PE Civil Transportation Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

Table of Contents

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

1. What does split phasing refer to in traffic control?

A. Simultaneous phases for all movements

B. One phase for all movements on one approach

C. Alternating signals for left turns only

D. Maximizing green time across all approaches

2. In which book and chapter would you find information about urban street segments?

A. Highway Capacity Manual, Chapter 12

B. Highway Capacity Manual, Chapter 18

C. Urban Transportation Planning, Chapter 9

D. Traffic Engineering Handbook, Chapter 7

3. Where can different traffic conditions for road widening be found?

A. AASHTO Green Book

B. Traffic Control Devices Manual

C. Highway Capacity Manual

D. Roadway Design Manual

4. What is the defining aspect of subcritical flow?

A. Downstream influence dominates

B. Flow velocity exceeds the wave speed

C. Flow conditions are less stable

D. The depth is always greater than critical depth

5. Which of the following is NOT an option for alligator cracking repair and rehabilitation?

A. Full-Depth HMA repair

B. Hot or cold in-place recycling

C. HMA overlay

D. Crack sealing

6. As the duration of a storm increases, what happens to rainfall intensity?

A. It increases

B. It decreases

C. It remains stable

D. It fluctuates

7. If given pipe parameters and flow or velocity, what are you calculating?

A. Flow rate

B. Energy loss

C. Pressure drop or head loss

D. Pipe diameter

8. Where can you find regulatory type sign information, including designation and size?

A. MUTCD Table 2A-1

B. MUTCD Table 2B-1

C. AASHTO Guidelines

D. DOT Regulation Manual

9. A fully saturated soil is best described as which phase system?

A. One-phase system consisting of soil solids

B. Two-phase system consisting of soil solids and air

C. Two-phase system consisting of soil solids and water

D. Three-phase system consisting of soil solids, water, and air

10. How should a bike lane be delineated from motor vehicle travel lanes?

A. With a dashed yellow line

B. With a 6" solid white line

C. With a double yellow line

D. With a 12" thick curb

Answers

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

Explanations

1. What does split phasing refer to in traffic control?

A. Simultaneous phases for all movements

B. One phase for all movements on one approach

C. Alternating signals for left turns only

D. Maximizing green time across all approaches

Split phasing in traffic control refers to the operation of a traffic signal where one phase is dedicated to all movements on one approach at a time, allowing those vehicles to clear the intersection before providing a signal for movements from other directions. This method helps eliminate conflicts between left turns and oncoming traffic, improving safety and efficiency in certain scenarios. Choosing this approach is particularly beneficial in intersections where certain turning movements could otherwise cause delays or accidents. By isolating phases, the traffic signal can effectively manage the flow of vehicles, reducing the likelihood of crashes and potentially simplifying the operating conditions for drivers. The other choices do not accurately describe split phasing. Simultaneous phases for all movements could lead to conflicts at the intersection, while alternating signals for left turns only does not encompass the broader application of managing all approach movements. Maximizing green time across all approaches does not relate directly to the concept of split phasing; instead, it suggests an optimization strategy that may or may not involve split phases.

2. In which book and chapter would you find information about urban street segments?

A. Highway Capacity Manual, Chapter 12

B. Highway Capacity Manual, Chapter 18

C. Urban Transportation Planning, Chapter 9

D. Traffic Engineering Handbook, Chapter 7

The Highway Capacity Manual, specifically Chapter 18, focuses on urban street segments and provides comprehensive guidelines for analyzing their capacity, performance, and design considerations. This chapter delves into various aspects of urban transportation systems, including methodologies to assess traffic flow and operational characteristics unique to urban contexts. The content typically addresses issues such as traffic signal operation, lane configuration, and pedestrian interactions, which are critical for effective urban street design and functionality. Other texts mentioned, while related to transportation and traffic engineering, do not specifically cover urban street segments with the same depth or focus as Chapter 18 of the Highway Capacity Manual. Therefore, for detailed information on urban street segments, this chapter is the most relevant and authoritative source.

3. Where can different traffic conditions for road widening be found?

A. AASHTO Green Book

B. Traffic Control Devices Manual

C. Highway Capacity Manual

D. Roadway Design Manual

The AASHTO Green Book, officially known as the "A Policy on Geometric Design of Highways and Streets," is a comprehensive resource that covers various aspects of road design, including geometric considerations that are essential for road widening projects. It provides guidelines regarding lane widths, shoulder dimensions, and sight distances, all of which are critical for accommodating different traffic conditions during the widening process. Understanding these geometric principles is crucial for ensuring that the road segments meet safety standards and perform effectively under various traffic volumes and conditions. The AASHTO Green Book incorporates the necessary design features that would support a roadway's ability to handle increased capacity and accommodate diverse traffic flow characteristics, making it an essential reference for anyone involved in highway design and analysis. While the other resources mentioned—such as the Traffic Control Devices Manual, the Highway Capacity Manual, and the Roadway Design Manual—provide valuable information relevant to traffic management, capacity analysis, and design practices, they are not as focused specifically on the geometric design aspects needed for effectively widening roads.

4. What is the defining aspect of subcritical flow?

A. Downstream influence dominates

B. Flow velocity exceeds the wave speed

C. Flow conditions are less stable

D. The depth is always greater than critical depth

The defining aspect of subcritical flow is characterized by the influence of downstream conditions. In subcritical flow, the flow velocity is less than the wave speed, which allows disturbances in the flow to travel upstream. This means that information about the flow conditions downstream can affect the flow behavior upstream. When considering the conditions of flow, in subcritical situations, the flow is comparatively tranquil and less sensitive to changes. This allows for a more stable flow profile where variations in the downstream water surface levels and flow characteristics can significantly impact the upstream flow dynamics. This concept is particularly important in hydraulic engineering situations, such as when designing channels or assessing river systems, where understanding how flow conditions propagate through a system can inform design and management decisions. The other options do not accurately capture the defining aspect of subcritical flow as they either misrepresent the velocity relationships or do not reflect the fundamental nature of this type of flow.

5. Which of the following is NOT an option for alligator cracking repair and rehabilitation?

A. Full-Depth HMA repair

B. Hot or cold in-place recycling

C. HMA overlay

D. Crack sealing

Alligator cracking, characterized by a series of interconnected cracks resembling an alligator's skin, typically occurs in asphalt pavements due to factors such as overloading, poor drainage, and subgrade failure. Effective repair and rehabilitation strategies are essential to restore pavement performance and extend its lifespan. Crack sealing is primarily a preventative maintenance technique, utilized for sealing isolated cracks to prevent water infiltration and further deterioration of the pavement. However, it does not address the structural issues that cause alligator cracking. Because alligator cracking indicates underlying distress rather than surface-level damage, sealing the cracks does not adequately remedy the situation where significant pavement failure has occurred. In contrast, full-depth HMA (Hot Mix Asphalt) repair involves removing and replacing the damaged section of pavement, which is appropriate for addressing the structural problems linked to alligator cracking. Hot or cold in-place recycling allows for the rehabilitation of the existing pavement material itself, which can also be effective in repairing underlying issues. HMA overlay provides a new surface layer to improve the pavement's condition while enhancing its structural integrity, making it suitable for treating alligator cracking. Each of these methods directly targets the issues contributing to the cracking, rather than just the symptoms.

6. As the duration of a storm increases, what happens to rainfall intensity?

A. It increases

B. It decreases

C. It remains stable

D. It fluctuates

The correct answer indicates that as the duration of a storm increases, rainfall intensity typically decreases. This trend can be understood by considering the nature of storms and how they develop. When a storm begins, the initial precipitation is often the most intense. This is due to the presence of feeder clouds and upward motion that contribute to heavy rainfall. However, as the storm persists, the mechanisms that maintain high intensity, such as moisture influx and thermal dynamics, may diminish or redistribute. Widespread rainfall can lead to a gradual decrease in intensity as the storm matures, in part because the air becomes saturated and the capacity for additional rainfall decreases. Eventually, the storm may transition to lighter rain or drizzle, especially in prolonged events. Factors such as atmospheric pressure systems and the availability of moisture can also play a role in this decrease in intensity over longer durations. Overall, the pattern of initial heavy rain followed by reduced intensity reflects the typical life cycle of storms and their capability to produce precipitation over time.

7. If given pipe parameters and flow or velocity, what are you calculating?

A. Flow rate

B. Energy loss

C. Pressure drop or head loss

D. Pipe diameter

When given pipe parameters along with flow or velocity, calculating the pressure drop or head loss is an essential aspect of fluid mechanics in transportation engineering. The pressure drop, often referred to as head loss, quantifies the loss of pressure as fluid travels through the pipe due to factors such as friction, bends, fittings, and other obstructions within the system. This calculation is crucial because it directly impacts the efficiency of the fluid transport system. Understanding head loss helps engineers determine if the pressure at the pipe's outlet will still be adequate for the system's requirements and can influence decisions about pump sizing, material selection, and system layout. In contexts where flow rate or energy loss might also be considered, those calculations typically derive from the understanding of pressure drop. For example, energy loss can be related to head loss, as both terms can describe the same phenomenon in different contexts. Similarly, the flow rate might be connected to head loss but does not address the specific drop in pressure caused by the frictional forces within the pipe itself. Pipe diameter is an important parameter to know, but it is not calculated when input parameters such as flow or velocity are effectively given. Thus, focusing on pressure drop or head loss provides a direct method to assess how the flow interacts with the

8. Where can you find regulatory type sign information, including designation and size?

A. MUTCD Table 2A-1

B. MUTCD Table 2B-1

C. AASHTO Guidelines

D. DOT Regulation Manual

The correct information regarding regulatory sign designations and sizes can be found in the Manual on Uniform Traffic Control Devices (MUTCD), specifically in Table 2B-1. This table provides comprehensive details about the design, size, and specifications for regulatory signs, which are crucial for maintaining consistency and safety in traffic control across various jurisdictions. Table 2A-1 in the MUTCD pertains primarily to general guidelines and options for traffic control devices, but it does not specifically address the size and designation of regulatory signs. Meanwhile, while AASHTO Guidelines and the DOT Regulation Manual contain valuable information related to traffic control and safety, they do not specifically contain the detailed tables that delineate the dimensions and specifications for regulatory signs as found in Table 2B-1 of the MUTCD. Understanding the specific content of these tables is essential for civil engineers and transportation professionals as it ensures compliance with established standards for traffic signage, ultimately improving road safety and navigation for all users.

9. A fully saturated soil is best described as which phase system?

A. One-phase system consisting of soil solids

B. Two-phase system consisting of soil solids and air

C. Two-phase system consisting of soil solids and water

D. Three-phase system consisting of soil solids, water, and air

A fully saturated soil is best described as a two-phase system consisting of soil solids and water. In a fully saturated condition, all the void spaces within the soil are filled with water, and there is no air present in those voids. In this context, "soil solids" refer to the particles that make up the structure of the soil. When the soil is fully saturated, the water takes the place of the air that would normally be present in the pores. Therefore, the primary distinction is the complete occupancy of the void space by water, signifying that the soil's condition allows it to be represented as comprising just two components: the soil particles and the water filling the voids. When examining other options, they do not characterize a fully saturated soil accurately. A one-phase system comprising only soil solids ignores the presence of water entirely, while a two-phase system that includes both soil solids and air would be applicable to unsaturated or partially saturated conditions. A three-phase system would include soil solids, water, and air, which describes a state of partial saturation rather than full saturation. Thus, the choice that describes fully saturated soil as consisting solely of soil solids and water reflects the correct interpretation of the soil's phase state.

10. How should a bike lane be delineated from motor vehicle travel lanes?

A. With a dashed yellow line

B. With a 6" solid white line

C. With a double yellow line

D. With a 12" thick curb

Delineating a bike lane from motor vehicle travel lanes is important for both safety and clarity of roadway use. A 6-inch solid white line effectively signifies the boundary between bike lanes and motor vehicle lanes. This solid white line indicates that crossing into the bike lane should be done cautiously, as it is reserved specifically for bicycle traffic. The use of a solid line discourages motorists from entering the bike lane except when necessary, such as when making a turn or passing a cyclist. This provides a clear visual cue to both cyclists and drivers, helping to reduce the likelihood of accidents and promote safer shared road usage. Other options do not provide the same level of clarity or legal guidance. A dashed yellow line typically indicates two-way traffic lanes which are not appropriate for this scenario. A double yellow line is generally used to signify that passing is not permitted and is more common on wider roads with two lanes of traffic in opposite directions. A curb, while an effective physical barrier, may not be practical in all circumstances, particularly in urban settings where space is limited. Therefore, the 6-inch solid white line is the standard and recommended method for delineating bike lanes from motor vehicle lanes, ensuring safety and orderly use of the roadway.

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://peciviltranspo.examzify.com

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