Routing TCP/IP Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

Sample study guide. For the full version with hundreds of questions, visit: https://routingtcpip.examzify.com

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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. How do Distance Vector Algorithms (DVA) operate?

- **A. They use link-state updates to share routing information**
- **B. They maintain a full view of the network**
- **C. They advertise their routing tables to directly connected neighbor routers**
- **D. They require frequent manual configuration**

2. What is the role of a router in a network?

- **A. To provide Wi-Fi access**
- **B. To connect different networks and route traffic between them**
- **C. To manage local data storage**
- **D. To serve as a firewall**

3. What is typically a downside of using static routes?

- **A. Increased processing overhead**
- **B. Reduced control over traffic**
- **C. Limited scalability**
- **D. Automatic updates from the router**

4. What is the maximum hop count defined for IGRP by default?

- **A. 50**
- **B. 100**
- **C. 200**
- **D. 255**

5. Which Internet protocol (IP) header field is used by Quality of Service (QoS) routing to make route decisions?

- **A. Type of Service (ToS)**
- **B. Time to Live (TTL)**
- **C. Identification (ID)**
- **D. Protocol Number**

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6. Which routing protocol introduced variable length subnet masks?

A. RIPv1

B. RIPV2

C. IGRP

D. EIGRP

7. What is the implication of using a class A, B, or C IP address?

A. They indicate the speed of the network

B. They determine the default network and host portions of an IP address

C. They affect the encryption level of the IP

D. They specify the packet size for transmission

8. Which three types categorize indirect routing? (Choose three.)

A. Dynamic, Static, Proxy

B. Static, Default, Dynamic

C. Static, Indirect, Manual

D. Dynamic, Default, Direct

9. How does EIGRP differ from protocols like OSPF?

A. It uses a purely Link State approach

B. It is only suitable for small networks

C. It combines Distance Vector and Link State characteristics

D. It operates only over TCP connections

10. Which RIP stability feature prevents a router from having incorrect route updates when its link fails?

A. Split Horizon

B. Poison Reverse

C. Holddown Timers

D. Route Summarization

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Answers

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

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Explanations

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1. How do Distance Vector Algorithms (DVA) operate?

A. They use link-state updates to share routing information

B. They maintain a full view of the network

C. They advertise their routing tables to directly connected neighbor routers

D. They require frequent manual configuration

Distance Vector Algorithms (DVA) operate by allowing routers to share information about their routing tables with directly connected neighbor routers. Each router maintains a table that lists the distance to various destination networks. The "distance" typically reflects the cost to reach a particular destination and may incorporate metrics like hop count. When a router implements a distance vector algorithm, it periodically sends out its routing table to its neighbors, who then use that information to update their own tables and potentially forward their own tables back to their neighbors, propagating routing information throughout the network. This approach contrasts with link-state algorithms, which use a different method involving sharing the complete state of connections in the network rather than just distances. Distance vector algorithms do not maintain a full view of the entire network topology. Instead, they rely on the information received from neighbors to make decisions about routing. Additionally, they do not require frequent manual configuration, as the protocol is designed to automatically manage routing updates based on the advertised distances from neighbors.

2. What is the role of a router in a network?

A. To provide Wi-Fi access

B. To connect different networks and route traffic between them

C. To manage local data storage

D. To serve as a firewall

The role of a router in a network is primarily to connect different networks and route traffic between them. Routers are essential devices that operate at the network layer of the OSI model. They facilitate communication between multiple networks, directing data packets from their source to the correct destination based on their IP addresses. When a data packet arrives at the router, it examines the packet's header, checks the destination IP address, and uses routing tables to make informed decisions regarding the path that should be taken. The router can connect a variety of network types, including local area networks (LANs), wide area networks (WANs), and even different protocols. This capability allows routers to manage traffic efficiently, ensuring that data packets navigate the most effective routes across interconnected networks. In contrast, other options highlight different network functions. Providing Wi-Fi access pertains to access points or wireless routers, which do not perform the routing functions traditionally associated with routers. Managing local data storage is a function typically handled by servers or dedicated file storage systems, rather than a router. Serving as a firewall involves protecting the network from unauthorized access, which may be a feature of some routers but is not the primary purpose of a router itself. Thus, the router's main role lies in its ability to inter

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3. What is typically a downside of using static routes?

A. Increased processing overhead

B. Reduced control over traffic

C. Limited scalability

D. Automatic updates from the router

Using static routes does have limitations concerning scalability, making this the correct choice. Static routes require manually configuring each route, which can become increasingly cumbersome as the network grows. In larger networks, the number of static routes can become difficult to manage effectively, leading to a higher risk of human error and inconsistencies in routing. As the network expands, the need to keep all routes updated also increases. Any changes in the network, such as the addition of new segments or changes in the topology, necessitate manual adjustments to the static routes. This lack of dynamic adjustment makes static routing less adaptable compared to dynamic routing protocols, which automatically learn and adjust routes. While static routing does have its benefits—such as being simpler to understand in small, stable networks and providing complete control over routing decisions—the limits to its scalability become apparent in larger, more complex environments. This fundamental challenge is what makes scalability a notable downside of using static routes.

4. What is the maximum hop count defined for IGRP by default?

A. 50

B. 100

C. 200

D. 255

The correct answer indicates that the maximum hop count defined for IGRP (Interior Gateway Routing Protocol) by default is 100. IGRP, developed by Cisco, uses hop count as part of its metric to determine the best path for routing packets. The hop count metric allows IGRP to measure the distance to a destination in terms of the number of hops or devices that need to be traversed. It's important to recognize that the maximum hop count of 100 helps in preventing routing loops and maintaining efficient routing within a network. If a destination is beyond this hop count, IGRP will consider it unreachable, allowing for more stable and manageable network topologies. Other options present alternative hop count values that do not apply to IGRP defaults. A value of 50 could represent limitations in distance, but it's lower than IGRP's standard. A hop count of 200 exceeds the IGRP maximum, while 255 is a maximum value often associated with other routing protocols like RIP, highlighting that IGRP differentiates itself with a more manageable maximum to ensure optimal routing performance. Understanding these parameters is critical for network design and management to ensure effective routing strategies.

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5. Which Internet protocol (IP) header field is used by Quality of Service (QoS) routing to make route decisions?

A. Type of Service (ToS)

B. Time to Live (TTL)

C. Identification (ID)

D. Protocol Number

The Type of Service (ToS) field in the Internet Protocol (IP) header is critical for Quality of Service (QoS) routing because it allows for the differentiation of packet handling based on the type of service required for the data being transmitted. This field helps network devices prioritize traffic, enabling them to make informed routing decisions based on the specific QoS requirements. ToS includes information such as latency, bandwidth, and reliability needs, which are essential for delivering various types of traffic effectively, whether it's voice, video, or standard data. By analyzing the ToS field, routers can allocate resources and routes based on the priority assigned to packets, thus optimizing performance and ensuring that high-priority traffic is transmitted in a timely manner. The other header fields serve different purposes. Time to Live (TTL) is used to prevent packets from circulating indefinitely in the network. The Identification (ID) field plays a role in fragmenting and reassembling packets, while the Protocol Number indicates the transport layer protocol being used. These fields do not contribute to QoS routing decisions in the same way that the ToS field does.

6. Which routing protocol introduced variable length subnet masks?

A. RIPv1

B. RIPV2

C. IGRP

D. EIGRP

RIP version 2 (RIPv2) introduced support for variable length subnet masks (VLSM), which allows for more efficient use of IP address space by enabling different subnets to have varying lengths. This feature enhances the flexibility of subnetting, as it accommodates scenarios where a single contiguous block of IP addresses can't simply be divided into equal-sized subnets. The introduction of VLSM in RIPv2 allows for better address summarization and more efficient routing information exchange. This was a significant improvement over RIP version 1, which only supported fixed-length subnets and would not provide the capability to communicate varying subnet masks in routing updates. As a result, RIPv2 is better suited for modern networks that require more granularity in subnetting, making it the correct choice in this context. The other protocols mentioned, such as IGRP and EIGRP, have their own capabilities and improvements over standard RIP, but it is specifically RIPv2 that is known for introducing support for variable-length subnet masks in the context of distance vector routing protocols.

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7. What is the implication of using a class A, B, or C IP address?

A. They indicate the speed of the network

B. They determine the default network and host portions of an IP address

C. They affect the encryption level of the IP

D. They specify the packet size for transmission

Using a class A, B, or C IP address is significant because these classes determine the default division between the network and host portions of the IP address. In the IP addressing scheme, the first few bits of an address define its class, which in turn establishes how many bits are allocated for the network identifier and how many bits are reserved for the host identifier. For instance, in a Class A address, the first octet identifies the network and uses only the first bit (0xxxxxxx), allowing for a large number of hosts within a single network. A Class B address uses the first two bits (10xxxxxx) which allows for a moderate number of networks and hosts. Class C addresses reserve more bits for the network (110xxxxx), resulting in many small networks but fewer hosts per network. This classification is crucial for routing and managing IP addresses, as it directly influences the capacity and structure of the network and how addresses can be utilized within distinct networking environments. Understanding this classification facilitates effective network design and helps in allocating IP addresses efficiently in various organizations. The other choices do not correctly relate to how IP classes function in networking. The speed of a network, encryption levels, and packet size for transmission are not influenced by the class of an

8. Which three types categorize indirect routing? (Choose three.)

A. Dynamic, Static, Proxy

B. Static, Default, Dynamic

C. Static, Indirect, Manual

D. Dynamic, Default, Direct

Indirect routing refers to methods where the path a packet takes to its destination is determined based on existing routing information rather than specifying a direct route. The correct categorization of indirect routing includes static, default, and dynamic routing. Static routing is a method where routes are manually configured into the routing table. While these routes do not change unless a network administrator modifies them, they provide a consistent path for traffic and are a fundamental aspect of routing protocols. Default routing is a type of static routing that provides a path for traffic when no specific routing entry exists for the destination in the routing table. This is especially useful for directing traffic towards a gateway for unknown destinations, simplifying routing decisions. Dynamic routing involves protocols that automatically update routing tables based on current network conditions. This allows routers to exchange information about reachable networks and adapt to changes in the network topology dynamically. These three types of routing work together to provide a flexible and efficient routing environment, enhancing the capability of networks to respond to various scenarios. The other options either mix directly related methods or do not accurately define indirect routing types, which is why they are not applicable in this context.

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9. How does EIGRP differ from protocols like OSPF?

A. It uses a purely Link State approach

B. It is only suitable for small networks

C. It combines Distance Vector and Link State characteristics

D. It operates only over TCP connections

EIGRP, or Enhanced Interior Gateway Routing Protocol, is unique because it merges the best aspects of both Distance Vector protocols and Link State protocols, resulting in a hybrid routing approach. This combination allows EIGRP to maintain the simplicity and speed of Distance Vector routing while incorporating the advanced features of Link State routing, such as quicker convergence times and more efficient use of network resources. Specifically, EIGRP uses a distance vector method for path calculation, employing the Distance Vector Routing Protocol's algorithms, such as Diffusing Update Algorithm (DUAL). However, it also collects and maintains topological information similar to a Link State protocol, allowing it to make better routing decisions based on the overall structure of the network rather than just the metrics of neighbor routers. This dual capacity makes EIGRP particularly effective in handling a range of network sizes and designs. While it can perform well in both small and large networks, it is not limited to specific sizes or structures, unlike some other routing protocols that may be more effective in particular contexts. Thus, the distinguishing feature of EIGRP is its hybrid nature, which positions it as a versatile option for many routing scenarios.

10. Which RIP stability feature prevents a router from having incorrect route updates when its link fails?

A. Split Horizon

B. Poison Reverse

C. Holddown Timers

D. Route Summarization

The feature that prevents a router from having incorrect route updates when its link fails is Split Horizon. This technique enhances the stability of the Routing Information Protocol (RIP) by preventing a router from advertising a route back out the interface from which it was learned. When a router receives an update about a network, the split horizon rule dictates that it cannot send that same information back to the router from which it got it. This is particularly useful in scenarios where a link fails because it helps to avoid loop conditions that could arise from incorrect routing updates being sent out immediately after a failure. For example, if Router A learns about a route to a certain network from Router B, Split Horizon prevents Router A from sending that route back to Router B, even if it receives an update saying that the route is unreachable (due to a failure). This minimizes the risk of routing loops or inconsistent routing information circulating between routers, thereby enhancing network stability. In contrast, other options like Poison Reverse, Holddown Timers, and Route Summarization serve different purposes. Poison Reverse allows routers to inform neighbors about the failure of a route, while Holddown Timers temporarily disable route updates for routes being monitored for instability. Route Summarization, on the other hand

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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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