

CALIFORNIA CIVIL ENGINEERING SURVEYING PRACTICE EXAM (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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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. Coverage of a single aerial photograph after subtracting side (~0.3) and forward (~0.6) overlap.**
 - A. Neat Model
 - B. Model
 - C. Nadir
 - D. Monument
- 2. What is the term for a tape whose last foot (or meter) at each end is graduated?**
 - A. Cut Tape
 - B. Mask Angle
 - C. Cutoff Angle
 - D. Digital Orthophoto
- 3. What term describes a line on the earth's surface having identical magnetic declination throughout its length?**
 - A. Magnetic Declination Line
 - B. Declination Isoline
 - C. Isogonic Line
 - D. Geodetic Line
- 4. Which term describes the marking process after aerial photographs have been taken, used to locate points?**
 - A. Pre-Marking
 - B. Pre-engineering Survey
 - C. Polaris
 - D. Post-Marking
- 5. Which map is similar to a Topographic Map but does not include vertical information (no contours)?**
 - A. Planimetric Map
 - B. Planimetric Map
 - C. Orthophoto
 - D. Contour Map

- 6. What is a network of points covering a site for future control of additional survey measurement (i.e., for use as a reference for future surveys)?**
- A. Controlling Points Method
 - B. Contour Map
 - C. Construction Survey/Staking
 - D. Control Survey
- 7. Trigonometric Leveling uses which distances?**
- A. Vertical distances
 - B. Arc distances
 - C. Horizontal or slope distances
 - D. Geodetic distances
- 8. What term describes the difference between an individual measurement and the mean value?**
- A. Scale Factor
 - B. Residual
 - C. Route Survey
 - D. RPSS
- 9. In GPS, which parameter describes the geometry of the satellite constellation and affects positional accuracy?**
- A. EDM
 - B. Elevation Factor
 - C. DOP - Dilution of Precision
 - D. Ellipsoid
- 10. Witness Stake: which option best describes its purpose?**
- A. Documents a ground stake but does not itself locate a specific point
 - B. Marks the boundary line on a map
 - C. Indicates direction to distant feature
 - D. Provides spatial coordinates for a point

Answers

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

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Explanations

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1. Coverage of a single aerial photograph after subtracting side (~0.3) and forward (~0.6) overlap.

A. Neat Model

B. Model

C. Nadir

D. Monument

The concept being tested is the net or usable coverage of a single aerial photo after accounting for overlaps. After subtracting side overlap and forward overlap, the part of the photo that actually contributes non-redundant information for modeling is called the neat model. With a forward overlap of 60% and a side overlap of 30%, the non-overlapping portion along each dimension is 40% and 70%, respectively. The area that remains non-overlapping in both directions—the neat model—is about $0.4 \times 0.7 \approx 28\%$ of the photo. The other terms don't describe this idea: nadir is the ground point directly below the camera; a monument is a physical reference marker; and a generic "model" doesn't specify the net coverage contributed by one photo.

2. What is the term for a tape whose last foot (or meter) at each end is graduated?

A. Cut Tape

B. Mask Angle

C. Cutoff Angle

D. Digital Orthophoto

The concept here is the way a surveying tape is marked at its ends. A tape whose last foot (or meter) at each end is graduated is designed so you can read the distance directly to the end points from either direction. This is called a cut tape. The end graduations let you align the tape from one end and read exactly where the other end lies, or use measurements from both ends and still get a direct reading without adding or subtracting partial units. It also helps reduce reading errors near the ends and makes long-distance measurements more accurate because you can rely on those final marks being explicit and visible. In practice, having end graduations means you can measure to an end point even if you're reading from the far end or using a two-end measurement method, which is why this design is preferred for precise surveying work. Other terms listed refer to things outside of tape graduation design, such as angles in different contexts or a digital image product, so they don't describe how the tape is marked.

3. What term describes a line on the earth's surface having identical magnetic declination throughout its length?

A. Magnetic Declination Line

B. Declination Isoline

C. Isogonic Line

D. Geodetic Line

The key idea is lines of equal magnetic declination. Magnetic declination varies by location because the Earth's magnetic field isn't aligned with true north everywhere. An isogonic line is a line on the map along which the magnetic declination is the same at every point. That makes it the best fit for the description given, since along that line the compass correction needed to align with true north stays constant. Other terms aren't the standard label for this feature. A phrase like magnetic declination line isn't a conventional term, and declination isoline isn't the usual name used in surveying or geomagnetism. A geodetic line refers to a path on the ellipsoid used in measuring distances and directions, not to variations in the magnetic field.

4. Which term describes the marking process after aerial photographs have been taken, used to locate points?

- A. Pre-Marking
- B. Pre-engineering Survey
- C. Polaris

D. Post-Marking

In aerial photogrammetry, you establish where points on the ground are after the photographs have been taken by marking and identifying ground control points on the imagery. This step, called post-marking, provides the reference locations needed to georeference the photos, tie overlapping images together, and derive accurate coordinates and elevations for mapping. The label reflects that the marking occurs after the flight and photography, not before. The other terms don't fit: pre-marking would imply marking beforehand, which isn't the process used to locate points from the captured images; a pre-engineering survey is a different kind of planning survey; Polaris relates to celestial navigation, not marking ground points in aerial imagery.

5. Which map is similar to a Topographic Map but does not include vertical information (no contours)?

- A. Planimetric Map**
- B. Planimetric Map
- C. Orthophoto
- D. Contour Map

In surveying terms, you're looking for a map that shows only where things are on the surface, not how high they sit. A planimetric map does exactly that: it presents horizontal positions of features—buildings, roads, parcel boundaries, utilities—without any elevation data or contour lines. That's why it's the match for a topographic map when vertical information is intentionally omitted. Contour maps include elevation lines, so they wouldn't fit. An orthophoto is a corrected aerial image and can be used as a base for planimetric information, but its primary form is photographic rather than a mapped set of plan-view features. So the planimetric map best fits the description of being similar in appearance to a topographic map but lacking vertical information.

6. What is a network of points covering a site for future control of additional survey measurement (i.e., for use as a reference for future surveys)?

- A. Controlling Points Method
- B. Contour Map
- C. Construction Survey/Staking

D. Control Survey

Establishing a network of precisely located points across the site to be used as references for future measurements is the purpose of a control survey. This creates a control network with known coordinates and elevations that all subsequent surveying can refer back to, reducing cumulative errors and ensuring consistency as work progresses. A contour map shows terrain elevations rather than a reference framework. Construction staking uses the established network to place marks for building, but it isn't about creating the reference network itself. The term controlling points method isn't the standard way to name the overall framework; the established control survey is the proper concept for a site-wide reference network.

7. Trigonometric Leveling uses which distances?

- A. Vertical distances
- B. Arc distances
- C. Horizontal or slope distances**
- D. Geodetic distances

In trigonometric leveling, you determine elevation differences by combining a measured vertical angle with the distance between the instrument and the staff. The distance you need is the one along the line of sight between the two points, which is the slope distance, or its horizontal projection. With the vertical angle in hand, you resolve the vertical component using trigonometry: if you know the slope distance, the height difference is the slope distance times the sine of the angle; if you know the horizontal distance, it's the horizontal distance times the tangent of the angle. Arc distances (distance along the earth's curved surface) and geodetic distances aren't used for this local elevation-difference calculation, since they don't represent the straight-line or projected distances needed to compute the vertical component. So the distances involved are horizontal or slope distances.

8. What term describes the difference between an individual measurement and the mean value?

- A. Scale Factor
- B. Residual**
- C. Route Survey
- D. RPSS

The main idea here is understanding how far a single measurement sits from the center of the data set. That difference is called a residual in this context. It's computed as the observed value minus the mean, showing how much that one measurement deviates from the average. Residuals are useful for assessing precision, building variability measures, and spotting outliers. The other terms don't describe this idea: a scale factor is just a multiplier to adjust size or units, a route survey is a type of field survey, and RPSS refers to something unrelated.

9. In GPS, which parameter describes the geometry of the satellite constellation and affects positional accuracy?

- A. EDM
- B. Elevation Factor
- C. DOP - Dilution of Precision**
- D. Ellipsoid

The key idea is how satellite geometry in the sky influences how measurement errors translate into position errors. Dilution of Precision captures this relationship. It's a dimensionless factor derived from the relative positions of the satellites at the moment of the fix. When satellites are widely spread across the sky, the geometry is favorable and this value is low, so the potential position error from measurement noise is small. When satellites are clustered or low on the horizon, the geometry is poor and the value is high, amplifying the possible error in the computed position. Other terms don't describe the geometry of the satellite constellation. EDM is a distance-measurement method used in surveying, not a GPS geometry metric. The ellipsoid is the Earth model used to convert coordinates, not about satellite geometry. An elevation-based filter (often called a mask) affects which satellites are included but does not define the geometry quality itself. So, the parameter that describes the constellation's geometry and affects positional accuracy is Dilution of Precision.

10. Witness Stake: which option best describes its purpose?

A. Documents a ground stake but does not itself locate a specific point

B. Marks the boundary line on a map

C. Indicates direction to distant feature

D. Provides spatial coordinates for a point

A witness stake is a marker used to document that a ground stake exists and where a point was established, but it does not itself define or locate that point. In practice, surveyors place a witness stake to witness the location of a corner or point so future measurements can recover the same point, using the witness as a reference rather than as the coordinate source. The actual coordinates are determined from the survey data and calculations, not from the witness stake itself. That's why the statement describing it as documenting a ground stake without locating the point matches the concept best. The other ideas—marking a boundary on a map, indicating direction to a distant feature, or providing coordinates—are not the role of a witness stake.

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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.

Or visit your dedicated course page for more study tools and resources:

<https://casurveying.examzify.com>

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

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