Cisco CCNA 3 OSPF Concepts and Configuration Checkpoint Practice Exam (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

1. What is the OSPF cost to reach the router A LAN 172.16.1.0/24 from router B?

A. 30

B. 65

C. 10

D. 15

2. What wildcard mask would an administrator use for the network 192.168.181.0 255.255.254.0 in OSPF?

A. 0.0.1.255

B. 0.0.3.255

C. 0.0.0.255

D. 0.0.2.255

3. Which OSPF packet is responsible for carrying different types of link-state advertisements?

A. Hello Packet

B. Link State Update (LSU)

C. Link State Acknowledgment

D. Router Link State

4. Which OSPF area type allows external routes?

A. Stub Area

B. Totally Stubby Area

C. NSSA (Not So Stubby Area)

D. Normal Area

5. What is the OSPF area ID for the backbone area?

A. Area 1

B. Area 0

C. Area 5

D. Area 10

6. If OSPF timers are configured manually, what is a potential result?

A. The router may crash.

B. The dead timer may expire too quickly.

C. The dead timer could change between hello packets.

D. The OSPF adjacency will be unaffected.

7. What step in OSPF is described by a router inserting best paths into the routing table?

A. Exchanging link-state advertisements

B. Choosing the best route

C. Establishing neighbor adjacencies

D. Flooding link-state updates

8. An administrator is configuring single-area OSPF on a router. Which wildcard mask would they use for the network 192.168.223.0 255.255.254.0?

A. 0.0.1.255

B. 0.0.0.255

C. 0.0.2.255

D. 0.0.1.0

9. What is the default OSPF hello interval on Ethernet networks?

A. 10 seconds

B. 30 seconds

C. 5 seconds

D. 15 seconds

10. Which OSPF process includes sending Hello packets out of all enabled interfaces?

A. Exchanging link-state advertisements

B. Choosing the best route

C. Establishing neighbor adjacencies

D. Flooding link-state updates

Answers

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

Explanations

1. What is the OSPF cost to reach the router A LAN 172.16.1.0/24 from router B?

A. 30

B. 65

C. 10

D. 15

To determine the OSPF cost to reach the router A LAN 172.16.1.0/24 from router B, it is important to understand how OSPF (Open Shortest Path First) calculates its cost. OSPF utilizes a metric known as cost, which is typically based on the bandwidth of the interfaces involved in the path to the destination. The lower the cost value, the more preferred the route is. Each interface's cost is calculated using the formula: ``` OSPF Cost = 100,000,000 / bandwidth (in bps) ``` This means high-bandwidth links will have a lower cost, making them preferable paths for routing traffic. In an OSPF network, if you have all the relevant bandwidth information for the links involved between routers B and A, you can sum the costs of each link traversed to reach the destination network. If the answer is indicated as 65, this likely results from summing the calculated costs of all relevant links between router B and router A. The total cost can also be influenced by factors such as the presence of other OSPF metrics including link types and possible administrative distance adjustments. In this scenario, the total cost of 65 indicates that

2. What wildcard mask would an administrator use for the network 192.168.181.0 255.255.254.0 in OSPF?

A. 0.0.1.255

B. 0.0.3.255

C. 0.0.0.255

D. 0.0.2.255

To determine the correct wildcard mask for the network 192.168.181.0 with a subnet mask of 255.255.254.0, it is essential to understand how to convert the subnet mask to a wildcard mask. The subnet mask 255.255.254.0 indicates that the first 23 bits are used for the network part (255.255.254.0 in binary is 11111111.11111111.11111110.00000000). The remaining bits (the last 9 bits) are used for host addresses. The wildcard mask is calculated by subtracting the subnet mask from 255.255.255.255. For the subnet mask 255.255.254.0, the calculations for the wildcard mask would look like this: - For 255: 255 - 255 = 0 - For 255: 255 - 255 = 0 - For 254: 255 - 254 = 1 - For 0: 255 - 0 = 255 Putting these together, the wildcard mask becomes 0.0.1.255. Therefore, the correct wildcard mask that matches the network 192.168.181

3. Which OSPF packet is responsible for carrying different types of link-state advertisements?

A. Hello Packet

B. Link State Update (LSU)

C. Link State Acknowledgment

D. Router Link State

The Link State Update (LSU) packet plays a pivotal role in OSPF by transporting various types of link-state advertisements (LSAs). These LSAs contain vital information about the network's topology and state, which is essential for OSPF routers to build and maintain a synchronized Link State Database (LSDB). When OSPF routers establish adjacency and share routing information, they use LSU packets to send LSAs to neighbors. These LSAs include information such as reachable networks, their metrics, and router statuses, allowing routers to accurately compute their routing tables. The LSU is fundamental to OSPF's operation, especially in environments where changes to the network may occur frequently, as it ensures that all routers have an up-to-date view of the network topology. The other packet types mentioned serve different purposes within the OSPF protocol. For instance, Hello packets are primarily used to discover neighboring routers and establish and maintain OSPF adjacencies, while Link State Acknowledgments (LSAcks) are responses to LSUs that confirm receipt of the LSAs. Router Link States specifically refer to a type of LSA but are not a packet type used for transmission; rather, they are components within the LSU packet. Thus, the

4. Which OSPF area type allows external routes?

A. Stub Area

B. Totally Stubby Area

C. NSSA (Not So Stubby Area)

D. Normal Area

The Not So Stubby Area (NSSA) is the correct choice because it allows external routes while limiting certain other traffic. Specifically, NSSAs can import external routes from outside the OSPF domain into the OSPF network. This is particularly useful for areas that need to connect to external networks (like a company's LAN connecting to the internet) but still want to retain some level of route summarization and control. In NSSAs, Type 7 LSA (Link-State Advertisement) can be used to advertise these external routes, which will then be translated into the more common Type 5 LSAs by the area border routers when propagating them into other OSPF areas. This helps maintain a balance between connectivity and OSPF efficiency. Other area types, such as stub areas and totally stubby areas, are designed to limit the types of routes they receive, making them less capable of handling external routes. A normal area, on the other hand, does not have restrictions on external routes but is not specialized for cases when some level of external route management is desired. Therefore, NSSAs effectively serve the purpose of maintaining external connectivity within OSPF's structural architecture while imposing some limitations they require for operational efficiency.

5. What is the OSPF area ID for the backbone area?

A. Area 1

B. Area 0

C. Area 5

D. Area 10

The backbone area in OSPF (Open Shortest Path First) is specifically designated as Area 0. This area serves as the central hub for OSPF routing and is critical in the design of OSPF networks. All other OSPF areas must connect to this backbone area, which facilitates efficient routing and helps ensure that OSPF can pass routing information between different areas seamlessly. By designating Area 0 as the backbone, OSPF creates a structured hierarchical routing environment that enhances scalability and manageability. This structure allows routers from various areas to exchange routing information through the backbone, which is essential for maintaining a cohesive network. Other area IDs like Area 1, Area 5, and Area 10 do not have any special significance within the OSPF protocol and refer to different non-backbone areas that could be configured in an OSPF network. Understanding the role of Area 0 is key in OSPF network design and implementation.

6. If OSPF timers are configured manually, what is a potential result?

A. The router may crash.

B. The dead timer may expire too quickly.

C. The dead timer could change between hello packets.

D. The OSPF adjacency will be unaffected.

When OSPF (Open Shortest Path First) timers are configured manually, a potential result relates to the synchronization of the hello and dead timers. The dead timer, which determines how long a router will wait to receive a hello packet from a neighboring router before declaring that neighbor down, can become unsynchronized with the hello interval if they are misconfigured. If the dead timer is set to expire too quickly relative to the hello timer, this could lead to situations where the network might declare a neighbor as down due to not receiving hello packets in the expected timeframe. While OSPF is designed to handle timer configurations, mismatches can create instability in the OSPF adjacency states as routers regularly check for neighbor presence. In contrast, if both timers are configured properly but are kept consistent across the routers, the OSPF adjacency will maintain stability and reliability, meaning the dead timer wouldn't change dynamically based on hello intervals. Thus, manually configuring these timers requires careful consideration to avoid issues with network topology and the correct functioning of OSPF adjacencies. The potential for the dead timer to change unpredictably emphasizes the importance of synchronization in OSPF timer configurations.

7. What step in OSPF is described by a router inserting best paths into the routing table?

A. Exchanging link-state advertisements

B. Choosing the best route

C. Establishing neighbor adjacencies

D. Flooding link-state updates

When a router inserts the best paths into the routing table, it is typically the result of the OSPF process that involves determining the most optimal path to a destination. This process is conducted after OSPF has completed its initial stages, such as discovering neighbors, exchanging link-state information, and building a topology of the network. Choosing the best route is the step where OSPF evaluates all the available routes to a destination based on various metrics, such as cost, to determine the most efficient path. Once the best route is identified, it is then added to the routing table, allowing the router to use this path for forwarding packets to the intended destination. In OSPF, this involves utilizing the Shortest Path First (SPF) algorithm, also known as Dijkstra's algorithm, to calculate the best path based on the accumulated link-state information. This ensures that routing decisions are made based on the most current and reliable data about the network's topology. The other processes mentioned, such as exchanging link-state advertisements, establishing neighbor adjacencies, and flooding link-state updates, are essential for OSPF to function but directly relate to the discovery and establishment of routing information rather than the selection of the best path for the routing table.

8. An administrator is configuring single-area OSPF on a router. Which wildcard mask would they use for the network 192.168.223.0 255.255.254.0?

A. 0.0.1.255

B. 0.0.0.255

C. 0.0.2.255

D. 0.0.1.0

To determine the correct wildcard mask for the network 192.168.223.0 with a subnet mask of 255.255.254.0, it is essential to understand how to calculate the wildcard mask from the subnet mask. A wildcard mask is created by taking the inverse of the subnet mask. The subnet mask 255.255.254.0 can be broken down as follows: - The first octet (255) indicates all 8 bits are used for the network. - The second octet (255) also indicates all 8 bits are used for the network. - The third octet (254) means that 7 bits are used for the network and 1 bit is available for hosts (since 254 in binary is 11111110). - The fourth octet (0) means all bits are available for hosts. When converting the subnet mask to a wildcard mask, you subtract each octet of the subnet mask from 255: - First octet: 255 - 255 = 0 - Second octet: 255 - 255 = 0 - Third octet: 255 - 254 = 1 - Fourth octet: 255 - 0 = 255

9. What is the default OSPF hello interval on Ethernet networks?

A. 10 seconds

B. 30 seconds

C. 5 seconds

D. 15 seconds

The default OSPF hello interval on Ethernet networks is indeed 10 seconds. This interval is important because it determines how frequently OSPF routers send hello packets to establish and maintain neighbor relationships. By sending hello packets at this interval, routers can quickly detect when a neighbor router is down, allowing for faster convergence of the OSPF routing topology. In the OSPF protocol, hello packets are essential for neighbor discovery, and the consistency of the hello interval across OSPF routers is crucial for forming adjacencies. If the timers are not consistent between neighboring routers, they may declare each other as down, leading to potential routing issues. Understanding the default timer configuration is critical for network professionals as it affects the performance and stability of an OSPF network. Adjusting these timers may be necessary in specific scenarios, such as high-speed WAN links, but the default setting of 10 seconds is standard for Ethernet, ensuring efficient neighbor discovery and upkeep of OSPF adjacencies.

10. Which OSPF process includes sending Hello packets out of all enabled interfaces?

A. Exchanging link-state advertisements

B. Choosing the best route

C. Establishing neighbor adjacencies

D. Flooding link-state updates

The OSPF process of establishing neighbor adjacencies is fundamental for OSPF to function correctly. This involves sending Hello packets out of all enabled interfaces. Hello packets are used to discover and maintain relationships with OSPF neighbors. By sending these packets, a router learns about other routers on the same network segment and assesses whether they are eligible to form adjacencies based on certain criteria, such as matching OSPF parameters and the state of the interfaces. Once the Hello packets are exchanged and the required parameters match, OSPF routers can then proceed to establish full adjacencies. This is critical because without forming adjacencies, routers would not be able to share routing information effectively, and the OSPF process would fail to function properly. Establishing neighbor relationships lays the groundwork for subsequent OSPF processes, such as exchanging link-state advertisements, which communicate more complex routing information. Thus, this step is essential for the overall functionality of OSPF, as it ensures that routers can communicate and form a reliable routing framework.

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!