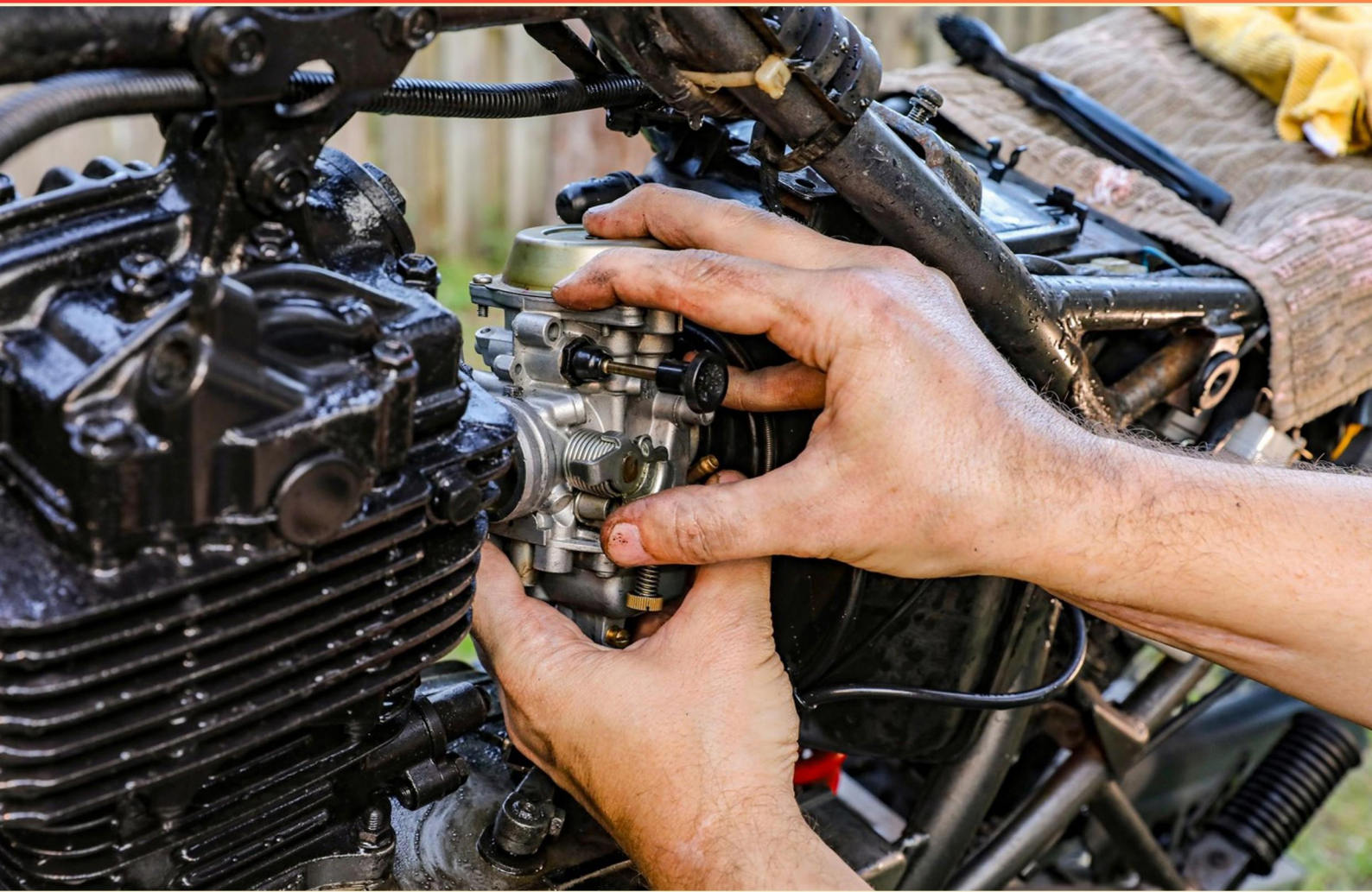


FFA SMALL ENGINES CAREER DEVELOPMENT EVENT (CDE) PRACTICE TEST (SAMPLE) STUDY GUIDE



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. What is the process called where the valve face is rubbed against the valve seat using an abrasive compound?**
 - A. Grinding
 - B. Seating
 - C. Polishing
 - D. Lapping

- 2. What term describes the overall durability of piston rings when subjected to wear?**
 - A. Fatigue resistance
 - B. Thermal stability
 - C. Wear resistance
 - D. Corrosion resistance

- 3. What is another name for a valve tappet?**
 - A. Valve follower
 - B. Valve guide
 - C. Valve spring
 - D. Valve lifter

- 4. If an engine has a Bore of 2.5 inches and a Stroke of 3.25 inches, what is its displacement?**
 - A. 14 cubic inches
 - B. 15 cubic inches
 - C. 16 cubic inches
 - D. 18 cubic inches

- 5. If the intake valve fails in a one-cylinder engine, what will happen to the engine?**
 - A. It will continue to run smoothly
 - B. It will make a loud noise
 - C. It will stop
 - D. It will overheat

6. What should be done to single element foam filters to help them catch dust particles better?
- A. Dry thoroughly
 - B. Oil them
 - C. Replace them
 - D. Soak them
7. What is a common characteristic of L-head engines?
- A. They have valves positioned above the piston
 - B. The camshaft is positioned in the cylinder head
 - C. They utilize a valve-in-block configuration
 - D. They have a higher power output
8. Piston rings can be plated with chrome or other materials to _____.
- A. increase friction
 - B. reduce wear
 - C. enhance appearance
 - D. improve fuel efficiency
9. What could be used to identify worn or defective valves?
- A. Visual inspection
 - B. Compression test
 - C. Leak-down test
 - D. All of the above
10. When is it recommended to use SAE 5W-30 oil in small engines?
- A. Below freezing temperatures
 - B. Above 40 degrees
 - C. In hot weather only
 - D. For normal operating conditions

Answers

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

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Explanations

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1. What is the process called where the valve face is rubbed against the valve seat using an abrasive compound?

- A. Grinding
- B. Seating
- C. Polishing
- D. Lapping**

The process where the valve face is rubbed against the valve seat using an abrasive compound is known as lapping. Lapping involves using a gritty paste that helps to create a smooth and precise seal between the valve and the seat. This technique is essential for ensuring that the valve closes tightly, preventing leaks that could affect engine performance. During lapping, the valve is typically rotated against the seat with the abrasive compound, which gradually removes material from both surfaces. This results in a better mating surface, which is crucial for optimal engine efficiency and longevity. The other processes mentioned, such as grinding and polishing, serve different purposes and are not specifically aimed at achieving the same fit and sealing quality that lapping does. Grinding is generally a more aggressive process used for reshaping or removing more significant amounts of material, while polishing usually refers to smoothening the surface after the primary shaping processes.

2. What term describes the overall durability of piston rings when subjected to wear?

- A. Fatigue resistance
- B. Thermal stability
- C. Wear resistance**
- D. Corrosion resistance

The term that describes the overall durability of piston rings when subjected to wear is wear resistance. Wear resistance refers to the ability of a material to withstand mechanical wear and abrasion over time. Piston rings, which are critical components in an engine, must maintain their integrity and performance amidst high temperatures, pressures, and constant friction against the cylinder wall. A higher wear resistance helps ensure that the piston rings do not degrade quickly, which can lead to loss of compression, increased oil consumption, and ultimately, engine failure. This characteristic is crucial for the longevity and efficiency of the engine. While other terms like fatigue resistance, thermal stability, and corrosion resistance refer to different properties that can also affect engine components, they do not specifically capture the concept of wear as it pertains to piston rings. Fatigue resistance relates to the material's ability to withstand cyclical stresses, thermal stability deals with performance at varying temperatures, and corrosion resistance refers to the material's ability to resist chemical degradation. Thus, in the context of piston rings and their performance, wear resistance is the most relevant and accurate term.

3. What is another name for a valve tappet?

- A. Valve follower
- B. Valve guide
- C. Valve spring
- D. Valve lifter**

A valve tappet is commonly referred to as a valve lifter. This component plays a crucial role in the operation of an engine's valve train. It acts as the intermediary between the camshaft and the valve, translating the camshaft's rotational movement into linear motion that opens and closes the valve. The valve lifter ensures that the proper timing and opening height of the valve are maintained, which is essential for efficient engine performance. Understanding this terminology is important when discussing engine components, as it helps clarify the specific functions and interactions within the valve train system. The alternative terms, such as valve follower, valve guide, and valve spring, refer to different parts or have specific roles within the engine, but they do not share the interchangeable nature with "valve tappet" as "valve lifter" does.

4. If an engine has a Bore of 2.5 inches and a Stroke of 3.25 inches, what is its displacement?

- A. 14 cubic inches
- B. 15 cubic inches
- C. 16 cubic inches**
- D. 18 cubic inches

To determine the engine displacement, you can use the formula for calculating the displacement of a single cylinder engine, which is given by: $\text{Displacement} = (\text{Bore}^2 \times \pi / 4) \times \text{Stroke}$. In this scenario, the bore is 2.5 inches and the stroke is 3.25 inches. First, calculate the area of the bore: $\text{Bore}^2 = (2.5 \text{ inches})^2 = 6.25 \text{ square inches}$. To find the area of the circle, multiply by $\pi/4$: $\text{Area} = (6.25 \times \pi) / 4 \approx 4.9087 \text{ square inches}$. Next, multiply this area by the stroke to find the displacement: $\text{Displacement} = 4.9087 \text{ square inches} \times 3.25 \text{ inches} \approx 15.95 \text{ cubic inches}$. When approximated, this value rounds to 16 cubic inches. Therefore, this result aligns with the answer. The calculation method and result confirm that the answer of 16 cubic inches is the correct representation of the engine displacement based on the provided bore and stroke measurements.

5. If the intake valve fails in a one-cylinder engine, what will happen to the engine?

- A. It will continue to run smoothly
- B. It will make a loud noise
- C. It will stop**
- D. It will overheat

When the intake valve fails in a one-cylinder engine, the engine will typically stop operating. The intake valve is responsible for allowing the air-fuel mixture to enter the combustion chamber. If this valve fails—whether it is stuck open, stuck closed, or damaged—this critical function is disrupted. For instance, if the intake valve is stuck closed, the engine will not receive the necessary air-fuel mixture for combustion, resulting in a lack of power and ultimately causing the engine to stall. On the other hand, if the valve is stuck open, the combustion process can be severely affected, which might lead to backfiring or incomplete combustion, both of which would still prevent the engine from running efficiently. In either case, the result is that the engine cannot maintain operation, leading to a stop. Thus, understanding the role of the intake valve in the engine's operation is key to recognizing why a failure in this component has such a direct impact on the engine's ability to function.

6. What should be done to single element foam filters to help them catch dust particles better?

- A. Dry thoroughly
- B. Oil them**
- C. Replace them
- D. Soak them

Oiling single element foam filters enhances their ability to trap dust particles effectively. When these filters are properly oiled, the oil forms a sticky layer on the foam, which captures and holds onto dust, dirt, and other debris as the air passes through the filter. This not only improves the filter's efficiency in cleaning the air entering the engine but also helps protect the engine from wear and damage caused by unfiltered particles. While drying thoroughly, replacing, or soaking the filters may have their purposes in maintenance, they do not directly improve the filter's capacity to catch airborne particles. Drying may lead to a less effective filter, replacement can be costly, and soaking could potentially damage the foam or wash away any oil that aids in filtration. Thus, applying oil to the foam filter is the recommended practice to enhance its performance. Maintaining oil on foam filters is crucial for optimal engine performance and longevity. Properly oiled filters can significantly reduce engine wear, improve gas mileage, and ensure more efficient operation.

7. What is a common characteristic of L-head engines?

- A. They have valves positioned above the piston
- B. The camshaft is positioned in the cylinder head
- C. They utilize a valve-in-block configuration**
- D. They have a higher power output

L-head engines are specifically designed with the valves located in the engine block, rather than above the piston or in the cylinder head. This configuration, known as the valve-in-block design, is a distinctive feature that characterizes L-head engines. The arrangement typically features a flat combustion chamber, with one or two valves (usually intake and exhaust) positioned side by side in the block itself. This design helps in keeping the engine construction simpler and more compact, which can be advantageous in certain applications, particularly in smaller, less complex engines. The other characteristics mentioned in the options do not apply to L-head engines. For instance, having valves positioned above the piston is typical of overhead valve (OHV) engines, while a camshaft in the cylinder head is also characteristic of OHV or OHC (overhead cam) engines. Higher power output is generally not a unique characteristic of L-head engines; this trait is variable depending on many factors such as displacement and tuning. Thus, the valve-in-block configuration is indeed the defining and accurate characteristic of L-head engines.

8. Piston rings can be plated with chrome or other materials to _____.

- A. increase friction
- B. reduce wear**
- C. enhance appearance
- D. improve fuel efficiency

Piston rings are designed to create a seal in the engine cylinder, preventing the escape of combustion gases and controlling oil usage. When piston rings are plated with chrome or other materials, the primary goal is to reduce wear. This is crucial because wear can lead to decreased engine performance, increased oil consumption, and even engine failure over time. Plating with materials like chrome enhances the hardness and durability of the rings, allowing them to withstand the corrosive environment of the combustion chamber. This reduction in wear contributes to a longer lifespan for both the piston rings and the engine itself, promoting better overall performance. While improving aspects like friction, appearance, and fuel efficiency may be secondary benefits or related to different components, the primary intention behind plating piston rings is to minimize wear and enhance their longevity.

9. What could be used to identify worn or defective valves?

- A. Visual inspection
- B. Compression test
- C. Leak-down test
- D. All of the above**

Using a combination of methods such as a visual inspection, compression test, and leak-down test is crucial in identifying worn or defective valves. Each method provides valuable insights into the valves' condition. A visual inspection can reveal obvious signs of wear, damage, or carbon buildup on the valves that may not function properly. It gives an initial indication of the valves' physical state and can help identify issues that need further investigation. A compression test measures the pressure within the cylinder when the engine is cranked, which can indicate how well the valves are sealing. Low compression can be attributed to problems with the valves, such as not closing properly due to wear or damage. A leak-down test further evaluates the valves and allows for diagnosing specific issues by measuring how much air escapes from the cylinder when it is pressurized. This test can pinpoint whether the air loss is due to worn valves, seals, or other associated components. Together, these methods create a comprehensive assessment approach, improving the chances of accurately identifying worn or defective valves. Hence, using all of the above methods provides the most reliable diagnosis.

10. When is it recommended to use SAE 5W-30 oil in small engines?

- A. Below freezing temperatures**
- B. Above 40 degrees
- C. In hot weather only
- D. For normal operating conditions

SAE 5W-30 oil is recommended for use in small engines when operating in below-freezing temperatures because of its viscosity characteristics. The "5W" designation indicates that the oil has a low viscosity rating when cold, allowing it to flow more easily during colder temperatures. This property is crucial because, in cold weather, thicker oils can result in inadequate lubrication at startup, leading to increased wear on engine components. Using SAE 5W-30 oil ensures that the engine remains lubricated and functions properly, even when temperatures drop significantly. The oil's ability to maintain its properties at lower temperatures supports smoother engine operation, better fuel efficiency, and overall engine protection in winter conditions. In contrast, the other options suggest using this oil during warmer temperatures or under normal operating conditions, where higher viscosity oils may be more suitable to ensure optimal performance. For instance, in hot weather, oils with higher viscosity ratings would generally provide adequate lubrication without thinning excessively under high temperatures.

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://ffasmallenginescde.examzify.com>

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

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