

Cisco CCNA 3 OSPF Concepts and Configuration Checkpoint Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	16

SAMPLE

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

SAMPLE

- 1. What impact does OSPF summarization have on routing protocols?**
 - A. It increases the number of LSAs sent
 - B. It reduces the size of routing tables and improves convergence time
 - C. It isolates routers in different areas
 - D. It requires additional configurations
- 2. How are OSPF link-state advertisements (LSAs) utilized within the routing process?**
 - A. To establish neighbor adjacencies
 - B. To summarize route information
 - C. To share routing and topology information
 - D. To maintain OSPF database integrity
- 3. Which command is used to verify the hello and dead timer intervals on an OSPF interface?**
 - A. show ip ospf interface
 - B. show ip ospf neighbor
 - C. show ip ospf interface serial 0/0/0
 - D. show running-config
- 4. What is the main difference between OSPF and RIP?**
 - A. OSPF uses distance vector routing, while RIP is link-state
 - B. OSPF supports faster convergence than RIP
 - C. RIP supports multiple paths, while OSPF does not
 - D. OSPF is a link-state protocol, while RIP is a distance vector protocol
- 5. What algorithm does OSPF use for routing decisions?**
 - A. Distance Vector
 - B. Link State
 - C. Shortest Path First
 - D. Path Vector

6. What is the default router priority value for all Cisco OSPF routers?

- A. 0
- B. 1
- C. 5
- D. 10

7. What does OSPF stand for?

- A. Open Shortest Path First
- B. Optimal Spanning Tree Protocol
- C. Open Standard Path Forwarding
- D. Optimized Shortest Path First

8. What happens during the Loading state in OSPF?

- A. The router is establishing neighbor adjacencies
- B. The router is sending LSAs
- C. The router is completing the exchange of LSAs
- D. The router is acknowledging packets from neighbors

9. What does Dijkstra's algorithm achieve in OSPF?

- A. Path vector calculation
- B. Calculates the shortest path tree
- C. Discovers network devices
- D. Changes area types

10. What protocol does OSPF use for multicast communications?

- A. IP protocol 89
- B. TCP protocol 6
- C. UDP protocol 17
- D. OSPF protocol 88

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What impact does OSPF summarization have on routing protocols?

- A. It increases the number of LSAs sent
- B. It reduces the size of routing tables and improves convergence time**
- C. It isolates routers in different areas
- D. It requires additional configurations

When OSPF summarization is employed, it has a significant impact on the efficiency and performance of routing protocols, particularly through reducing the size of routing tables and improving convergence time. OSPF works by exchanging Link State Advertisements (LSAs) among routers to share information about network topology. However, in larger networks, this can lead to very large routing tables containing detailed paths to every destination. By summarizing routes, OSPF can condense multiple routes into a single summarized route, which decreases the amount of information that routers need to maintain in their routing tables. This not only lowers memory usage on the routers but also makes the routing process more manageable and efficient. Furthermore, with fewer routes to process, routers experience faster convergence times. This means that when network changes occur, such as a link going down, routers can reach a stable state more quickly because there are fewer entries to adjust or recalculate in the routing tables. Overall, the summarization of routes enables better scalability in large networks, allowing OSPF to support larger and more complex topologies effectively.

2. How are OSPF link-state advertisements (LSAs) utilized within the routing process?

- A. To establish neighbor adjacencies
- B. To summarize route information
- C. To share routing and topology information**
- D. To maintain OSPF database integrity

Link-State Advertisements (LSAs) play a crucial role in the OSPF (Open Shortest Path First) routing protocol by sharing routing and topology information among routers. When a router initiates OSPF, it sends LSAs which contain information about its own interfaces, the state of its connections, and any routes it knows about. These advertisements are used to construct a comprehensive view of the entire network topology, enabling routers to have a synchronized understanding of the network's structure. Once routers receive LSAs from their neighbors, they incorporate this information into their own Link-State Database (LSDB). This synchronizes the LSDB across all OSPF routers in the same area, allowing them to collectively compute the shortest path to each destination using the Dijkstra algorithm. Consequently, the OSPF protocol can determine the most efficient routes for data packets based on the complete and accurate map of the network provided by these LSAs. The other aspects mentioned in the remaining choices reflect different processes within OSPF. For instance, establishing neighbor adjacencies and maintaining database integrity are essential for the stability and robustness of OSPF, but they are separate processes that do not directly utilize LSAs for the primary function of disseminating routing and topology information.

3. Which command is used to verify the hello and dead timer intervals on an OSPF interface?

- A. show ip ospf interface
- B. show ip ospf neighbor
- C. show ip ospf interface serial 0/0/0**
- D. show running-config

The command that accurately verifies the hello and dead timer intervals on an OSPF interface is the one that specifies the interface directly, allowing for targeted examination of that particular interface's OSPF settings. In this case, using the command referring to a specific interface, such as "show ip ospf interface serial 0/0/0," provides detailed information about the OSPF parameters configured for that specific interface, including the hello and dead intervals. By executing this command, it enables the network administrator to quickly check OSPF settings that are crucial for ensuring that OSPF neighbors can effectively communicate. The hello timer determines how often OSPF routers send hello packets to maintain neighbor relationships, while the dead timer specifies how long a router should wait without receiving a hello packet before declaring a neighbor down. The broader command to display OSPF interface information does provide overall insights into OSPF configurations and will include these timers. However, by providing an interface name, the command focuses specifically on the parameters for that given interface, enhancing clarity and precision in troubleshooting or verification tasks. Utilizing "show ip ospf interface" alone does not narrow down the context, potentially showing output for all OSPF interfaces and making it less convenient

4. What is the main difference between OSPF and RIP?

- A. OSPF uses distance vector routing, while RIP is link-state
- B. OSPF supports faster convergence than RIP
- C. RIP supports multiple paths, while OSPF does not
- D. OSPF is a link-state protocol, while RIP is a distance vector protocol**

The main difference between OSPF (Open Shortest Path First) and RIP (Routing Information Protocol) lies in their underlying routing methodologies, which is encapsulated by the assertion that OSPF is a link-state protocol while RIP is a distance vector protocol. Link-state protocols like OSPF function by having each router maintain a complete view of the network topology. Each router shares information about its directly connected links with all other routers in the OSPF area, which allows them to calculate the best paths using algorithms, such as Dijkstra's algorithm. This enables OSPF to quickly adapt to changes in the network, leading to faster convergence times and greater scalability in larger networks. In contrast, RIP operates on a distance vector mechanism where routers share routing information with their immediate neighbors and make decisions based solely on the distance to a destination, typically measured in hops. This method limits the speed of convergence and scalability, as RIP routers update their routing tables at regular intervals, which can lead to outdated information being used during network changes. This fundamental difference in the type of routing protocol affects various aspects of network performance, such as convergence time, scalability, and efficiency in managing routing tables. Understanding these characteristics is essential for network engineers when designing and managing networks

5. What algorithm does OSPF use for routing decisions?

- A. Distance Vector
- B. Link State
- C. Shortest Path First**
- D. Path Vector

OSPF, which stands for Open Shortest Path First, utilizes the Shortest Path First algorithm to make its routing decisions. This algorithm helps OSPF determine the most efficient path to a destination within the network. It operates by calculating the shortest path using the link-state information that has been shared between routers within the OSPF area. The Shortest Path First algorithm is based on Dijkstra's algorithm, which constructs a shortest path tree from a designated starting point to all other nodes in the network. As routers exchange LSAs (Link State Advertisements), they all build an identical topology of the network that allows them to compute the best paths based on cumulative cost metrics, such as bandwidth. This capability of OSPF to efficiently calculate and adapt to changes in the network makes it a preferred choice for many enterprise environments. In contrast, the Distance Vector algorithm relies on routers exchanging distance and direction information and does not maintain the complete network topology, which is less efficient. The Link State method describes how OSPF operates but is not the specific algorithm it uses for routing decisions, while Path Vector is primarily associated with BGP (Border Gateway Protocol) and not OSPF. Therefore, the focus on the Shortest Path First algorithm emphasizes both the

6. What is the default router priority value for all Cisco OSPF routers?

- A. 0
- B. 1**
- C. 5
- D. 10

In OSPF (Open Shortest Path First), the router priority value plays a crucial role in the election process for the designated router (DR) and backup designated router (BDR) on a multi-access network, such as Ethernet. The default router priority value for all Cisco OSPF routers is set to 1. When OSPF routers send out their hello packets, each router includes its priority value. A higher priority value increases the likelihood that a router will be elected as the DR or BDR. If all routers on the segment have the same priority (which is the default value of 1), the router with the highest router ID will be elected as the DR. If one router has a higher priority than the others, it will take precedence in the election process. Setting the priority to a specific value can help network administrators control which router should be preferred for these roles, especially in environments where redundancy and optimal routing paths are critical. However, if no specific priority is assigned, the default value of 1 applies, which means all routers have the same baseline level of priority during the election.

7. What does OSPF stand for?

- A. Open Shortest Path First**
- B. Optimal Spanning Tree Protocol
- C. Open Standard Path Forwarding
- D. Optimized Shortest Path First

OSPF stands for Open Shortest Path First. This protocol is a widely used link-state routing protocol that operates within an Autonomous System (AS) in Internet Protocol (IP) networks. The name reflects the protocol's operation, where it finds the shortest path for data to travel from source to destination based on various metrics, primarily cost, using a method called the Dijkstra algorithm. The term "Open" signifies that the protocol is an openly published standard, which promotes interoperability between networking devices from various manufacturers. "Shortest Path First" indicates that the key objective of OSPF is to determine the most efficient route, ensuring optimal routing and network performance. Other options do not represent the actual definition of OSPF, as they refer to unrelated protocols or concepts. Thus, understanding the meaning of Open Shortest Path First provides essential context into its functionality and importance in networking.

8. What happens during the Loading state in OSPF?

- A. The router is establishing neighbor adjacencies
- B. The router is sending LSAs
- C. The router is completing the exchange of LSAs**
- D. The router is acknowledging packets from neighbors

During the Loading state in OSPF (Open Shortest Path First), the router is completing the exchange of Link State Advertisements (LSAs) with its neighbors. This state occurs after the Initial state and the Exchange state, where routers have already sent and received their LSAs. In the Loading state, the routers specifically confirm that they have received all the necessary LSAs from their neighbors to build a complete view of the network topology. They may send additional LSAs to ensure all routers in the area have the most up-to-date information. This is crucial for OSPF's operation, as it relies on having an accurate and complete link-state database (LSDB) to perform correct route calculations. Once the LSAs have been completely exchanged and acknowledged, the routers then transition to the Full state, where they have established fully adjacent relationships with their neighbors and have converged on the same topology information.

9. What does Dijkstra's algorithm achieve in OSPF?

- A. Path vector calculation
- B. Calculates the shortest path tree**
- C. Discovers network devices
- D. Changes area types

Dijkstra's algorithm, utilized in OSPF (Open Shortest Path First), is integral to calculating the shortest path tree. This algorithm processes the link-state information that routers exchange, determining the most efficient route through the OSPF areas based on the costs associated with each link. The result is a shortest path tree, where each router establishes its routing table, selecting paths with the least cost to reach all other routers in the network. The shortest path tree ensures optimal routing within the OSPF domain, reflecting the most efficient routes to each destination. By selecting the path with the lowest cumulative cost, Dijkstra's algorithm leads to improved network performance and effectiveness, allowing routers within OSPF to make informed routing decisions. In contrast, options suggesting path vector calculation, discovering network devices, or changing area types do not accurately describe the function of Dijkstra's algorithm within the OSPF framework. These aspects fall under different mechanisms or protocols and do not relate directly to the shortest path determination process that Dijkstra accomplishes.

10. What protocol does OSPF use for multicast communications?

- A. IP protocol 89**
- B. TCP protocol 6
- C. UDP protocol 17
- D. OSPF protocol 88

OSPF, or Open Shortest Path First, utilizes a specific multicast address for sending routing protocols' information packets between routers. The protocol designated for OSPF communications is identified by IP protocol number 89. This unique designation allows routers to recognize and process OSPF messages effectively, differentiating them from other types of network communications. Multicast communications in OSPF specifically leverage the multicast addresses 224.0.0.5 and 224.0.0.6. These addresses enable OSPF routers to send updates and routing information efficiently within an OSPF area, ensuring that only OSPF routers receive the updates intended for them. Using IP protocol number 89 is essential because it is specifically defined for OSPF, providing the necessary framework for the protocol to operate within the broader Internet Protocol suite. Other protocols like TCP and UDP, which are associated with IP protocols 6 and 17 respectively, are not used by OSPF for these purposes, emphasizing the unique nature of OSPF's requirements for routing communications.

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://ciscoccna3ospfconceptscheckpt.examzify.com>

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

SAMPLE