

# OSFM FIRE APPARATUS ENGINEER (FAE) PRACTICE EXAM (SAMPLE)

## STUDY GUIDE



## SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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 does priming the pump involve?**
  - A. Starting the engine without water
  - B. Filling the pump completely with water
  - C. Removing air from the system
  - D. Increasing discharge pressure
- 2. Flow pressure, or velocity pressure, refers to which measurement?**
  - A. The total static head in the system
  - B. Back pressure in the supply line when pumping from a static source
  - C. Forward pressure measured at the discharge opening while water is flowing
  - D. Pressure drop across the valve at zero flow
- 3. Which NFPA standard covers Fire Hydrant Testing?**
  - A. NFPA 291
  - B. NFPA 24
  - C. NFPA 1550
  - D. NFPA 1900
- 4. What is the minimum pump capability for a fire apparatus?**
  - A. At least 250 GPM at 150 psi
  - B. At least 1000 GPM at 200 psi
  - C. At least 500 GPM at 100 psi
  - D. At least 750 GPM at 120 psi
- 5. What does a Siamese fitting do?**
  - A. One line to two lines
  - B. Two lines to one line
  - C. One line to one line
  - D. Three lines to one line
- 6. Under NFPA 1900 Initial Attack Apparatus Requirements, what is the minimum tank capacity?**
  - A. 100 gallons
  - B. 200 gallons
  - C. 150 gallons
  - D. 250 gallons

- 7. During priming of a portable relay pump, which observation indicates the suction line is charged?**
- A. The discharge gauge reads zero
  - B. The priming line is cold to touch
  - C. Pressure begins to rise
  - D. The engine rpm stabilizes
- 8. What confirms that foam proportioner ratio settings are correct during testing?**
- A. The foam solution demonstrates the expected properties.
  - B. The ratio setting is ignored.
  - C. The foam solution is completely absent.
  - D. The system is drained.
- 9. What is backpressure in the context of a fire pump system and how can you manage it?**
- A. Backpressure arises when discharge outlets create resistance; manage by opening more outlets, adjusting valves, or reducing friction losses.
  - B. Backpressure is negative pressure at intake; managed by closing valves.
  - C. Backpressure is atmospheric; manage by pressurizing.
  - D. Backpressure only occurs in foam lines.
- 10. AR-FFFP is used for fuels due to the polymer; which fuels are targeted?**
- A. Hydrocarbon Fuels Only
  - B. Hydrocarbon and Water-Soluble Fuels Due to Polymer
  - C. Polar Solvents Only
  - D. Water-Based Fuels

## **Answers**

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

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## **Explanations**

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### 1. What does priming the pump involve?

- A. Starting the engine without water
- B. Filling the pump completely with water**
- C. Removing air from the system
- D. Increasing discharge pressure

*Priming the pump means creating a water-filled, air-free path so the pump can develop suction. By filling the pump housing and suction line with water, air is expelled and a continuous water column is established from the source to the impeller. With water in place, the pump can draw water and generate discharge flow. Starting the engine without water won't establish suction, and while removing air is part of the process, the essential action of priming is filling the pump with water; increasing discharge pressure is the result, not the priming action itself.*

### 2. Flow pressure, or velocity pressure, refers to which measurement?

- A. The total static head in the system
- B. Back pressure in the supply line when pumping from a static source
- C. Forward pressure measured at the discharge opening while water is flowing**
- D. Pressure drop across the valve at zero flow

*Flow pressure is the dynamic pressure created by moving water. When water flows from the pump discharge, the velocity of the fluid exerts forward pressure on the discharge opening—that is the velocity (or flow) pressure you measure while the water is flowing. This value is a component of the total pressure at the discharge, distinct from static pressure, which exists without flow, and from any pressure related to flow conditions before pumping or at zero flow. So the reading you get at the discharge during pumping—the forward pressure measured while water is moving—is the flow (velocity) pressure.*

### 3. Which NFPA standard covers Fire Hydrant Testing?

- A. NFPA 291**
- B. NFPA 24
- C. NFPA 1550
- D. NFPA 1900

*NFPA 291 is the standard that covers fire hydrant testing. It provides the recommended field test procedures for fire flow testing, including how to measure static and residual pressures, determine the discharge rate, and calculate available fire flow. It also explains how to record test results and mark hydrants to reflect their tested capacity. The other NFPA standards address related topics such as installing private hydrants or safety/operational guidelines, but they don't define the testing procedures itself.*

#### 4. What is the minimum pump capability for a fire apparatus?

- A. At least 250 GPM at 150 psi**
- B. At least 1000 GPM at 200 psi
- C. At least 500 GPM at 100 psi
- D. At least 750 GPM at 120 psi

*The test is checking understanding of what a fire apparatus must be able to do at a basic level to be considered capable of fighting a fire. A minimum pump capability means providing a usable amount of water flow while maintaining enough pressure at the nozzle to push water through hose and fittings, accounting for friction losses and small elevations in the layout. The idea is to have a floor: enough flow and pressure to support at least one handline during initial attack, without requiring a larger, more expensive pump. The best choice is the one that gives you the smallest combination of flow and pressure that still yields a practical, usable discharge. It sets the lower limit for what the pump must reliably deliver. The other options would either exceed that minimum (more flow or higher pressure than necessary for a basic attack) or fail to meet the threshold needed to maintain a workable attack line.*

#### 5. What does a Siamese fitting do?

- A. One line to two lines
- B. Two lines to one line**
- C. One line to one line
- D. Three lines to one line

*A Siamese fitting merges two separate hose lines into a single outlet so water from both lines can be directed through one hose or into a single pump intake. It typically has two inlets and one outlet, allowing two supply lines to feed a single line, which helps increase the effective flow into the pump or a single hose. It's designed for combining sources, not splitting a single line into multiple paths.*

#### 6. Under NFPA 1900 Initial Attack Apparatus Requirements, what is the minimum tank capacity?

- A. 100 gallons
- B. 200 gallons**
- C. 150 gallons
- D. 250 gallons

*NFPA 1900 specifies a water-on-board amount for Initial Attack apparatus that lets responders begin suppression quickly while arranging a larger water supply. The minimum tank capacity is set to two hundred gallons because this amount provides a practical balance: enough water to initiate fire control with standard handlines and typical nozzles, helping to achieve an early knockdown and buy time until hydrants or larger water sources are secured. Tanks smaller than this would limit sustained flow and require earlier refilling, slowing suppression, while larger tanks, though allowed, add weight, cost, and potential impacts on maneuverability. In short, two hundred gallons is the baseline needs-based minimum that enables effective initial action without overburdening the vehicle.*

**7. During priming of a portable relay pump, which observation indicates the suction line is charged?**

- A. The discharge gauge reads zero
- B. The priming line is cold to touch
- C. Pressure begins to rise
- D. The engine rpm stabilizes

*Priming a portable relay pump requires filling the suction line with water to replace the air and establish a continuous water column so the pump can develop suction and deliver water to the discharge. When the suction line becomes charged, the pump can begin moving water and building pressure on the discharge side. That is why the first clear sign is a rise in discharge pressure. If the discharge gauge stays at zero, the pump hasn't developed pressure yet, which means priming isn't complete. The priming line being cold isn't a reliable indicator, and engine rpm stabilization reflects engine operation rather than the priming status.*

**8. What confirms that foam proportioner ratio settings are correct during testing?**

- A. The foam solution demonstrates the expected properties.
- B. The ratio setting is ignored.
- C. The foam solution is completely absent.
- D. The system is drained.

*The main idea being tested is that the correct foam proportioner ratio shows up in the actual foam performance. When the ratio is set correctly, the foam solution should exhibit the expected properties—proper expansion, a stable foam film, and the ability to blanket the target surface evenly. These characteristics indicate the concentrate-to-water mix is at the intended proportion, which is essential for effective foam generation and fire suppression. If the ratio were off, foam behavior would deviate—either too lean or too rich—leading to poor expansion, instability, or excessive runoff. The other scenarios don't verify proper proportioning: ignoring the ratio removes the link to the intended mix, while no foam being produced or draining the system means you can't assess whether the ratio is correct in the test.*

**9. What is backpressure in the context of a fire pump system and how can you manage it?**

- A. Backpressure arises when discharge outlets create resistance; manage by opening more outlets, adjusting valves, or reducing friction losses.
- B. Backpressure is negative pressure at intake; managed by closing valves.
- C. Backpressure is atmospheric; manage by pressurizing.
- D. Backpressure only occurs in foam lines.

*Backpressure on the discharge side is the resistance the pumped water meets as it tries to leave the pump through outlets, hoses, and piping. When discharge paths are restricted or valve settings limit flow, the pump can't push water efficiently, so pressure at the discharge side drops and overall performance suffers. You manage it by giving the system more clear paths for flow (opening additional outlets or distributing flow across multiple lines), adjusting valves to relieve bottlenecks and balance demand, and reducing friction losses through proper hose sizing, smoother routing, and minimizing unnecessary lengths or sharp turns. It's not about negative pressure at the intake, nor is it limited to atmospheric conditions or foam lines. And while closing valves would generally increase, not reduce, backpressure, the practical approach is to open or reconfigure paths and optimize friction losses to maintain the desired pressure and flow.*

10. AR-FFFP is used for fuels due to the polymer; which fuels are targeted?

A. Hydrocarbon Fuels Only

B. Hydrocarbon and Water-Soluble Fuels Due to Polymer

C. Polar Solvents Only

D. Water-Based Fuels

*The key idea is that the polymer in this foam gives it the ability to form and maintain a film on both hydrocarbon fuels and fuels that are water-soluble (polar solvents). This alcohol-resistant behavior means the foam blanket doesn't break down when alcohols or other polar components are present. As a result, the foam can spread and form a stable surface barrier over hydrocarbon fuels as well as polar/ water-soluble fuels, providing cooling and limiting fuel recovery. That's why the correct answer points to both hydrocarbon and water-soluble fuels being targeted due to the polymer.*

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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:

<https://osfmfae.examzify.com>

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

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