

NCEES FUNDAMENTALS OF SURVEYING (FS) PRACTICE EXAM (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. Which type of error is often predictable and can be compensated for during measurement?**
 - A. blunder
 - B. random error
 - C. systematic error
 - D. instrument error

- 2. Which term describes the lowest order of calls in a land description hierarchy?**
 - A. Call for an artificial monument
 - B. Call for distance
 - C. Call for a natural monument
 - D. Call for area

- 3. What is the limiting factor when elevations are produced using GNSS?**
 - A. A clear line of sight
 - B. A precise ellipsoid model
 - C. A precise geoid model
 - D. A precise gravimetric model

- 4. How many pins are in a set of chaining pins?**
 - A. 10
 - B. 11
 - C. 12
 - D. 20

- 5. Which of the following is NOT a characteristic of a meridian?**
 - A. It runs from the North Pole to the South Pole
 - B. It measures latitude
 - C. It helps determine time zones
 - D. It is a reference for defining angles

- 6. How is a "topographic survey" best defined?**
- A. A survey to measure building heights
 - B. A survey that captures the terrain's shape and features
 - C. A survey focused on urban planning
 - D. A survey limited to land ownership boundaries
- 7. Which device is primarily used to define the line of sight in modern surveying?**
- A. bull's-eye bubble
 - B. compensator
 - C. plumb bob
 - D. spirit level bubble
- 8. Which projection uses a cylindrical shape for mapping?**
- A. Plane
 - B. Cone
 - C. Cylinder
 - D. Ellipse
- 9. What is a mortgage?**
- A. promissory note held by a lending agency
 - B. conditional conveyance of an estate as a pledge of security of a debt
 - C. request for payment of a note
 - D. transfer of title
- 10. What is the opposite process of reliction?**
- A. Erosion
 - B. Accretion
 - C. Avulsion
 - D. Water level rise

Answers

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

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Explanations

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1. Which type of error is often predictable and can be compensated for during measurement?

- A. blunder
- B. random error
- C. systematic error**
- D. instrument error

Systematic error refers to consistent, predictable inaccuracies that occur in measurements due to flaws in the measurement system, such as calibration issues, environmental factors, or inherent biases in the measurement process. These errors typically affect all measurements in the same way, which allows for them to be identified and compensated for effectively. For instance, if a survey instrument consistently reads a certain value higher or lower due to a calibration issue, the user can apply a correction factor to the measurements to ensure accuracy. This predictability is essential in the surveying field, as it enables surveyors to adjust their data to reflect true values more accurately. In contrast, other types of error like blunders are typically caused by human mistakes, are not predictable, and cannot be systematically compensated for. Random errors involve variations in measurements that occur due to unpredictable fluctuations, making them difficult to correct on a case-by-case basis. Instrument error can also arise from various issues, but it may not always be systematic; it can include both systematic and random components. Thus, systematic error is distinctly characterized by its predictability and the ability to apply corrective measures, emphasizing its importance in ensuring accurate and reliable surveying outcomes.

2. Which term describes the lowest order of calls in a land description hierarchy?

- A. Call for an artificial monument
- B. Call for distance**
- C. Call for a natural monument
- D. Call for area

The term that describes the lowest order of calls in a land description hierarchy is indeed the call for distance. In survey platting, calls are instructions that indicate how to determine the boundaries of a parcel of land. The hierarchy of calls typically prioritizes different types of calls based on their reliability and specificity. In this hierarchy, calls for natural monuments (like trees or rivers) and artificial monuments (like fences or roads) are more definitive and preferred because they are tangible reference points. When these fixed features are not available, the next tier relies on distance measurements, which become crucial for defining boundaries when no physical markers are present. Thus, the call for distance serves as a lower order because it relies on abstract measurements rather than fixed points. While the calls for area may indicate the size of a parcel, they do not provide direct information about the actual boundaries themselves, which is why they do not take precedence in the hierarchy. Similarly, calls for artificial or natural monuments take precedence over distance calls but do not represent the lowest order. Hence, the call for distance holds the place of the lowest order of calls in this hierarchy of land description.

3. What is the limiting factor when elevations are produced using GNSS?

- A. A clear line of sight
- B. A precise ellipsoid model
- C. A precise geoid model
- D. A precise gravimetric model

When determining elevations using Global Navigation Satellite Systems (GNSS), the critical factor is a precise geoid model. The geoid represents the mean sea level and accounts for variations in the Earth's gravitational field, providing a reference surface from which elevations can be calculated. GNSS primarily provides positional data in terms of ellipsoidal heights based on the Earth's geometric shape. However, to convert these ellipsoidal heights into orthometric heights, which are commonly used in surveying and engineering applications, it is essential to accurately determine the geoid. The use of a precise geoid model allows for the necessary translation from ellipsoidal heights derived from GNSS measurements to the actual physical elevations above sea level. Without an accurate geoid model, the computation of height differences and the representation of terrain elevations would be flawed. While having a clear line of sight is crucial for obtaining accurate GNSS signals, it does not directly influence the accuracy of height determination once the signals are received. A precise ellipsoid model is also important for interpreting GPS data, but it does not facilitate the conversion to orthometric heights without a geoid. A precise gravimetric model relates to gravity measurements and is typically used in conjunction with geoid determination but is not the primary factor when converting GNSS

4. How many pins are in a set of chaining pins?

- A. 10
- B. 11
- C. 12
- D. 20

In surveying, a standard set of chaining pins typically contains 11 pins. This standardized number helps ensure consistency and accuracy when measuring distances, as the use of uniformly spaced pins allows for reliable chaining practices. Each pin serves a purpose in providing reference points or marking distances, making it crucial to have a complete set for efficient surveying tasks. The set of 11 pins is sufficient for measuring various lengths and allows surveyors to easily manage the number of pins without becoming cumbersome. The additional pins provide redundancy should any pin be lost or damaged during a survey. Having 10 or fewer pins may not offer the same level of flexibility, while a set of 12 or more could lead to unnecessary complexity or burden in the field. Thus, the choice of 11 aligns well with practical field conditions and surveyor needs.

5. Which of the following is NOT a characteristic of a meridian?

- A. It runs from the North Pole to the South Pole
- B. It measures latitude**
- C. It helps determine time zones
- D. It is a reference for defining angles

A meridian is defined as a line of longitude that runs from the North Pole to the South Pole. Its primary purpose is to help in the determination of longitude, not latitude. Latitude is measured by parallels, which are circles that run parallel to the equator, while meridians intersect these parallels at right angles. Meridians are indeed instrumental in helping to establish time zones, as time is measured based on the position of the sun relative to these lines of longitude. Each time zone is typically defined by a specific meridian, which is essential for standardizing time across different regions. Additionally, meridians serve as crucial references for defining angles in both navigation and cartography, providing a framework to measure angles relative to zero degrees longitude, which is known as the Prime Meridian. Therefore, measuring latitude is not a characteristic of a meridian; rather, it pertains to lines of latitude. This distinction highlights why the option regarding the measurement of latitude is not a characteristic of a meridian.

6. How is a "topographic survey" best defined?

- A. A survey to measure building heights
- B. A survey that captures the terrain's shape and features**
- C. A survey focused on urban planning
- D. A survey limited to land ownership boundaries

A topographic survey is best defined as a survey that captures the terrain's shape and features. This type of survey involves measuring both the horizontal and vertical positions of points on the ground to create a detailed representation of the land's surface. The data gathered is used to create contour lines, which illustrate the elevation changes and the physical characteristics of the landscape, such as hills, valleys, and other natural and man-made features. Topographic surveys are essential for various applications, including civil engineering, environmental studies, and land development projects, because they provide critical information about the land's characteristics. Understanding the topography is vital for planning construction projects, managing landscapes, and appreciating how the land will interact with environmental factors. Other options describe different types of surveys. For instance, measuring building heights focuses on vertical dimensions of structures rather than the overall terrain. Urban planning surveys often incorporate various factors but do not exclusively focus on capturing the topographical features. A survey limited to land ownership boundaries pertains specifically to property demarcation, without consideration of the land's physical characteristics. Thus, the definition that accurately encompasses the entirety of what a topographic survey entails is the one that emphasizes the shape and features of the terrain.

7. Which device is primarily used to define the line of sight in modern surveying?

- A. bull's-eye bubble
- B. compensator**
- C. plumb bob
- D. spirit level bubble

The device primarily used to define the line of sight in modern surveying is the compensator. This optical tool is integral to instruments like the total station or the modern level, as it automatically adjusts for tilt or changes in alignment, ensuring that measurements are taken with the line of sight precisely leveled and aligned. By effectively stabilizing the line of sight, the compensator enhances the accuracy of observations and measurements in survey work, which is crucial for obtaining reliable data. In contrast, while devices like the bull's-eye bubble and spirit level bubble can aid in setting up equipment on a level surface, they do not actively adjust or maintain the line of sight during survey operations. A plumb bob, similarly, serves to establish a vertical reference but is not used for defining a line of sight during measurement. Therefore, the compensator stands out as the most appropriate device for ensuring precise line-of-sight measurements in modern surveying practices.

8. Which projection uses a cylindrical shape for mapping?

- A. Plane
- B. Cone
- C. Cylinder**
- D. Ellipse

The cylindrical projection is characterized by its use of a cylinder to represent the Earth's surface. In this type of map projection, the surface of the Earth is projected onto a cylinder which is then unwrapped to create a two-dimensional map. This method preserves angles, which makes it particularly useful for navigation, as true direction can be represented accurately. Cylindrical projections can be seen in commonly used maps like the Mercator projection, which is famous for its ability to maintain straight-line navigation paths. This is accomplished at the cost of distortion in area, especially near the poles, where landmasses may appear much larger than they are in reality. Other options presented, such as plane, cone, and ellipse, do not describe mapping using a cylindrical shape. The plane projection refers to a flat map without cylindrical characteristics. Conic projections use a cone instead of a cylinder to project the Earth's surface, while elliptical shapes pertain more to theoretical models rather than practical map-making techniques. Thus, the cylindrical projection stands out distinctly as the method that utilizes a cylindrical shape for mapping purposes.

9. What is a mortgage?

- A. promissory note held by a lending agency
- B. conditional conveyance of an estate as a pledge of security of a debt**
- C. request for payment of a note
- D. transfer of title

A mortgage is best described as a conditional conveyance of an estate as a pledge of security for a debt. In this context, it refers to an agreement where a borrower conveys an interest in their property to a lender as collateral for a loan, typically used to purchase the property. The borrower retains possession of the property while making payments on the loan, and if they fail to meet the payment obligations, the lender has the right to take possession through foreclosure. This definition captures the essential element of a mortgage as both a financial instrument and a legal arrangement, where the property is used as security for the debt incurred to finance its purchase. This means that while the borrower retains ownership rights, those rights are conditioned upon the fulfillment of the loan agreement's terms. The other options provided do not encompass the complete concept of a mortgage. A promissory note is indeed part of the mortgage process, but it is only a written promise to repay the loan and does not represent the full legal terms and implications of the mortgage. A request for payment of a note is simply an action related to repayment, and the transfer of title pertains to legal ownership, which is part of the procedure but distinct from the mortgage itself. Thus, the second option is the most accurate and

10. What is the opposite process of reliction?

- A. Erosion
- B. Accretion
- C. Avulsion
- D. Water level rise**

Reliction refers to the process where land is exposed due to the receding of water, essentially resulting in new land formation as water levels decrease. The opposite of this process would involve a situation where water levels rise, leading to the submergence of land that was once exposed. This can occur due to various factors such as natural water level fluctuations, climate change, or human activities. During a water level rise, areas that were previously dry become inundated with water, which is the direct counteraction of the land being exposed through reliction. This relationship between reliction and rising water levels highlights the dynamic nature of aquatic boundaries and land exposure in surveying and environmental contexts.

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:

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

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