

NCTI Introduction to Networking - Wireless 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

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- 1. Bluetooth is a short range wireless personal area network (WPAN) technology that is covered under which IEEE standard?**
 - A. IEEE 802.11**
 - B. IEEE 802.3**
 - C. IEEE 802.16**
 - D. IEEE 802.15**

- 2. When should you consider enabling Request to send/clear to send (RTS/CTS) on a WLAN?**
 - A. When diagnosing network problems and when large frames experience high collision rates across a congested wireless network.**
 - B. When all traffic is small frames.**
 - C. Only during maintenance windows.**
 - D. Never; RTS/CTS has no benefit.**

- 3. Which networks or products use spread spectrum technologies?**
 - A. Wireless local area networks (WLAN), Bluetooth, and global positioning systems (GPS).**
 - B. Cellular networks only.**
 - C. Traditional wired Ethernet.**
 - D. Satellite television services.**

- 4. For maximum security, you should base WLAN user authentication on which one of the following?**
 - A. Device-based certificates only**
 - B. Biometric-only authentication**
 - C. Device-independent schemes, such as user names and passwords**
 - D. Passwordless tokens**

- 5. Bluetooth uses which spread spectrum technology?**
 - A. Direct-sequence spread spectrum (DSSS)**
 - B. OFDM**
 - C. Frequency-hopping spread spectrum (FHSS)**
 - D. CDMA**

- 6. Which management interface is commonly used to configure APs via a browser?**
- A. Telnet**
 - B. SSH**
 - C. FTP**
 - D. Built-in web server**
- 7. How might you confirm the presence of a hidden node on the network?**
- A. Turn on the request to send/clear to send (RTS/CTS) protocol and watch for increased network data throughput.**
 - B. Observe the signal strength from the AP on each client.**
 - C. Check the MAC address table in the AP.**
 - D. Disable RTS/CTS and see if throughput increases.**
- 8. What antenna type is ideal for a point-to-point network connection between two office buildings across the street?**
- A. An omnidirectional antenna.**
 - B. A dipole in the vertical orientation.**
 - C. A semidirectional antenna.**
 - D. A patch antenna.**
- 9. Which statement best describes GPS use of spread spectrum?**
- A. It uses narrowband transmissions.**
 - B. It uses spread spectrum techniques to improve robustness of signals.**
 - C. It does not use spread spectrum.**
 - D. It uses only FHSS.**
- 10. What term describes sampling two antennas to pick the input signal from the best reception?**
- A. Antenna diversity**
 - B. MIMO**
 - C. Beamforming**
 - D. OFDM**

Answers

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

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Explanations

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1. Bluetooth is a short range wireless personal area network (WPAN) technology that is covered under which IEEE standard?

- A. IEEE 802.11**
- B. IEEE 802.3**
- C. IEEE 802.16**
- D. IEEE 802.15**

Bluetooth is a short-range wireless personal area network technology. This category is defined by IEEE 802.15, which sets the standards for WPANs. Bluetooth is designed for close-proximity, low-power connections between devices such as phones, headphones, keyboards, and IoT gadgets. The other IEEE standards map to different kinds of networks: 802.11 governs Wireless Local Area Networks (Wi-Fi), 802.3 covers Ethernet, and 802.16 is for WiMAX metropolitan-area wireless access. So the standard that covers Bluetooth is IEEE 802.15.

2. When should you consider enabling Request to send/clear to send (RTS/CTS) on a WLAN?

- A. When diagnosing network problems and when large frames experience high collision rates across a congested wireless network.**
- B. When all traffic is small frames.**
- C. Only during maintenance windows.**
- D. Never; RTS/CTS has no benefit.**

RTS/CTS acts as a medium-access guardrail on the wireless link. It introduces a quick handshake before a sender transmits, allowing the receiver to signal others to defer. This is most valuable in a crowded WLAN or when hidden nodes could cause collisions, because that reserve-and-deferr mechanism helps prevent multiple stations from transmitting at once. Enabling RTS/CTS is especially helpful for large frames. The potential cost of a collision for a big payload is high, so the extra overhead of RTS/CTS is worth it because it dramatically reduces the chance of a costly collision and the need for retransmission. In contrast, for small frames the handshake overhead can outweigh the benefits, which is why RTS/CTS isn't typically enabled unless you're seeing problems. So you'd consider turning it on when diagnosing network performance issues and you observe high collision rates with large frames in a congested wireless environment. It's not about maintenance windows, and it's not correct to say it has no benefit in general, since there are real scenarios where it improves performance.

3. Which networks or products use spread spectrum technologies?

- A. Wireless local area networks (WLAN), Bluetooth, and global positioning systems (GPS).**
- B. Cellular networks only.**
- C. Traditional wired Ethernet.**
- D. Satellite television services.**

Spread spectrum spreads a signal over a wider bandwidth than strictly needed, which helps resist interference, reduces the impact of noise, and allows multiple devices to share the same spectrum. Wireless LANs use spread spectrum techniques in their earlier and some current forms (like DSSS and FHSS), Bluetooth uses frequency-hopping spread spectrum to rapidly switch frequencies and avoid collisions, and GPS relies on pseudorange codes that spread the signal across a wide band to allow receivers to distinguish signals from different satellites and achieve precise timing. Traditional wired Ethernet doesn't use spread spectrum since it transmits over fixed physical channels, and satellite television uses fixed modulation schemes on a carrier rather than spreading the signal across a wide band. While cellular networks can employ spread-spectrum concepts in some systems, they are not described as "cellular networks only," so they're not the definitive best match for networks and products that clearly use spread-spectrum technologies.

4. For maximum security, you should base WLAN user authentication on which one of the following?

- A. Device-based certificates only**
- B. Biometric-only authentication**
- C. Device-independent schemes, such as user names and passwords**
- D. Passwordless tokens**

Authenticating WLAN access by the user's identity rather than by the device is the most flexible and auditable approach. When you baseline on user names and passwords, you can centralize verification, enforce strong password policies, and layer in multi-factor authentication, plus you can revoke access quickly if a user leaves or credentials are compromised. This creates consistent security controls across any device, making it easier to manage at scale and to track who accessed the network. Biometric-only methods are limited by privacy concerns and the fact that biometric data can be difficult to revoke or reset if compromised. Passwordless tokens rely on possession of a physical or digital token and infrastructure to manage them, and tokens can be lost or shared, which complicates secure recovery and revocation. Device-based certificates provide strong cryptographic proof tied to a device, but they hinge on secure certificate provisioning and management; if the device is lost, stolen, or misconfigured, access can be compromised and PKI complexity adds risk. So, using device-independent credentials like user names and passwords—ideally with additional protections such as MFA—offers robust, scalable security for WLAN access across diverse devices.

5. Bluetooth uses which spread spectrum technology?

- A. Direct-sequence spread spectrum (DSSS)**
- B. OFDM**
- C. Frequency-hopping spread spectrum (FHSS)**
- D. CDMA**

Bluetooth uses a frequency-hopping spread spectrum approach. It continuously switches its carrier across many 1-MHz channels in the 2.4 GHz band according to a pseudo-random sequence shared by the devices. This rapid hopping reduces the impact of interference and lets multiple Bluetooth connections share the same airwaves without staying on one frequency long enough for a single interference event to cause lasting problems. Direct-sequence spread spectrum would spread data across the band with a spreading code, which Bluetooth does not use. OFDM is a multi-carrier modulation used by Wi-Fi and others, not Bluetooth's basic scheme. CDMA relies on codes for access rather than frequency hopping. So the spread-spectrum method Bluetooth employs is frequency hopping.

6. Which management interface is commonly used to configure APs via a browser?

- A. Telnet**
- B. SSH**
- C. FTP**
- D. Built-in web server**

Configuring an AP through a browser relies on a built-in web server that serves the device's management pages. When you enter the AP's IP address in a browser, the AP delivers HTML pages, forms, and menus that let you adjust settings like the SSID, security, channels, and admin password. This setup is designed for ease of use, requiring no extra software—just a browser on any device on the network. The pages are typically served over HTTP, and many devices also offer HTTPS for secure access. Telnet and SSH provide command-line access, not a browser-based interface, so they're used for text-based management rather than graphical configuration. FTP is a file-transfer protocol and doesn't provide a web-based configuration UI, so it isn't used for configuring the AP through a browser.

7. How might you confirm the presence of a hidden node on the network?

- A. Turn on the request to send/clear to send (RTS/CTS) protocol and watch for increased network data throughput.**
- B. Observe the signal strength from the AP on each client.**
- C. Check the MAC address table in the AP.**
- D. Disable RTS/CTS and see if throughput increases.**

Diagnosing a hidden node problem in a wireless network. A hidden node occurs when two devices can't hear each other but both can reach the access point, so their transmissions collide and cause wasted airtime. RTS/CTS gives a quick way to reveal that issue: when enabled, a sender first requests to send and the receiver replies with a clear-to-send, and nearby devices hearing the CTS defer their own transmissions. If hidden nodes are affecting performance, this handshake tends to reduce collisions and noticeably improve overall throughput. So turning on RTS/CTS and watching for a rise in data throughput is a practical cue that hidden nodes were limiting performance. If there were no hidden nodes, the extra RTS/CTS overhead might not improve throughput and could even reduce it, which is why the observed improvement is specifically diagnostic. The other options don't diagnose hidden nodes because signal strength alone doesn't reveal hearing relationships, the AP's MAC table shows connected devices rather than collision-causing relationships, and disabling RTS/CTS would more likely remove the protective mechanism and not confirm hidden-node presence.

8. What antenna type is ideal for a point-to-point network connection between two office buildings across the street?

- A. An omnidirectional antenna.**
- B. A dipole in the vertical orientation.**
- C. A semidirectional antenna.**
- D. A patch antenna.**

When setting up a point-to-point wireless link, the goal is to focus energy toward the other end to maximize signal strength and minimize interference from other directions. A semidirectional antenna achieves this by concentrating its radiated power in a specific direction, giving you higher gain in the line toward the other building while still offering a reasonably wide beam to make alignment practical. This makes it ideal for a fixed link across the street, where you can aim the antennas at each other and rely on a clear path. An omnidirectional antenna would waste power by radiating in all directions, increasing exposure to interference and reducing the link margin. A vertical dipole tends to produce energy spread around the horizontal plane, which also lowers gain in the target direction. A patch antenna is directional as well, but for a typical across-the-street link, a semidirectional setup provides a good balance of gain and ease of alignment without requiring the narrower, more precise beam of other specialized antennas.

9. Which statement best describes GPS use of spread spectrum?

A. It uses narrowband transmissions.

B. It uses spread spectrum techniques to improve robustness of signals.

C. It does not use spread spectrum.

D. It uses only FHSS.

Spread spectrum is used by GPS to spread each satellite's signal over a wide bandwidth using a unique pseudorandom code. This spreading provides processing gain, which improves the signal-to-noise ratio and makes reception more robust in the presence of interference, jamming, and multipath. It also enables multiple satellites to transmit on the same general band simultaneously, since each satellite's code lets the receiver separate their signals. GPS does not rely on narrowband transmission or frequency hopping; it uses spread-spectrum CDMA-like spreading with PRN codes. So the statement that GPS uses spread spectrum techniques to improve robustness is the best description.

10. What term describes sampling two antennas to pick the input signal from the best reception?

A. Antenna diversity

B. MIMO

C. Beamforming

D. OFDM

Antenna diversity is at work here. When a receiver uses more than one antenna, it can compare the signals it receives from each path and choose the one with the better reception (higher signal strength or SNR). This selection of the strongest signal from multiple antennas helps combat multipath fading and improves reliability, especially in environments where the signal can fluctuate between paths. MIMO involves using multiple antennas to transmit and receive data simultaneously to increase capacity or reliability with more complex processing. Beamforming focuses signals in a specific direction by adjusting the phase and amplitude across an array, rather than simply picking the best path. OFDM is a modulation scheme that splits a signal across many subcarriers to improve robustness in multipath but doesn't describe selecting between antennas.

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://nctiintrotonetworkingwireless.examzify.com>

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

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