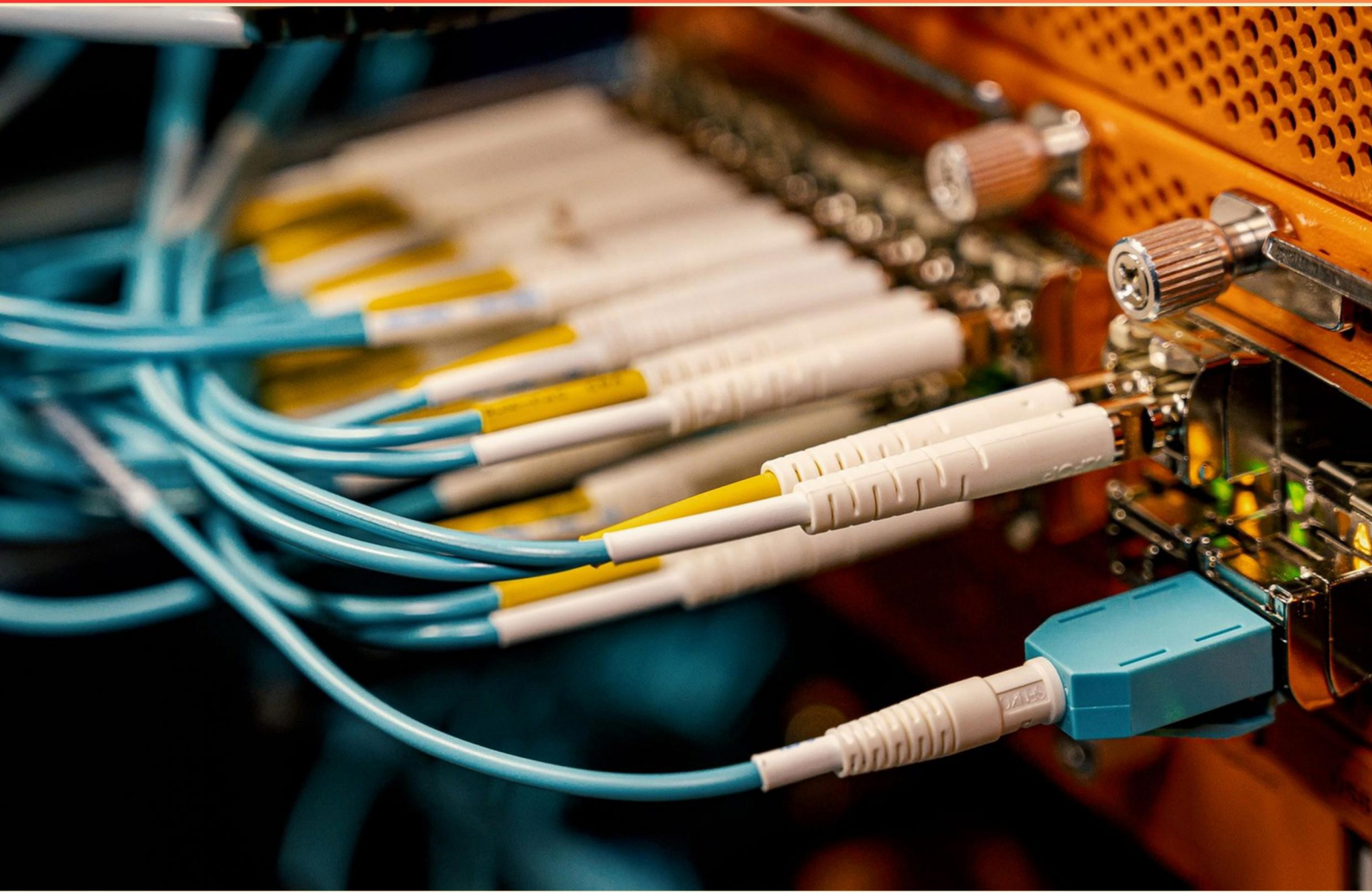


# **AUTOMOTIVE ELECTRICAL/ ELECTRONICS (AUTO 170) PRACTICE EXAM (SAMPLE) STUDY GUIDE**



## **SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR  
THE FULL VERSION STUDY GUIDE**

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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. Should all batteries be secured in a bracket that is bolted to the vehicle to prevent damage?
  - A. True
  - B. False
2. Another name for a ground is \_\_\_\_\_.
  - A. Logic low
  - B. Zero
  - C. Reference low
  - D. All of the above
3. What is the role of the starter motor in relation to the engine flywheel?
  - A. It generates power to the flywheel
  - B. It turns the flywheel to start the engine
  - C. It maintains the flywheel's rotation
  - D. It acts as a backup for the flywheel
4. To check for ripple voltage from the alternator, the digital multimeter (DMM) should be set to measure what type of voltage?
  - A. DC volts
  - B. AC volts
  - C. DC amps
  - D. AC amps
5. What should be inspected if there are low voltage readings at the starter?
  - A. Cable condition
  - B. Battery health
  - C. Both above
  - D. Alternator output
6. What is the maximum allowable difference in specific gravity readings when measuring electrolyte?
  - A. 0.010
  - B. 0.020
  - C. 0.050
  - D. 0.50

- 7. What is the primary function of the CPU in a computer system?**
- A. Storing data
  - B. Processing information
  - C. Inputting commands
  - D. Outputting results
- 8. What is the primary purpose of a battery management system (BMS)?**
- A. To charge the battery quickly
  - B. To monitor battery health and ensure safe operation
  - C. To increase battery size
  - D. To regulate the vehicle's fuel consumption
- 9. What battery rating is tested at 32°F (0°C)?**
- A. Cold-cranking amperes (CCA)
  - B. Cranking amperes (CA)
  - C. Reserve capacity
  - D. Battery voltage test
- 10. Which battery rating is tested at 0°F (-18°C)?**
- A. Cold-cranking amperes (CCA)
  - B. Cranking amperes (CA)
  - C. Reserve capacity
  - D. Battery voltage test

## **Answers**

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

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## **Explanations**

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**1. Should all batteries be secured in a bracket that is bolted to the vehicle to prevent damage?**

**A. True**

B. False

*Securing all batteries in a bracket that is bolted to the vehicle is essential for safety and performance reasons. Batteries are heavy and can move or shift during vehicle operation, especially during acceleration, braking, or cornering. If not properly secured, a battery could potentially cause physical damage to itself or other components, lead to electrical issues, or create a hazardous situation in the event of an accident. Additionally, proper mounting helps prevent vibration, which can lead to premature wear and tear of the battery and its connections. It also ensures that the battery terminals remain intact and connected, reducing the risk of short circuits or disconnections that could result in loss of power or other malfunction. Overall, securing batteries not only protects the battery itself but also contributes to the overall safety and reliability of the vehicle's electrical system.*

**2. Another name for a ground is \_\_\_\_\_.**

A. Logic low

B. Zero

C. Reference low

**D. All of the above**

*All of the choices provided refer to terms commonly associated with the concept of ground in electrical circuits. The term "ground" is often used to describe the zero-volt reference point in a circuit. This reference point serves as a common return path for electrical current and is essential for completing the circuit. "Logic low" is a term frequently used in digital electronics, where ground is considered the low logic level in binary systems. This helps in differentiating between logical high (1) and logical low (0) states in digital circuits. "Reference low" also denotes the ground level in electronics, indicating a point of reference against which other voltages in the system are measured. This is crucial for ensuring accurate voltage measurements and signal integrity throughout the entire electrical system. Since all of these terms effectively describe different aspects of what ground represents in various contexts, stating that they are synonymous underlines the importance of ground as a foundational concept in automotive electrical and electronic systems. Thus, recognizing that all these terms can refer to "ground" supports selecting the option that encompasses all of them.*

**3. What is the role of the starter motor in relation to the engine flywheel?**

A. It generates power to the flywheel

**B. It turns the flywheel to start the engine**

C. It maintains the flywheel's rotation

D. It acts as a backup for the flywheel

*The starter motor's primary role is to turn the engine's flywheel to initiate the starting process. When the ignition key is turned, electricity is supplied to the starter motor, which then engages with the flywheel. This engagement causes the flywheel, which is attached to the engine's crankshaft, to rotate. As the flywheel spins, it in turn starts the engine's pistons moving through their cycles. Once the engine has started and is running on its own, the starter motor's job is complete, and it disengages from the flywheel. This process is vital for starting internal combustion engines, where the initial mechanical motion is necessary to begin the engine's operation. The other options do not accurately describe the starter motor's function. For instance, the starter motor does not generate power to the flywheel itself; rather, it acts to start the flywheel in motion. It also does not maintain the flywheel's rotation once the engine is running, nor does it serve as a backup for the flywheel, which is not a component that requires additional support for its primary functions.*

**4. To check for ripple voltage from the alternator, the digital multimeter (DMM) should be set to measure what type of voltage?**

- A. DC volts
- B. AC volts**
- C. DC amps
- D. AC amps

*To check for ripple voltage from the alternator, the digital multimeter (DMM) should be set to measure AC volts. Ripple voltage refers to the AC component that can be superimposed on the DC output of the alternator. When the alternator generates electricity, it converts mechanical energy into electrical energy, which produces a combination of both AC and DC voltage. In a well-functioning alternator, the primary output is DC voltage, but there may be some AC voltage present due to the inherent characteristics of the alternator's operation. This AC component is referred to as ripple voltage and can indicate underlying issues in the alternator's rectification process if it exceeds acceptable levels. Measuring AC volts allows the technician to assess the amount of ripple voltage present. If the reading shows excessive ripple voltage, it could suggest problems such as failing diodes or other components in the alternator that might compromise its efficiency. Therefore, setting the DMM to measure AC volts is essential for accurately diagnosing the condition of the alternator in this context.*

**5. What should be inspected if there are low voltage readings at the starter?**

- A. Cable condition
- B. Battery health
- C. Both above**
- D. Alternator output

*When dealing with low voltage readings at the starter, it is essential to inspect both the cable condition and the battery health. Starting with the cables, they play a crucial role in delivering adequate power from the battery to the starter motor. If the cables are damaged, corroded, or have poor connections, they can significantly impede electrical flow, resulting in low voltage at the starter. This can lead to starting issues or a failure to start altogether. A visual inspection of the cables for signs of wear or corrosion, along with checking the tightness of the connections, is vital in diagnosing low voltage issues. On the other hand, battery health is equally important, as a weak or failing battery may not provide enough voltage to activate the starter. Factors such as age, charge level, and general condition of the battery can affect its performance. Testing the battery's voltage and load capacity helps determine if it can deliver the necessary power for starting the engine. In essence, by examining both the cable condition and battery health, one can effectively identify and address the underlying causes of low voltage readings at the starter, ensuring a comprehensive approach to troubleshooting the issue.*

**6. What is the maximum allowable difference in specific gravity readings when measuring electrolyte?**

- A. 0.010
- B. 0.020
- C. 0.050**
- D. 0.50

*The maximum allowable difference in specific gravity readings when measuring electrolyte is indeed 0.050. This value is significant in automotive applications, particularly when assessing the state of charge of lead-acid batteries. Specific gravity is a measure of the density of the electrolyte relative to water and is used to determine the charge level of the battery. A difference of 0.050 between readings is acceptable because it accounts for potential variations due to temperature, equipment calibration, or minute fluctuations in measurement that can occur during testing. This threshold ensures accurate assessment while allowing for minor discrepancies that do not substantially affect battery performance evaluations. Higher or lower allowable differences may lead to misleading conclusions about the battery's state of charge, potentially causing unnecessary maintenance procedures or overlooking a battery that requires servicing. Therefore, adhering to a maximum difference of 0.050 helps maintain reliability in battery diagnostics while managing the balance between precision and practical handling during regular checks.*

**7. What is the primary function of the CPU in a computer system?**

- A. Storing data
- B. Processing information**
- C. Inputting commands
- D. Outputting results

*The primary function of the CPU (Central Processing Unit) in a computer system is indeed processing information. The CPU acts as the brain of the computer, executing instructions from programs, performing calculations, and managing data flow between different parts of the system. When a program is run, the CPU interprets and executes the commands, handling both arithmetic and logical operations. This core functionality allows the CPU to take inputs, process them, and produce outputs, making it essential for overall system operation. While storing data, inputting commands, and outputting results are all important aspects of a computer system, they are not functions of the CPU itself. Data storage is typically handled by RAM or storage devices, input commands come from peripheral devices (like keyboards or mice), and outputs are sent to display devices or other output hardware, but all these processes rely on the CPU for coordination and execution. Thus, processing information is the key role that defines the CPU's primary function within a computer system.*

## 8. What is the primary purpose of a battery management system (BMS)?

- A. To charge the battery quickly
- B. To monitor battery health and ensure safe operation**
- C. To increase battery size
- D. To regulate the vehicle's fuel consumption

The primary purpose of a battery management system (BMS) is to monitor battery health and ensure safe operation. A BMS plays a crucial role in managing the rechargeable battery pack by keeping track of various parameters such as voltage, current, temperature, and state of charge. This monitoring helps prevent conditions that could lead to overcharging or over-discharging, which can significantly damage the battery, reduce its lifespan, or pose safety risks such as thermal runaway. Safety is a key function of a BMS, as it also engages in balancing the charge across multiple cells to ensure that each cell operates within its safe limits. This balancing is vital because it helps maintain the overall efficiency and health of the battery, allowing it to perform optimally. Additionally, a BMS can communicate with the broader vehicle systems to provide data on battery status, helping to inform decisions related to energy management and usage. While charging the battery quickly can be a desire in battery systems, it is not the primary function of the BMS. Battery size is determined by design specifications and capacity needs rather than managed by a BMS. Similarly, regulating fuel consumption is unrelated to the function of the BMS, as it focuses strictly on battery performance and safety.

## 9. What battery rating is tested at 32°F (0°C)?

- A. Cold-cranking amperes (CCA)
- B. Cranking amperes (CA)**
- C. Reserve capacity
- D. Battery voltage test

The battery rating that is tested at 32°F (0°C) is known as cranking amperes (CA). This rating measures the maximum amount of current a battery can deliver at a temperature of 32°F for a specified duration of time, typically 30 seconds, while maintaining a voltage drop above a certain threshold (typically 7.2 volts for a 12-volt battery). This specification is particularly important for vehicles in mild climates where temperature conditions may not drop drastically. The CA rating helps ensure that the battery can crank the engine effectively under standard temperature conditions, enhancing starting reliability. Cold-cranking amperes (CCA), on the other hand, measures battery performance at a lower temperature, specifically 0°F (-18°C), making it crucial for understanding how a battery will perform in cold weather. Reserve capacity measures how long a battery can run on its stored energy without being recharged, which is not dependent on ambient temperature. Lastly, the battery voltage test indicates the overall health of a battery but doesn't specifically measure current capabilities under cranking conditions.

**10. Which battery rating is tested at 0°F (-18°C)?**

**A. Cold-cranking amperes (CCA)**

**B. Cranking amperes (CA)**

**C. Reserve capacity**

**D. Battery voltage test**

*The cold-cranking amperes (CCA) is the battery rating that is specifically tested at 0°F (-18°C). CCA measures the battery's ability to start an engine in cold conditions by indicating how much current the battery can deliver for 30 seconds at that low temperature while maintaining a minimum voltage of 7.2 volts for a 12-volt battery. This measurement is crucial because engines require more power to start in cold temperatures due to increased viscosity of engine oil and other cold-start challenges. The importance of CCA lies in its ability to help consumers evaluate battery performance under winter conditions. Strong CCA ratings signify that the battery will perform effectively in cold weather, making it a critical factor when selecting a battery for vehicles that are used in regions with harsh winter conditions. While cranking amperes (CA) also measures the battery's ability to start an engine, it is assessed at 32°F (0°C) and thus does not reflect the battery's capability in colder environments as accurately as CCA. Reserve capacity relates to how long a battery can deliver a certain load in the event of failure of the charging system, while a battery voltage test simply measures the voltage present in the battery, not its performance under cold conditions.*

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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:

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

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