Fundamentals of Computing 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. Who can verify a digital signature?

A. Only the signer

B. Anyone with the private key

C. Anyone with the public key

D. The Certificate Authority

2. Which technology do self-driving cars use to detect the presence of other cars?

A. Radar detection

B. Infrared imaging only

C. Magnetic field sensing only

D. Ultrasound without any other sensors

3. What term best describes information that has not been changed by unauthorized people?

A. Uncorrupted information

B. Cybersecurity

C. Hacked data

D. Encrypted data

4. What does algorithm correctness mean?

A. The algorithm is the fastest.

B. The algorithm produces the correct result for all valid inputs.

C. The algorithm uses the least memory.

D. The algorithm uses recursion.

5. Phishing is defined as?

A. A method of distributing malware by USB

B. A security protocol to protect data

C. Someone uses a fake email or website to get you to enter your info

D. A way to encrypt passwords

6. Which device is primarily used to store information on the go?

A. USB flash drive

B. RAM

C. Internet

D. Software

7. What is virtualization and containerization and what is a key practical difference?

A. Virtualization runs multiple OS instances via virtual machines; containerization uses containers that share the host OS kernel; containers are lighter and faster to start.

B. Containerization runs multiple OS instances via virtual machines; virtualization uses containers that share the host OS kernel.

C. Virtualization is faster to start than containers.

D. Containers provide full hardware emulation, virtualization does not.

8. Which statement correctly pairs the connection type with its medium?

A. Ethernet — Radio signals; Wireless — Wired connection

B. Ethernet — Wired connection; Wireless — Radio signals

C. Ethernet — Fiber optic; Wireless — Infrared

D. Ethernet — Coaxial; Wireless — Satellite

9. Which description correctly describes a wireless connection?

A. A wired connection

B. Radio signals

C. Fiber optic connection

D. Infrared

10. What does CRUD stand for in SQL operations?

A. Create, Read (Select), Update, Delete

B. Create, Read, Update, Remove

C. Create, Retrieve, Update, Delete

D. Create, Read (Select), Update, Delete

Answers

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

Explanations

1. Who can verify a digital signature?

A. Only the signer

B. Anyone with the private key

C. Anyone with the public key

D. The Certificate Authority

A digital signature is verified with the public key. The signer uses their private key to create a signature on the message (often by signing a hash of the message). Anyone who has the corresponding public key can verify that signature by applying the verification algorithm and comparing it to a freshly computed hash of the message. If they match, it confirms that the signature was created with the matching private key and that the message hasn't been altered, and this can be done by anyone who has the public key. The private key remains secret to the signer, which is what makes the signature trustworthy. The Certificate Authority's role is to bind a public key to an identity, not to perform the verification itself.

2. Which technology do self-driving cars use to detect the presence of other cars?

A. Radar detection

B. Infrared imaging only

C. Magnetic field sensing only

D. Ultrasound without any other sensors

Sensing other vehicles in self-driving cars relies on radar because it uses radio waves to detect objects at distance and measure their speed. Radar can provide range and velocity information even in rain, fog, or darkness, which is crucial for safe following distances and braking decisions. Infrared imaging alone isn't reliable for identifying other cars since it mainly detects heat and doesn't consistently give accurate distance or object recognition in all conditions. Magnetic field sensing isn't a standard, dependable way to detect moving vehicles, and ultrasound, while great for close-range sensing like parking, has a very short range and can't effectively detect distant cars at highway speeds. In real systems, radar is often used alongside cameras and lidar to create a robust understanding of nearby traffic, but radar remains the most appropriate single technology for detecting the presence and speed of other cars.

3. What term best describes information that has not been changed by unauthorized people?

A. Uncorrupted information

B. Cybersecurity

C. Hacked data

D. Encrypted data

This item tests data integrity—the idea that information remains in its original, unaltered form. Uncorrupted information best describes data that hasn't been changed by unauthorized people, which is exactly what integrity aims to ensure. If data were tampered with, its integrity would be compromised and it would no longer be uncorrupted. Encryption hides content but doesn't by itself guarantee that the data hasn't been altered. Cybersecurity is the broader practice of protecting information, not the state of a particular dataset. Hacked data implies unauthorized changes have occurred. So the term that fits is uncorrupted information.

4. What does algorithm correctness mean?

A. The algorithm is the fastest.

B. The algorithm produces the correct result for all valid inputs.

C. The algorithm uses the least memory.

D. The algorithm uses recursion.

Correctness in algorithms means that for every valid input, the algorithm returns the result it's supposed to produce. In other words, the output matches the specification of the problem for all cases within the intended domain. This is about the accuracy of the result, not how fast the algorithm runs or how much memory it uses. Often we talk about total correctness: the algorithm terminates on all valid inputs and the output is correct; sometimes we also discuss partial correctness, where if the algorithm terminates, the result is correct, but termination isn't guaranteed. You justify correctness by formal proofs or rigorous reasoning (like invariants and postconditions) or by thorough testing against the specification. The other choices mix in performance or implementation details—fastest, least memory, or using a particular technique like recursion—which don't determine whether the algorithm's output is correct.

5. Phishing is defined as?

A. A method of distributing malware by USB

B. A security protocol to protect data

C. Someone uses a fake email or website to get you to enter your info

D. A way to encrypt passwords

Phishing is a deceptive social engineering tactic that uses a fake email or website to coax you into revealing sensitive information like passwords or credit card details. The attacker pretends to be a trusted entity and relies on your trust or a sense of urgency, hoping you'll enter credentials on a counterfeit site or respond with data. This is different from delivering malware via USB, which is about spreading malicious software through physical devices; it isn't a security protocol meant to protect data, nor is it a method for encrypting passwords. A common phishing scenario looks like a message that seems to come from your bank asking you to "verify your account" and prompts you to click a link and log in. To guard against it, check the sender carefully, hover over links to see the real URL, and type the official site address directly instead of following a link in the message.

6. Which device is primarily used to store information on the go?

A. USB flash drive

B. RAM

C. Internet

D. Software

Portable storage means keeping data on a device you can carry with you and use with different machines. A USB flash drive fits that role perfectly: it's small, removable, and uses flash memory to hold files, so data remains intact even when the device isn't powered and you can plug it into any computer with a USB port to access or transfer information. RAM, on the other hand, is fast, volatile memory used by the computer while it's running; it loses everything when the power is off, so it's not suitable for keeping data on the go. The Internet isn't a device and doesn't store data locally; it's a network that can enable access to remote storage, but the question is about a portable device for storing information. Software refers to programs, not storage hardware. So the USB flash drive is the best choice for on-the-go storage.

7. What is virtualization and containerization and what is a key practical difference?

A. Virtualization runs multiple OS instances via virtual machines; containerization uses containers that share the host OS kernel; containers are lighter and faster to start.

B. Containerization runs multiple OS instances via virtual machines; virtualization uses containers that share the host OS kernel.

C. Virtualization is faster to start than containers.

D. Containers provide full hardware emulation, virtualization does not.

The essential idea is how the two approaches isolate workloads and what that means for overhead and startup time. Virtualization creates separate virtual machines using a hypervisor, so each VM runs its own complete operating system on virtualized hardware. That means you can run different OS flavors on the same physical machine, but it also means booting and managing each VM involves the full OS and more resources. Containerization, in contrast, runs applications inside containers that share the host operating system kernel. Each container has its own isolated user space, but there isn't a separate OS kernel per container. Because there's no need to boot a separate OS, containers are much lighter and start up far faster, which makes them ideal for rapid deployment and scaling of applications that run on the same OS family. So the best choice states that virtualization uses virtual machines with separate OS instances, while containerization uses containers that share the host OS kernel, and that containers are lighter and faster to start. Why the other ideas don't fit: the notion that containerization runs multiple OS instances via virtual machines reverses the roles, and the idea that virtualization uses containers misses the kernel-sharing and hardware-emulation distinction. The claim that virtualization is faster to start than containers is generally false, and the statement that containers provide full hardware emulation is incorrect—that hardware emulation is a feature of traditional virtualization, not containers.

8. Which statement correctly pairs the connection type with its medium?

A. Ethernet — Radio signals; Wireless — Wired connection

B. Ethernet — Wired connection; Wireless — Radio signals

C. Ethernet — Fiber optic; Wireless — Infrared

D. Ethernet — Coaxial; Wireless — Satellite

The main idea here is matching a connection type with the medium it commonly uses. Ethernet is a wired networking technology that sends signals through physical cables, such as copper twisted-pair or fiber. Wireless networks, on the other hand, rely on transmitting data through the air, typically using radio frequency signals. So the best pairing is Ethernet with a wired connection and Wireless with radio signals. This reflects the typical distinction: Ethernet needs cables, while Wireless communicates via radio waves. The other options mix in media that aren't the standard for these categories (for example, Ethernet isn't limited to fiber optic, and wireless isn't defined only by infrared; radio is the usual medium for wireless).

9. Which description correctly describes a wireless connection?

A. A wired connection

B. Radio signals

C. Fiber optic connection

D. Infrared

Wireless connections transmit data without cables by using signals that travel through the air. The typical way this is described in networking is radio signals, which carry data via radio waves and enable technologies like Wi-Fi and Bluetooth. That makes radio signals the best description for a wireless connection. A wired connection relies on physical cables. A fiber optic connection uses light inside a cable, so it isn't wireless. Infrared is also wireless and uses light, but it's usually short-range and line-of-sight, so it isn't the most general description for wireless networking.

10. What does CRUD stand for in SQL operations?

A. Create, Read (Select), Update, Delete

B. Create, Read, Update, Remove

C. Create, Retrieve, Update, Delete

D. Create, Read (Select), Update, Delete

CRUD is about four basic operations on stored data: creating new records, reading existing data, updating records, and deleting records. In SQL, these map directly to specific statements: CREATE for creating objects like tables, SELECT for reading data, UPDATE for modifying existing rows, and DELETE for removing rows. The phrasing that pairs Read with (Select) makes it crystal clear that reading data in SQL is done with the SELECT statement, which is why that option fits best. Other wordings, such as using Remove instead of Delete or Retrieve instead of Read, don't align with the standard SQL terminology and the well-established CRUD mapping.

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://fundamentalsofcomputing.examzify.com

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