

# ASE Advanced Engine Performance Specialist Certification (L1) Practice Test (Sample)

## Study Guide



**Everything you need from our exam experts!**

**This is a sample study guide. To access the full version with hundreds of questions,**

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**SAMPLE**

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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. Don't worry about getting everything right, 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, and take breaks to retain information better.**

## **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.**

## **7. Use Other Tools**

**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

- 1. What is the result of an air injection failure on exhaust gases?**
  - A. Some increase in HC**
  - B. Large increase in CO**
  - C. Moderate decrease in CO<sub>2</sub>**
  - D. Moderate decrease in O<sub>2</sub>**
- 2. If there is no physical misfire but a misfire counter is current, what could that cause be?**
  - A. Engine wear**
  - B. A damaged crankshaft tone wheel**
  - C. Bad coil**
  - D. All of the above**
- 3. What would likely cause emissions to read normal (13.1 to 15.1) during operation?**
  - A. Faulty throttle body**
  - B. Engine too cold**
  - C. Engine too hot**
  - D. Fails APP sensor**
- 4. What does a large leak test refer to in automotive diagnostics?**
  - A. Natural leak test**
  - B. Vacuum decay**
  - C. Both**
  - D. Neither**
- 5. Which response indicates "very retarded timing" in terms of exhaust constituents?**
  - A. Some increase in HC**
  - B. No change in CO**
  - C. Moderate decrease in CO<sub>2</sub>**
  - D. Some increase in O<sub>2</sub>**



- 6. If the throttle body actuators were disabled, what would the throttle position be at?**
- A. 5%**
  - B. 10%**
  - C. 15%**
  - D. 35%**
- 7. In a throttle actuator control system, what does a limitation of function indicate?**
- A. A complete failure of the system**
  - B. Possible sensor issue**
  - C. A successful operation**
  - D. Permanent system shutdown**
- 8. What are the conditions for a vehicle to go into closed loop mode?**
- A. Idle more than 10 seconds**
  - B. Throttle nodule is less than 80%**
  - C. Fuel trim toggles**
  - D. All of the above**
- 9. What troubleshooting step could indicate a fault in the fuel system?**
- A. Increased engine noise**
  - B. Frequent overheating**
  - C. Fluctuating idle speed**
  - D. Excessive exhaust fumes**
- 10. A malfunction of the PCV system is likely to cause all of these problems EXCEPT:**
- A. Excessive blowby**
  - B. An illuminated MIL**
  - C. Rough/unstable idle speed**
  - D. Engine oil leaks**

## **Answers**

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

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## **Explanations**

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**1. What is the result of an air injection failure on exhaust gases?**

- A. Some increase in HC**
- B. Large increase in CO**
- C. Moderate decrease in CO<sub>2</sub>**
- D. Moderate decrease in O<sub>2</sub>**

An air injection system is designed to introduce additional air into the exhaust stream, primarily to facilitate the oxidation of unburned hydrocarbons (HC) and carbon monoxide (CO) in the exhaust gases. This process helps reduce the emissions of these harmful substances by promoting complete combustion in the catalytic converter or during the exhaust phase. When there is a failure in the air injection system, the supplemental air is not introduced into the exhaust flow. As a result, the unburned hydrocarbons that would normally be oxidized in the presence of air remain in the exhaust, leading to an increase in hydrocarbon emissions. Therefore, the correct answer accurately captures the consequence of an air injection failure: a noticeable increase in hydrocarbon levels in the exhaust gases. In contrast, other gases are affected differently. A failure may not necessarily cause a large increase in carbon monoxide itself, nor would it result in moderate decreases in carbon dioxide or oxygen levels in a way that is directly linked to the air injection system's function. Carbon dioxide would typically remain stable unless there are more comprehensive combustion issues, and while oxygen levels might decrease slightly due to incomplete combustion, the primary and most direct effect observed is the increase in hydrocarbons.

**2. If there is no physical misfire but a misfire counter is current, what could that cause be?**

- A. Engine wear**
- B. A damaged crankshaft tone wheel**
- C. Bad coil**
- D. All of the above**

A misfire counter indicates that the engine control module (ECM) has detected a misfire condition based on various input sensors, but if there is no physical misfire present, this could be related to the specific fault in the crankshaft tone wheel. The crankshaft tone wheel is responsible for providing precise timing signals to the ECM for engine timing and cylinder firing order. If it is damaged, it can lead to incorrect firing events being registered, even in the absence of a true physical misfire. This misalignment can result in the engine appearing to misfire to the ECM due to the inaccurate timing information. The other options may contribute to misfires, but they do not specifically relate to the scenario of having a misfire counter without an actual misfire. Engine wear typically manifests in other performance issues over time rather than causing isolated current misfire counters. A bad coil can cause physical misfires, but if we emphasize that no physical misfire occurs, the issue with the crankshaft tone wheel becomes more relevant in explaining the misleading readings from the misfire counter.

**3. What would likely cause emissions to read normal (13.1 to 15.1) during operation?**

- A. Faulty throttle body**
- B. Engine too cold**
- C. Engine too hot**
- D. Fails APP sensor**

In the context of engine performance and emissions, a situation where emissions readings are normal (typically between 13.1 to 15.1 parts of air to fuel ratio) suggests that the engine is operating efficiently, achieving adequate combustion. An engine that is too cold may indicate a number of conditions, including the engine being in open-loop operating mode, where fuel delivery calculations rely on pre-programmed values rather than live sensor feedback. This can initially lead to normal emissions as the engine attempts to warm up and may not have fully engaged all emission controls yet. As the engine warms up, however, it should reach a point where emissions stabilize within the desired range due to proper fuel atomization and combustion characteristics. An engine that is running too cold might also exhibit higher than normal emissions under certain conditions, but initially reading normal could indicate the engine hasn't reached full operating temperature where abnormal readings might begin to manifest. On the other hand, operating conditions such as a faulty throttle body or a failed Accelerator Pedal Position (APP) sensor typically lead to erratic engine behavior and can skew emissions readings, while an overheated engine might cause combustion and emissions inefficiencies, typically leading to abnormal readings. Understanding how the operating temperature of the engine affects emissions can help

**4. What does a large leak test refer to in automotive diagnostics?**

- A. Natural leak test**
- B. Vacuum decay**
- C. Both**
- D. Neither**

A large leak test, in the context of automotive diagnostics, typically refers to the vacuum decay method. This method is used to determine if there are substantial leaks in the system, especially in vacuum lines, exhaust systems, and fuel systems. During a vacuum decay test, a vacuum is created within the system, and if there is a leak, the vacuum will decay faster than normal due to the introduction of air through the leak. This approach is effective for identifying significant leaks that could impact engine performance, emissions, or efficiency. Natural leak tests, while relevant in diagnostics, generally pertain to more subtle methods of identifying smaller leaks and do not specifically denote the process involved in a formal large leak test. Therefore, the focus on vacuum decay emphasizes the need to substantiate the presence of a large leak through quantifiable data rather than broader leakage assessments. Understanding this distinction is crucial for diagnosing performance issues that arise from significant air or fluid intrusions within automotive systems.

**5. Which response indicates "very retarded timing" in terms of exhaust constituents?**

- A. Some increase in HC**
- B. No change in CO**
- C. Moderate decrease in CO<sub>2</sub>**
- D. Some increase in O<sub>2</sub>**

When discussing "very retarded timing," it's essential to understand the relationship between ignition timing and the resulting exhaust constituents. Retarded ignition timing refers to delaying the spark that ignites the air-fuel mixture, which can lead to incomplete combustion and altered levels of various exhaust emissions. An increase in oxygen (O<sub>2</sub>) in the exhaust gas is a strong indicator of incomplete combustion. When timing is retarded significantly, the combustion process becomes less efficient, leaving unburned fuel and resulting in more O<sub>2</sub> present in the exhaust. Essentially, because the fuel-air mixture does not burn completely, there is excess oxygen in the exhaust that did not get consumed during combustion. The other responses, while they reflect potential changes in emissions, do not specifically highlight the relationship as clearly as an increase in O<sub>2</sub> does. For instance, an increase in hydrocarbons (HC) may occur with retarded timing, but it does not directly indicate the extent of the timing retardation like the presence of unburned oxygen. Similarly, changes in CO and CO<sub>2</sub> levels can also occur, but they do not provide as direct and compelling evidence of very retarded timing as the increase in O<sub>2</sub> does. Thus, the indication of "very retarded timing" is best represented

**6. If the throttle body actuators were disabled, what would the throttle position be at?**

- A. 5%**
- B. 10%**
- C. 15%**
- D. 35%**

When throttle body actuators are disabled, the throttle position is typically set to a default or fail-safe position. This is often designed to allow the engine to maintain a minimal level of operation for safety and performance reasons. In the context of the typical operation of modern electronic throttle control systems, if the actuators are inactive, the throttle may default to a position that allows sufficient airflow for idle conditions. Often, this is around a predefined percentage that ensures the engine can run but does not allow for acceleration. A common default value in these scenarios tends to be around 15% open, which is sufficient for maintaining idle and allows for quick recovery in case the actuators are re-enabled. Setting it at 15% permits the vehicle to be driven slowly and is workable for diagnostic purposes without allowing for full acceleration. Therefore, the correct response reflects this characteristic of throttle body systems when normal actuator function is interrupted.

**7. In a throttle actuator control system, what does a limitation of function indicate?**

- A. A complete failure of the system**
- B. Possible sensor issue**
- C. A successful operation**
- D. Permanent system shutdown**

In a throttle actuator control system, a limitation of function generally indicates a possible issue with one or more sensors. This situation often arises when the system detects that the readings from the sensors do not align with the expected performance parameters, prompting the control module to enter a reduced functionality mode, also known as limp mode. This is a protective measure that allows the vehicle to remain operational to some extent while preventing further potential damage. When the system limits its function, it signals that something is amiss, but it has not completely failed. The vehicle can still operate under restricted conditions, which helps in troubleshooting the issue without losing complete control over the vehicle. This limitation often points to a fault in sensor data, such as erroneous input from the throttle position sensor, which may hinder the throttle actuator from responding accurately. In contrast, a complete failure or permanent system shutdown would indicate a much more severe issue, where the system is unable to perform its intended functions at all. Successful operation implies that everything is functioning correctly, which doesn't align with the concept of a limitation of function.

**8. What are the conditions for a vehicle to go into closed loop mode?**

- A. Idle more than 10 seconds**
- B. Throttle nodule is less than 80%**
- C. Fuel trim toggles**
- D. All of the above**

For a vehicle to enter closed-loop mode, several conditions must be met to ensure the engine control module (ECM) can accurately manage fuel delivery and optimize emissions. When a vehicle is in closed-loop mode, the ECM uses input from various sensors to adjust the fuel mixture based on real-time conditions. One key condition is that the vehicle needs to be at idle for a sufficient period, typically around 10 seconds or more. This allows the ECM to monitor and adjust parameters without major throttle changes affecting the readings. Another important factor is the throttle position. When the throttle position is less than 80%, it indicates that the engine is operating under normal conditions rather than high-load scenarios, allowing the ECM to focus on maintaining the desired air-fuel ratio through feedback from the oxygen sensors. Finally, fuel trim toggling is essential because it indicates that the ECM is actively making adjustments to the fuel mixture based on the data received from the oxygen sensors. This adjustment capability is a hallmark of closed-loop operation, where the system constantly fine-tunes fuel delivery for optimal combustion and emissions control. Thus, each of these conditions directly contributes to the vehicle's ability to switch to and maintain closed-loop operation, making it essential that all specified conditions are satisfied for the closed-loop



**9. What troubleshooting step could indicate a fault in the fuel system?**

- A. Increased engine noise**
- B. Frequent overheating**
- C. Fluctuating idle speed**
- D. Excessive exhaust fumes**

Fluctuating idle speed can be a key indicator of a problem within the fuel system. This symptom often points to issues such as inadequate fuel delivery, improper fuel mixture, or malfunctioning fuel components like injectors or the fuel pump. When the fuel system cannot maintain a consistent supply of fuel, the engine may struggle to run smoothly, leading to variations in idle speed. These fluctuations can stem from various reasons, including air leaks, faulty sensors (like the mass airflow or throttle position sensor), or a dirty fuel filter that restricts fuel flow. Addressing fluctuating idle speed usually requires a thorough examination of the fuel system to ensure proper functionality, making it a critical troubleshooting step when diagnosing engine performance issues.

**10. A malfunction of the PCV system is likely to cause all of these problems EXCEPT:**

- A. Excessive blowby**
- B. An illuminated MIL**
- C. Rough/unstable idle speed**
- D. Engine oil leaks**

A malfunction of the Positive Crankcase Ventilation (PCV) system can lead to various issues in an engine's operation and performance. One of the key functions of the PCV system is to route blow-by gases—which are gases that escape from the combustion chamber during the combustion process—back into the intake manifold for re-combustion. When the PCV system fails, it can cause a buildup of pressure in the crankcase, leading to several potential engine problems. Excessive blowby is not likely to be a direct consequence of a faulty PCV system. Instead, the condition of excessive blowby is typically a result of worn piston rings or cylinder walls, allowing more combustion gases to escape into the crankcase than what the PCV system could normally handle. Therefore, while a malfunctioning PCV system can exacerbate existing conditions, it does not directly cause excessive blowby on its own. On the other hand, an illuminated Malfunction Indicator Lamp (MIL) can occur because of increased pressure or performance issues resulting from a faulty PCV system. Additionally, a malfunctioning PCV system can lead to a rough or unstable idle as the air-fuel mixture is affected by the incorrect crankcase ventilation. Further, an improperly functioning

# 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://aseadvancedengineperformancespecialist-l1.examzify.com>**

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