Nokia Certified Network Routing Specialist I (NRS I) Practice Test (Sample)

Study Guide

BY EXAMZIFY

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. **What is the function of a router in a network?**

   A. To connect different networks and route data packets between them

   B. To connect devices within the same network

   C. To provide wireless connectivity

   D. To store data for backup purposes

2. **What does the term "default gateway" refer to in networking?**

   A. The primary switch in a local area network

   B. The IP address of a router that serves as an access point for devices to communicate with external networks

   C. The server responsible for DHCP assignments

   D. The address used for internal network communications

3. **How frequently does RIP send its routing updates?**

   A. Every 15 seconds

   B. Every 30 seconds

   C. Every minute

   D. Every hour

4. **What does the term 'link state' refer to in OSPF?**

   A. The connection quality of physical cables

   B. The router's knowledge of its direct connections

   C. The overall status of the network devices

   D. The history of data traffic on a route

5. **Which routing protocol is characterized by link-state information exchange?**

   A. RIP

   B. OSPF

   C. EIGRP

   D. BGP

6. **What is a routing loop?**

   A. A situation where packets are sent directly to the destination

   B. Continuous routing of packets in a circular path

   C. An efficient method of route configuration

   D. A protocol used to manage network traffic

7. **What algorithm does OSPF use to calculate the shortest path in a network?**

   A. Bellman-Ford algorithm

   B. A* algorithm

   C. Dijkstra's algorithm

   D. Prim's algorithm

8. **Which of the following is used to connect multiple broadcast domains?**

   A. Hub

   B. Switch

   C. Router

   D. Repeater

9. **In BGP, what type of information does an AS exchange?**

   A. Hardware configuration data

   B. Routing information between different autonomous systems

   C. User authentication details

   D. Data packet filtering rules

10. **What kind of routing information does BGP primarily use?**

    A. Link metrics

    B. Hop count

    C. Path attributes and policy

    D. Bandwidth availability

Answers

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

Explanations

1. What is the function of a router in a network?

A. To connect different networks and route data packets between them

B. To connect devices within the same network

C. To provide wireless connectivity

D. To store data for backup purposes

The function of a router in a network is primarily to connect different networks and facilitate the routing of data packets between them. Routers operate at the network layer of the OSI model, making critical decisions about the best paths for data to travel across complex interconnections of networks, which can include both local area networks (LANs) and wide area networks (WANs). This routing capability enables communications between devices on separate networks, ensuring that data reaches its correct destination efficiently. Routers also manage traffic, control data flow, and enhance security through features such as firewall capabilities and network address translation (NAT). In contrast, connecting devices within the same network is typically the role of switches rather than routers. Providing wireless connectivity is the function of wireless access points or routers with built-in wireless capabilities, but it does not encapsulate the primary role of a router. Storing data for backup purposes is a function associated with storage devices rather than routers, as routers do not perform data storage tasks. Thus, the correct function of a router encompasses its crucial role in connecting and routing data between distinct networks.

2. What does the term "default gateway" refer to in networking?

A. The primary switch in a local area network

B. The IP address of a router that serves as an access point for devices to communicate with external networks

C. The server responsible for DHCP assignments

D. The address used for internal network communications

The term "default gateway" in networking specifically refers to the IP address of a router that acts as a crucial access point for devices on a local network to communicate with external networks, such as the Internet. When devices within a local area network (LAN) need to send data to a destination outside their own local subnet, they forward that data to the default gateway, which then routes the traffic to the appropriate external network. This functionality is essential because devices within a LAN may not know how to reach an external network directly. Instead, they send their outbound traffic to the default gateway, which handles routing the traffic beyond the local network boundaries. Without a properly configured default gateway, devices would be unable to communicate effectively with networks outside their own, leading to inability to access web resources or other services located elsewhere. The other choices refer to different components of a network but do not align with the definition of a default gateway. The primary switch in a local area network manages traffic within that network but does not provide a means to access external networks. A DHCP server is responsible for assigning IP addresses automatically to devices on the network, while the address used for internal network communications does not specifically denote a default gateway, as that encompasses a broader range of communication within the local network

3. How frequently does RIP send its routing updates?

    A. Every 15 seconds

    B. Every 30 seconds

    C. Every minute

    D. Every hour

RIP, or Routing Information Protocol, is designed to share routing information between routers in a local area network. It uses a distance-vector routing algorithm and is characterized by a maximum hop count of 15, which determines network reachability. The correct choice indicates that RIP sends its routing updates every 30 seconds. This frequency is crucial because it allows routers to adapt to changes in the network. By sending updates regularly, routers can inform one another about changes in network topology or the failed routes, ensuring that all routers maintain an accurate view of the network. The 30-second update interval helps balance the need for timely network updates with the need to conserve bandwidth. Too frequent updates could overwhelm network resources, especially in larger networks. Conversely, longer intervals could delay convergence, causing temporary routing issues until all routers become aware of changes. Hence, a 30-second interval is considered optimal for maintaining a responsive and efficient routing environment with RIP.

4. What does the term 'link state' refer to in OSPF?

    A. The connection quality of physical cables

    B. The router's knowledge of its direct connections

    C. The overall status of the network devices

    D. The history of data traffic on a route

In OSPF (Open Shortest Path First), the term 'link state' specifically refers to the information a router has about its directly connected interfaces and the state of those links. This includes details such as whether the link is up or down, the bandwidth of the link, and other metrics that are critical for determining the best path for routing packets across the network. Link state routing protocols, like OSPF, enable routers to build a detailed map of the network by sharing link state advertisements (LSAs) with neighboring routers. Each router uses this information to construct a complete network topology, allowing for more efficient and reliable routing decisions. This is in contrast to distance vector protocols, which rely on information from neighboring routers about the best paths without a full understanding of the entire network's topology. The focus on direct connections is essential because it allows OSPF to quickly respond to changes in the network, improving convergence times and overall network resilience. This understanding is fundamental for anyone studying network design and management, especially in relation to OSPF operations and efficiency.

5. Which routing protocol is characterized by link-state information exchange?

A. RIP

B. OSPF

C. EIGRP

D. BGP

The routing protocol that is characterized by link-state information exchange is Open Shortest Path First (OSPF). OSPF operates by having routers share information about their local state with other routers in the same area of the network. This allows each router to build a complete and updated topology of the network, which is then used to calculate the shortest path to each destination using Dijkstra's algorithm. In contrast, other protocols mentioned have different fundamental mechanisms for routing. For example, Routing Information Protocol (RIP) uses a distance-vector approach, where routers share information about the distance to reach various networks based on hop count, rather than the state of links. Enhanced Interior Gateway Routing Protocol (EIGRP) combines principles from both distance-vector and link-state protocols but does not purely function as a link-state protocol. Border Gateway Protocol (BGP), on the other hand, is primarily used for routing between different autonomous systems and utilizes path vector mechanics, not a link-state exchange. Due to these factors, OSPF is the protocol that uniquely employs link-state information exchange, making it efficient for converging rapidly in dynamic network environments.

6. What is a routing loop?

A. A situation where packets are sent directly to the destination

B. Continuous routing of packets in a circular path

C. An efficient method of route configuration

D. A protocol used to manage network traffic

A routing loop is characterized by the continuous routing of packets in a circular path. This occurs when two or more routers inadvertently create a situation where packets are unable to reach their intended destination because they keep getting sent back and forth between routers. As a result, the packets loop within a set of routers, consuming network resources and potentially leading to increased latency and network congestion. In a routing loop, the routing tables of the participating routers might be misconfigured or contain inconsistencies. When a router forwards a packet to another router, and that second router forwards it back to the first, the initial router doesn't realize that it has already sent the packet, causing it to continue the cycle indefinitely. This is generally harmful to a network's performance and can lead to significant issues if not resolved quickly. Understanding routing loops is crucial for network routing specialists, as avoiding such paths is vital for maintaining efficient data transmission and network reliability.

7. What algorithm does OSPF use to calculate the shortest path in a network?

A. Bellman-Ford algorithm

B. A* algorithm

C. Dijkstra's algorithm

D. Prim's algorithm

Open Shortest Path First (OSPF) utilizes Dijkstra's algorithm to determine the shortest path within a network. This algorithm, also known as the shortest path first (SPF) algorithm, operates by calculating the shortest path tree from a given source node to all other nodes in the network.   Dijkstra's algorithm employs a methodical approach of exploring nodes, updating path costs, and establishing the most efficient path to each destination based on accumulated weights or costs along the edges. In OSPF, each router builds a complete map of the network topology, allowing Dijkstra's algorithm to be applied effectively to calculate optimal routes for data packets across the network. The choice of Dijkstra's algorithm is significant because it provides a scalable and efficient means to handle the dynamic nature of IP networks, where changes such as link failures or topology updates can occur frequently. This adaptability is crucial for maintaining optimal routing performance in modern networks.   In contrast, other algorithms mentioned, such as Bellman-Ford, A*, and Prim's, serve different purposes or have distinct operational methodologies. Bellman-Ford, for instance, is typically used in distance-vector routing protocols, while A* is a pathfinding and graph traversal algorithm that is often used in applications such as

8. Which of the following is used to connect multiple broadcast domains?

A. Hub

B. Switch

C. Router

D. Repeater

Connecting multiple broadcast domains requires the use of a device that can manage and route traffic between different networks. A router is specifically designed for this purpose. It operates at the network layer of the OSI model and can intelligently direct data packets between various IP networks, effectively allowing communication between different broadcast domains. Broadcast domains are segments of a network where all devices can receive broadcast messages from one another. However, when the need arises to connect these separate segments and control broadcast traffic, routers step in. They can reduce unnecessary broadcasts, enhance security by isolating different parts of the network, and facilitate communication between diverse IP subnets. In contrast, other devices like hubs and switches operate within a single broadcast domain and do not have the capability to segment broadcast domains. Hubs simply forward packets to all connected devices within the same domain, and switches (although more efficient than hubs) create a single broadcast domain for all connected devices within the same VLAN unless they are configured to partition them into multiple VLANs. Repeaters regenerate signals to extend the transmission distance but do not have any routing capability to manage broadcast domains. Thus, the router stands out as the essential device needed for interconnecting multiple broadcast domains efficiently and effectively.

9. In BGP, what type of information does an AS exchange?

A. Hardware configuration data

B. Routing information between different autonomous systems

C. User authentication details

D. Data packet filtering rules

In Border Gateway Protocol (BGP), the primary type of information exchanged between autonomous systems (AS) is routing information. BGP is designed to facilitate the exchange of reachability information among different networks on the internet, making it essential for managing how data packets are routed from one AS to another. Each AS shares information about which IP address prefixes it can reach and the associated paths to those prefixes. This enables ASes to make informed decisions about the best routes for traffic based on factors such as path length and policy. The focus of BGP on routing information makes it a critical component of the internet's operations, allowing disparate networks to cooperate and optimize routing in a scalable manner. This exchange supports the establishment of accurate routing tables across diverse ASes, thereby ensuring efficient communication within the larger internet infrastructure.

10. What kind of routing information does BGP primarily use?

A. Link metrics

B. Hop count

C. Path attributes and policy

D. Bandwidth availability

BGP, or Border Gateway Protocol, primarily relies on path attributes and policy to make routing decisions. This method allows BGP to consider the entire path that data will take, rather than just focusing on a single metric such as distance or speed. Path attributes contain various information about the route, including things like the origin of the route, the AS path (the list of autonomous systems through which the route has passed), and other properties that influence policy decisions. The flexibility of BGP is evident as it can incorporate numerous policies to determine the preference of routes based on organizational needs or network designs. This enables network administrators to craft complex routing decisions that cater to business goals and help manage traffic effectively across the Internet. In contrast to metrics like link metrics, hop count, or bandwidth availability—which typically represent simpler routing protocols—BGP's focus on path attributes provides a sophisticated means of managing diverse routes and ensuring optimal routing paths based on policy configurations.

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://nokianrs1.examzify.com

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