CGS Concepts Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

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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

1. Distinguish between LAN and WAN.

A. LAN is a local-area network limited to a small area; WAN covers broad geographic distances and may use public networks.

B. WAN covers broad geographic distances and may use public networks.

C. LAN and WAN are the same.

D. WAN uses private networks exclusively.

2. A URL is composed of which main parts?

A. Scheme and host only.

B. Path and fragment only.

C. Scheme, domain, path, and optionally port, query, and fragment.

D. Protocol and encryption.

3. Which of the following describes the periodic doubling of transistor counts used to estimate technology development pace?

A. Moore's Law

B. Ohm's Law

C. Boyle's Law

D. Pascal's Principle

4. Which statement about IP addresses is true?

A. Static addresses are always dynamic.

B. Dynamic addresses never change.

C. Static: assigned by DHCP.

D. Static: fixed address; dynamic: assigned temporarily by DHCP.

5. Name three common spreadsheet functions for summary statistics.

A. IF, VLOOKUP, and MATCH

B. MIN, MAX, and MEDIAN

C. SUM, AVERAGE, and COUNT

D. CONCATENATE, LEFT, and RIGHT

6. What does the term complexity measure in algorithm analysis?

A. Complexity measures how resource usage grows with input size

B. Latency is the speed of network packets

C. Efficiency measures energy consumption only

D. Throughput is unrelated to computation

7. Normalization in relational databases serves what purpose?

A. Encrypts data during transmission

B. Organizes data to reduce redundancy by structuring tables and relationships

C. Duplicates data across multiple tables to speed up queries

D. Converts binary data into text

8. What is a strength of the Android platform?

A. Most widely used OS for smartphones and tablets

B. Best desktop OS

C. Only for gaming

D. No app ecosystem

9. Which listed program is used for creating documents, basic web pages, and desktop publishing?

A. Microsoft Word

B. Microsoft Excel

C. Microsoft PowerPoint

D. Microsoft Access

10. Which statement about IPv4 addressing is true?

A. IPv4 addresses are 64-bit.

B. IPv4 addresses are 16-bit.

C. IPv4 does not support routing.

D. IPv4 addresses are 32-bit, providing about 4.3 billion addresses.

Answers

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

Explanations

1. Distinguish between LAN and WAN.

A. LAN is a local-area network limited to a small area; WAN covers broad geographic distances and may use public networks.

B. WAN covers broad geographic distances and may use public networks.

C. LAN and WAN are the same.

D. WAN uses private networks exclusively.

Understanding the geographic scope of networks helps distinguish LANs from WANs. A local-area network is designed for a small area—like a single building or campus—and is typically owned and operated by one organization with fast, private connections. A wide-area network, on the other hand, covers large geographic distances—cities, regions, or countries—and often relies on service providers and public networks to link multiple LANs together, using technologies such as MPLS, leased lines, or VPNs over the Internet. The description that LAN is limited to a small area and WAN spans broad distances and may use public networks best reflects this difference. Saying LAN and WAN are the same ignores their distinct sizes and architectures. Claiming WAN uses private networks exclusively is incorrect, since WANs commonly traverse public networks as well.

2. A URL is composed of which main parts?

A. Scheme and host only.

B. Path and fragment only.

C. Scheme, domain, path, and optionally port, query, and fragment.

D. Protocol and encryption.

A URL is built from several pieces that tell you how to reach a resource and what to request. The main parts are the scheme (or protocol) that defines how to fetch the resource, the domain or host where the resource lives, and the path that locates the specific resource on that host. In addition, a URL can include a port if you're using a non-default entry point, and it may have a query string after a question mark to pass parameters and a fragment after a hash to refer to a section within the resource. So a typical URL like https://example.com:8080/path/to/resource?search=term#section2 shows all of these: the scheme (https), the host (example.com), an explicit port (8080), the path (/path/to/resource), the query (?search=term), and the fragment (#section2). The essential parts are scheme, domain/host, and path, with port, query, and fragment being optional. The other options don't capture all the main pieces. One misses the path entirely, another leaves out the scheme and host, and a fourth treats encryption as its own URL part, which isn't how URLs are structured.

3. Which of the following describes the periodic doubling of transistor counts used to estimate technology development pace?

A. Moore's Law

B. Ohm's Law

C. Boyle's Law

D. Pascal's Principle

The idea described here is Moore's Law. It captures the observation that the number of transistors on integrated circuits tends to double roughly every two years, which has historically driven faster computing and lower cost per transistor. This doubling pace has been used as a gauge of how quickly technology development in semiconductors progresses, shaping expectations for performance improvements and device capabilities over time. While the exact rate has varied and may be slowing as physical limits loom, the core concept remains that increasing transistor density enables more powerful and affordable electronics. Why the other ideas don't fit: Ohm's Law is about the relationship between voltage, current, and resistance in electrical circuits. Boyle's Law describes how pressure and volume relate for a gas at constant temperature. Pascal's Principle concerns how pressure is transmitted in fluids. None of these describe the growth pattern of transistor counts over time.

4. Which statement about IP addresses is true?

A. Static addresses are always dynamic.

B. Dynamic addresses never change.

C. Static: assigned by DHCP.

D. Static: fixed address; dynamic: assigned temporarily by DHCP.

IP addresses come in two common modes: static and dynamic. A static address is a fixed address assigned to a device and remains the same unless you change it. A dynamic address is obtained from a DHCP server and is issued for a temporary lease; it can change when the lease expires, the device reconnects, or the server reuses addresses. This statement is correct because it succinctly expresses that static addresses are fixed, while dynamic addresses are granted temporarily by DHCP. Static addressing is useful for devices you need to reach at a consistent address, like servers or printers. Dynamic addressing is convenient for clients that don't require a fixed address, as DHCP automatically assigns and can reassign IPs as leases cycle. The other ideas don't fit: static addresses are not dynamic, so they don't stay fixed; dynamic addresses can and often do change when leases end or devices reconnect; and static addresses are not typically assigned by DHCP—they're usually configured manually (though a DHCP server can reserve an address for a device, the general notion of static is manual configuration).

5. Name three common spreadsheet functions for summary statistics.

A. IF, VLOOKUP, and MATCH

B. MIN, MAX, and MEDIAN

C. SUM, AVERAGE, and COUNT

D. CONCATENATE, LEFT, and RIGHT

Summary statistics are concise numbers that describe a dataset, giving you a quick sense of its overall characteristics. The trio of functions that best fits this purpose is sum, average, and count. SUM adds up all the values to give a total, which is useful for understanding total magnitude. AVERAGE computes the mean, offering a central value that represents the typical data point. COUNT tells you how many data points are present, which helps gauge the size of the dataset and interpret the other measures. Other options rely more on finding or manipulating data rather than summarizing it. For example, those functions are tied to conditional logic and lookup, not to producing quick numeric summaries. And while MIN, MAX, and MEDIAN are also summary-related, the combination of total, mean, and count is the most common baseline for summarizing data.

6. What does the term complexity measure in algorithm analysis?

A. Complexity measures how resource usage grows with input size

B. Latency is the speed of network packets

C. Efficiency measures energy consumption only

D. Throughput is unrelated to computation

The concept being tested is how resource usage grows as the input size increases. In algorithm analysis, we examine time complexity (how running time grows with input size) and space complexity (how memory usage grows). We describe this growth with Big-O notation, focusing on the rate of growth rather than exact counts, and we often ignore constants and less significant terms for large inputs. This lets us compare algorithms on how scalable they are. Lat latency refers to delay in network communication, not how an algorithm's resource needs scale with input size. Efficiency isn't limited to energy—it's a broader idea, but when we talk about complexity we're specifically describing how resource usage grows with input size. Throughput measures how much work is completed over a period of time, which is a performance metric but not the formal notion of complexity.

7. Normalization in relational databases serves what purpose?

A. Encrypts data during transmission

B. Organizes data to reduce redundancy by structuring tables and relationships

C. Duplicates data across multiple tables to speed up queries

D. Converts binary data into text

Normalization focuses on organizing data to minimize redundancy and dependency by dividing information into related tables and using keys to connect them. This structure ensures that each fact is stored only once, so updates, deletions, and insertions don't create inconsistencies. By separating entities like customers, orders, and products into distinct tables and linking them with primary and foreign keys, you reduce duplicated data and make the database easier to maintain. The other options miss the essence: encrypting data during transmission is about security, duplicating data across tables creates redundancy, and converting binary data to text is an encoding issue rather than data organization.

8. What is a strength of the Android platform?

A. Most widely used OS for smartphones and tablets

B. Best desktop OS

C. Only for gaming

D. No app ecosystem

Android's strength comes from its widespread adoption across phones and tablets. Because it powers the largest number of mobile devices worldwide, developers can reach the most users with a single app, which in turn fuels a rich and diverse app ecosystem. This broad reach also means a wide variety of hardware options and price points, giving users more choices while maintaining access to the same core software experience. The other statements don't fit because desktop operating systems serve different contexts, Android isn't limited to gaming, and there is a robust app ecosystem with Google Play and other stores—so saying there's no app ecosystem wouldn't be accurate.

9. Which listed program is used for creating documents, basic web pages, and desktop publishing?

A. Microsoft Word

B. Microsoft Excel

C. Microsoft PowerPoint

D. Microsoft Access

Microsoft Word is a versatile word processing tool designed for creating polished documents. It also offers features that let you make simple web pages by saving or exporting in HTML format, and it provides layout tools—such as columns, text boxes, wrapping options, and templates—that support basic desktop publishing tasks like newsletters or brochures. Among the options, the others are focused on different functions: Excel is for spreadsheets and data analysis, PowerPoint is for presentations, and Access handles databases. So Word best fits the combination of creating documents, basic web pages, and basic desktop publishing.

10. Which statement about IPv4 addressing is true?

A. IPv4 addresses are 64-bit.

B. IPv4 addresses are 16-bit.

C. IPv4 does not support routing.

D. IPv4 addresses are 32-bit, providing about 4.3 billion addresses.

IPv4 addresses are 32-bit numbers, which means each address is made up of four 8-bit octets. With 32 bits, there are 2^32 possible unique addresses, which is 4,294,967,296—often rounded to about 4.3 billion. That's the scale IPv4 was designed to support for devices on networks and the Internet. The other statements miss this fundamental fact: 64-bit would yield far more addresses, 16-bit would yield only 65,536, and IPv4 is indeed designed for routing across networks (routing is a core function of IP). For context, IPv6 uses 128-bit addresses to vastly increase the available space.

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://cgsconcepts.examzify.com

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