

PE CIVIL TRANSPORTATION PRACTICE EXAM (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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

<https://peciviltranspo.examzify.com>



Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	16

SAMPLE

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

SAMPLE

1. Which factor influences the friction factor?

- A. Roughness of the pipe
- B. Diameter of the pipe
- C. Reynolds number
- D. All of the above

2. Which characteristic is true for uniform flow?

- A. Same depth at every section
- B. Flow can change at different sections
- C. Friction loss is equal length times the slope
- D. Friction slope and channel bottom slope are the same

3. Which document covers grade separation for bridges and roadways?

- A. AASHTO Green Book
- B. MUTCD
- C. Federal Highway Administration Manual
- D. Traffic Engineering Handbook

4. Where do you find spacing for chevron or curve signs?

- A. MUTCD
- B. FHWA Manual
- C. TRB Guidelines
- D. Local DOT Regulations

5. What assumption does NCEES make regarding the nature of n when not stated?

- A. Constant
- B. Variable
- C. Undefined
- D. Invariant

- 6. What equation provides information on crash (accident) modification factors?**
- A. AASHTO Safety Manual
 - B. Roadside Design Guide
 - C. Highway Safety Manual
 - D. Urban Street Design Guide
- 7. If the Froude number is greater than 1, what type of flow is present?**
- A. Turbulent flow
 - B. Supercritical flow
 - C. Subcritical flow
 - D. Critical flow
- 8. At stop-controlled intersections, how far from the edge of the major road's traveled way should the vertex of the departure sight triangle on the minor road be?**
- A. 10.5 ft
 - B. 14.5 ft
 - C. 18.5 ft
 - D. 20.0 ft
- 9. The Froude number is used to determine the classification of what?**
- A. Flow type as subcritical, critical, or supercritical
 - B. Reynolds number conditions
 - C. Fluid density
 - D. Viscosity levels
- 10. What does R2 in median design represent?**
- A. The total width of a roadway
 - B. The length of a turn bay
 - C. The radius of a circular median opening
 - D. The setback distance between lanes

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. Which factor influences the friction factor?

- A. Roughness of the pipe
- B. Diameter of the pipe
- C. Reynolds number
- D. All of the above**

The friction factor in fluid dynamics is influenced by several key factors, which include the roughness of the pipe, the diameter of the pipe, and the Reynolds number. The roughness of the pipe refers to the surface texture and irregularities along its interior. A rough surface increases turbulence and resistance to flow, leading to a higher friction factor. The diameter of the pipe plays a crucial role as well because it affects the flow regime and velocity of the fluid. A larger diameter can reduce the friction factor in laminar flow conditions, whereas in turbulent flow, the relationship is more complex and affected by other factors like roughness. The Reynolds number is a dimensionless number that characterizes the flow regime of the fluid (laminar or turbulent). It is calculated based on the flow velocity, fluid properties, and the pipe's dimensions. The Reynolds number directly influences the friction factor, as the transition from laminar to turbulent flow leads to different friction factor behavior. Given that all these factors work together to determine the friction factor in a flow system, it is appropriate to conclude that all of the elements listed contribute to this important aspect of fluid mechanics.

2. Which characteristic is true for uniform flow?

- A. Same depth at every section**
- B. Flow can change at different sections
- C. Friction loss is equal length times the slope
- D. Friction slope and channel bottom slope are the same

Uniform flow is characterized by a consistent state of flow such that the velocity of the fluid remains constant along a given length of the flow path. This means that not only is the flow velocity constant but also the cross-sectional area, hydraulic radius, and depth of the flow do not change from one section to another over a specific length. When the flow is uniform, the key feature is that the characteristic depth is the same at every section along the channel, making option A correct. This consistent depth is important, as it demonstrates that the flow's energy level and momentum are also steady throughout that length, contributing to predictability in hydraulic calculations and design parameters in civil engineering applications. The other characteristics mentioned in the incorrect options contradict the definition of uniform flow. For instance, varying depth or conditions along the flow would indicate non-uniform or varying flow characteristics. Furthermore, the relationship between friction loss, channel slope, and friction slope also relates back to the uniform nature of flow; in uniform flow, these factors align in a specific manner that reflects the steady state of the system, but they do not represent the same principles as a constant depth across the channel.

3. Which document covers grade separation for bridges and roadways?

- A. AASHTO Green Book**
- B. MUTCD
- C. Federal Highway Administration Manual
- D. Traffic Engineering Handbook

The AASHTO Green Book, formally known as "A Policy on Geometric Design of Highways and Streets," is the primary reference for the geometric design of roadways and related structures, including the design of grade separations for bridges and roadways. It provides guidelines and standards for the layout, dimensions, and design considerations when constructing grade-separated structures to enhance safety and traffic flow. The information within the Green Book is essential for civil engineers as they consider factors like sight distance, vertical and horizontal alignment, and overall roadway safety in their designs. The other documents mentioned serve different purposes. The Manual on Uniform Traffic Control Devices (MUTCD) focuses on the design and placement of traffic control devices, ensuring consistency in traffic signals, signs, and markings. The Federal Highway Administration Manual contains various materials and guidelines related to highway and road design, but it does not primarily focus on the geometric design details such as grade separation. The Traffic Engineering Handbook provides a broader overview of traffic engineering principles but does not delve into specifics of roadway geometric design like the AASHTO Green Book does.

4. Where do you find spacing for chevron or curve signs?

- A. MUTCD**
- B. FHWA Manual
- C. TRB Guidelines
- D. Local DOT Regulations

The spacing for chevron or curve signs is found in the Manual on Uniform Traffic Control Devices (MUTCD). This document provides standardized guidelines for traffic signs, signals, and roadway markings used in the United States. It is essential for ensuring uniformity and safety across various roadways and jurisdictions. The MUTCD outlines the proper placement, visibility, and spacing of traffic control devices to enhance driver understanding and compliance. While other resources like the FHWA Manual, TRB Guidelines, and local DOT regulations may provide valuable information on broader transportation planning or general traffic management principles, the specific spacing for chevron or curve signs is explicitly addressed within the MUTCD, making it the definitive source for such specific traffic sign guidelines.

5. What assumption does NCEES make regarding the nature of n when not stated?

- A. Constant
- B. Variable**
- C. Undefined
- D. Invariant

The assumption regarding the nature of ' n ' when not stated is that it is variable. In the context of engineering problems, especially in transportation and civil engineering, the variables often represent quantities that can change based on different conditions or inputs. When ' n ' is considered variable, it allows for a broader range of applications and adaptability in calculations, reflecting real-world scenarios where factors such as traffic volume, load requirements, or environmental conditions can fluctuate. The assumption of variability enables engineers to apply different values of ' n ' as needed for analysis, rather than sticking to a fixed number, which might limit the utility of the findings or solutions derived from the calculations. Other choices might imply conditions that do not accurately represent the diverse scenarios encountered in engineering practice. For example, assuming ' n ' as constant or invariant would not adequately account for the variations required in many applications like traffic engineering or design parameters in civil projects. Therefore, approaching ' n ' as a variable provides the flexibility needed for effective engineering decision-making.

6. What equation provides information on crash (accident) modification factors?

- A. AASHTO Safety Manual**
- B. Roadside Design Guide
- C. Highway Safety Manual
- D. Urban Street Design Guide

The correct choice is the Highway Safety Manual, which provides information on crash modification factors (CMFs). CMFs are numerical values used to estimate the expected change in crashes as a result of a specific highway safety improvement or alteration. The Highway Safety Manual is a comprehensive resource that offers guidance on the implementation of safety measures and includes a wide range of CMFs for various roadway improvements, making it essential for transportation engineers and planners to evaluate safety strategies. While the AASHTO Safety Manual provides important standards and guidelines related to roadway design and safety, it does not specifically focus on crash modification factors as a standalone resource. The Roadside Design Guide focuses largely on the design of roadside features to enhance safety for vehicles and pedestrians, and does not delve into CMFs. The Urban Street Design Guide primarily addresses urban street design principles, aspects of livability, and multimodal transportation, but it does not focus on the analysis or application of CMFs. Thus, the Highway Safety Manual stands out as the dedicated resource for crash modification factors in the context of transportation safety.

7. If the Froude number is greater than 1, what type of flow is present?

- A. Turbulent flow
- B. Supercritical flow**
- C. Subcritical flow
- D. Critical flow

When the Froude number is greater than 1, it indicates the presence of supercritical flow. The Froude number is a dimensionless value used to characterize flow conditions in open channel hydraulics and is defined as the ratio of the inertial forces to gravitational forces. Specifically, it is calculated using the flow velocity and the square root of the product of gravitational acceleration and hydraulic depth. In supercritical flow, the velocity of the fluid is greater than the wave speed, leading to a situation where disturbances travel upstream rather than downstream. This flow condition is typically characterized by shallow, fast-moving water, which can create a variety of hydraulic phenomena and behavior in rivers, over weirs, and in channels. Understanding supercritical flow is crucial for various engineering applications, as it influences sediment transport, flow behavior over structures, and the design of hydraulic systems.

8. At stop-controlled intersections, how far from the edge of the major road's traveled way should the vertex of the departure sight triangle on the minor road be?

- A. 10.5 ft
- B. 14.5 ft**
- C. 18.5 ft
- D. 20.0 ft

The correct answer is based on standard design practices for sight distance at stop-controlled intersections. The vertex of the departure sight triangle on the minor road should be set at a distance that ensures drivers have adequate visibility of approaching traffic on the major road when they are preparing to enter or cross it. For stop-controlled intersections, the standard distance from the edge of the traveled way of the major road for the vertex of the departure sight triangle typically aligns with 14.5 feet. This distance enables the driver on the minor road to see oncoming vehicles from the major road while maintaining a safe position at the stop line. Selecting this distance is crucial for ensuring safe decision-making by drivers; if the sight triangle is too short, visibility can be obstructed, leading to potential safety hazards for vehicles entering the intersection. Understanding these design parameters is important for roadway engineering, as they directly influence traffic safety and operational efficiency. The other distances provided do not conform to the typical guidelines and would either reduce visibility or not align with established standards, potentially compromising safety at the intersection.

9. The Froude number is used to determine the classification of what?

- A. Flow type as subcritical, critical, or supercritical**
- B. Reynolds number conditions
- C. Fluid density
- D. Viscosity levels

The Froude number is a dimensionless quantity used in fluid mechanics to characterize flow regimes, particularly in open channel flow. It is defined as the ratio of the inertial forces to gravitational forces acting on a flow. The Froude number helps determine whether the flow is classified as subcritical, critical, or supercritical. When the Froude number is less than one, the flow is considered subcritical, which means gravitational forces dominate, and changes in flow characteristics propagate upstream. A Froude number of exactly one indicates critical flow, where inertia and gravity forces are balanced, and this flow condition represents a transitional state. When the Froude number is greater than one, the flow is supercritical, where inertial forces dominate, and disturbances can only move downstream. Understanding these classifications is essential for many applications in transportation engineering, hydraulic design, and analyzing flow behavior for various structures. The other options relate to different fluid properties or conditions that do not specifically classify flow types based on inertial and gravitational forces.

10. What does R2 in median design represent?

- A. The total width of a roadway
- B. The length of a turn bay
- C. The radius of a circular median opening**
- D. The setback distance between lanes

In median design, R2 denotes the radius of a circular median opening. This measurement is crucial for determining how vehicles can safely navigate through or around a median. A well-designed median with an appropriate radius allows for smoother transitions and enhances safety by reducing the likelihood of overshooting the median or experiencing vehicle instability. The circular opening needs to be sufficient to accommodate turning movements without undue strain on vehicle systems, thus aiding in traffic flow and providing safe access to cross streets or pedestrian pathways. The other options, although relevant in various contexts of roadway design, do not specifically address the function of R2 in median geometry.

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!

SAMPLE