CCNA INTRODUCTION TO NETWORKS (ITN) PRACTICE TEST (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.

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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!

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Questions

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1. **What is a potential consequence of using unmanaged switches in a network?**

   A. Increased traffic congestion

   B. Improved network security

   C. Reduced installation costs

   D. Greater control over traffic flows

2. **What is one of the steps required for configuring SSH on a router to ensure only encrypted connections are accepted?**

   A. Configure a static IP address

   B. Generate the SSH keys

   C. Enable HTTP access

   D. Set a new administrator password

3. **Which protocol is used to resolve IP addresses to MAC addresses in a local area network?**

   A. DNS

   B. ARP

   C. ICMP

   D. HTTP

4. **What is a characteristic of a protocol defined by an open standard compared to proprietary protocols?**

   A. Controlled by a single entity

   B. Restricts modification to the original code

   C. Promotes public access and collaboration

   D. Requires licensing fees for usage

5. **How many total host addresses are unused across all four subnets with the network address 192.168.99.0 and a subnet mask of 255.255.255.192?**

   A. 100

   B. 150

   C. 200

   D. 250

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6. What purpose does subnetting serve in a network?

A. To increase network bandwidth

B. To decrease network latency

C. To divide a large network into smaller, manageable sections

D. To simplify network design

7. What is a common functionality of the ping command in Windows?

A. It checks the DNS configuration of the system

B. It verifies connectivity to a specified IP address

C. It displays routing tables

D. It captures network packets for analysis

8. Which process allows devices on a network to sense a collision before attempting to transmit data?

A. CSMA/CD

B. Token Ring

C. Ethernet switching

D. Poll and respond

9. When Host A sends an ARP request without knowing its default gateway's MAC address, which hosts will receive the request?

A. Only Host D

B. Hosts A, B, and C

C. Only Hosts B and C

D. Hosts A, B, C, and R1

10. What is the smallest network mask that can support 25 connected devices in a new LAN?

A. 255.255.255.0

B. 255.255.255.128

C. 255.255.255.224

D. 255.255.255.252

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Answers

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

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Explanations

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1. What is a potential consequence of using unmanaged switches in a network?

A. Increased traffic congestion

B. Improved network security

C. Reduced installation costs

D. Greater control over traffic flows

Using unmanaged switches in a network can lead to increased traffic congestion due to their lack of intelligent traffic management features. Unmanaged switches operate by simply forwarding incoming data packets to all connected devices (broadcasting), without any filtering or prioritization. This results in all devices receiving the same data, regardless of whether they need it, which can significantly increase the overall traffic on the network. Moreover, unmanaged switches do not support features such as VLANs (Virtual Local Area Networks) or Quality of Service (QoS), which are essential for managing bandwidth and controlling traffic flows. Without these features, the network can easily become overwhelmed by broadcast traffic, especially in environments with many devices, leading to degraded performance and increased latency. Thus, the absence of these management capabilities in unmanaged switches is what contributes to the potential for heightened congestion in network traffic.

2. What is one of the steps required for configuring SSH on a router to ensure only encrypted connections are accepted?

A. Configure a static IP address

B. Generate the SSH keys

C. Enable HTTP access

D. Set a new administrator password

To ensure that only encrypted connections are accepted when configuring SSH on a router, generating the SSH keys is a critical step. SSH (Secure Shell) relies on public-key cryptography to establish a secure channel over an insecure network. The generation of these keys ensures that the communications between the client and the server (in this case, the router) are encrypted, providing confidentiality and integrity for the data being sent. When the SSH keys are created, a pair of keys is generated: a public key, which can be shared with clients, and a private key, which must be kept secret on the server. When a client attempts to connect to the router using SSH, the server uses the keys to encrypt the session, ensuring that any data exchanged cannot be easily intercepted or deciphered by unauthorised parties. In contrast, configuring a static IP address, enabling HTTP access, or setting a new administrator password do not directly contribute to establishing an encrypted connection using SSH. While they may be important aspects of router configuration, they do not ensure the security and encryption of the data transmitted between the router and the client, which is the primary function of generating SSH keys.

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3. Which protocol is used to resolve IP addresses to MAC addresses in a local area network?

A. DNS

B. ARP

C. ICMP

D. HTTP

The protocol used to resolve IP addresses to MAC addresses in a local area network is ARP, which stands for Address Resolution Protocol. This protocol operates at the Link Layer of the OSI model and is essential for enabling communication between devices on a local network. When a device wants to communicate with another device on the same local network and knows the IP address but not the MAC address, it sends out an ARP request. This request is a broadcast to all devices in the local segment, asking "Who has this IP address?" The device that owns the IP address responds with its MAC address in an ARP reply. This process allows the originating device to build a mapping from the IP address to the corresponding MAC address, enabling successful data transmission at the data link layer. Other protocols mentioned serve different functions. DNS (Domain Name System) is used for translating human-readable domain names into IP addresses, not MAC addresses. ICMP (Internet Control Message Protocol) is primarily used for sending error messages and operational information, such as when a host is unreachable. HTTP (Hypertext Transfer Protocol) is a protocol for transferring hypertext requests and data, used for web communication, and does not involve address resolution tasks. Thus, the correct choice for resolving IP to MAC

4. What is a characteristic of a protocol defined by an open standard compared to proprietary protocols?

A. Controlled by a single entity

B. Restricts modification to the original code

C. Promotes public access and collaboration

D. Requires licensing fees for usage

A characteristic of a protocol defined by an open standard is that it promotes public access and collaboration. Open standards are designed to be publicly available, allowing anyone to implement, improve upon, and contribute to the protocol without needing permission from a controlling entity. This approach encourages innovation and interoperability among different systems and products, as developers can build compatible solutions that work with a wide range of services and devices. The collaborative nature of open standards fosters a community of users and developers who can share ideas, identify issues, and propose enhancements, making technology more accessible and adaptable. In contrast, proprietary protocols tend to be controlled by a single company or organization, which restricts their modification and access, and often requires licensing fees for their use. These characteristics limit collaboration and public involvement, leading to potential vendor lock-in and a lack of compatibility with other systems.

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5. How many total host addresses are unused across all four subnets with the network address 192.168.99.0 and a subnet mask of 255.255.255.192?

A. 100

B. 150

C. 200

D. 250

*To determine the total unused host addresses across all four subnets with the network address 192.168.99.0 and a subnet mask of 255.255.255.192, we need to start by analyzing the subnet mask. The subnet mask 255.255.255.192 corresponds to a /26 prefix, which means the network is divided into segments that each have 64 addresses (since 2^(32-26) = 64). Out of these 64 addresses in each subnet, two addresses are reserved: one for the network address and one for the broadcast address. This means that each subnet has 64 - 2 = 62 usable host addresses. Given that there are four subnets in this case, we can calculate the total number of usable host addresses across the subnets: 62 usable addresses per subnet * 4 subnets = 248 usable host addresses. To find the total host addresses available across all four subnets, we take the total address count (64 per subnet) and multiply it by the number of subnets: 64 addresses per subnet * 4 subnets = 256 total addresses. Now, to find out how many total host addresses are unused, we subtract the number of usable addresses*

6. What purpose does subnetting serve in a network?

A. To increase network bandwidth

B. To decrease network latency

C. To divide a large network into smaller, manageable sections

D. To simplify network design

Subnetting serves the important purpose of dividing a large network into smaller, manageable sections. This process enhances network organization and efficiency by creating smaller subnetworks, or subnets, within the larger network. Each of these subnets can operate independently while still being part of a larger system, allowing for improved management of IP address allocation, network security, and overall performance. By segmenting a network, administrators can reduce broadcast traffic, isolate network faults, and enhance security through subnet-level policies. Additionally, subnetting helps in the efficient use of IP addresses, especially in environments where there might be a need for distinct addressing schemes for different departments or functions within an organization. Other options like increasing network bandwidth or decreasing network latency are not direct results of subnetting. While networking solutions can impact bandwidth and latency, subnetting primarily focuses on organization rather than performance enhancements. Simplifying network design can be a secondary benefit, but the primary goal of subnetting is really to manage large networks effectively by dividing them into smaller parts.

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7. What is a common functionality of the ping command in Windows?

A. It checks the DNS configuration of the system

B. It verifies connectivity to a specified IP address

C. It displays routing tables

D. It captures network packets for analysis

The ping command is primarily used to verify connectivity to a specified IP address. When you execute the ping command followed by an IP address or a hostname, your system sends Internet Control Message Protocol (ICMP) Echo Request messages to the target address. If the target is reachable and responsive, it will reply with ICMP Echo Reply messages. This process helps determine whether the host is accessible across the network and measures the round-trip time for messages sent from the originating host to the destination. This core functionality makes ping an essential tool for troubleshooting network connections. It can help identify issues such as network disconnections, high latency, or routing problems, by confirming whether a specific device is alive and reachable. Other options, such as checking DNS configurations, displaying routing tables, or capturing network packets, involve different commands and utilities that serve distinct purposes in network management and analysis. Therefore, the core function of verifying connectivity makes the ping command a foundational tool in network diagnostics.

8. Which process allows devices on a network to sense a collision before attempting to transmit data?

A. CSMA/CD

B. Token Ring

C. Ethernet switching

D. Poll and respond

The process that allows devices on a network to sense a collision before attempting to transmit data is known as Carrier Sense Multiple Access with Collision Detection (CSMA/CD). This protocol is fundamental to traditional Ethernet networks operating in half-duplex mode. In CSMA/CD, when a device wants to send data, it first listens to the network to determine if another device is transmitting. This is the "carrier sense" portion of the protocol. If the network is quiet, the device proceeds to transmit its data. However, while transmitting, it continues to listen to the network. If it detects that another device has also started transmitting at the same time, signaling a collision, the devices involved will stop transmitting and run a backoff algorithm. This helps to prevent further collisions when they retry sending the data. The other options involve different mechanisms. Token Ring uses a token-passing method to control access to the network, which eliminates collisions entirely. Ethernet switching operates at a different layer and uses MAC address tables to intelligently forward frames without the risk of collisions occurring on a switch. Poll and respond is a method where a master device polls slave devices for their data, which doesn't involve collision detection in the same way as CSMA/CD.

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9. When Host A sends an ARP request without knowing its default gateway's MAC address, which hosts will receive the request?

A. Only Host D

B. Hosts A, B, and C

C. Only Hosts B and C

D. Hosts A, B, C, and R1

When Host A sends an ARP (Address Resolution Protocol) request to find the MAC address of its default gateway, the request is broadcast to all devices in the local network segment. ARP requests are designed to be sent as broadcast frames because the sender does not yet know the MAC address of the target device it is trying to communicate with. In a typical local area network, when Host A sends this ARP request, all hosts connected to the same network segment will receive that broadcast. This includes Host B and Host C, which are presumably on the same subnet as Host A. They can recognize that the request is for the IP address of the default gateway and will either ignore it (if they are not the target) or respond with their own MAC address if applicable. Hosts D and R1 would not receive the ARP request if they are on different network segments or outside the broadcast domain where Host A is located. Thus, the correct interpretation is that the ARP request reaches all devices in the broadcast domain, specifically Host B and Host C in this context, while excluding others not part of that domain. Therefore, the correct answer highlights the fact that Hosts B and C, which are able to receive broadcast transmissions from Host A, will indeed see

10. What is the smallest network mask that can support 25 connected devices in a new LAN?

A. 255.255.255.0

B. 255.255.255.128

C. 255.255.255.224

D. 255.255.255.252

To determine the smallest network mask that can accommodate 25 connected devices, it's essential to understand how subnetting works and how to calculate the number of usable host addresses provided by different subnet masks. A subnet mask of 255.255.255.224 indicates a /27 prefix length, which means that the first 27 bits are used for the network portion, leaving 5 bits for the host portion. The formula to calculate the number of usable host addresses in a subnet is 2^n - 2, where n is the number of bits available for hosts. In this case, n equals 5 (32 total bits - 27 network bits). Calculating the usable addresses: - 2^5 = 32 total addresses - Subtracting 2 for the network and broadcast addresses gives us 30 usable addresses. This is sufficient to connect 25 devices since the subnet can support up to 30 hosts. Other network masks do not meet the requirement as closely. A subnet mask of 255.255.255.0 (/24) provides 256 total addresses (254 usable), which is more than necessary. The 255.255.255.128 (/25) mask offers 2^7 = 128

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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:

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

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