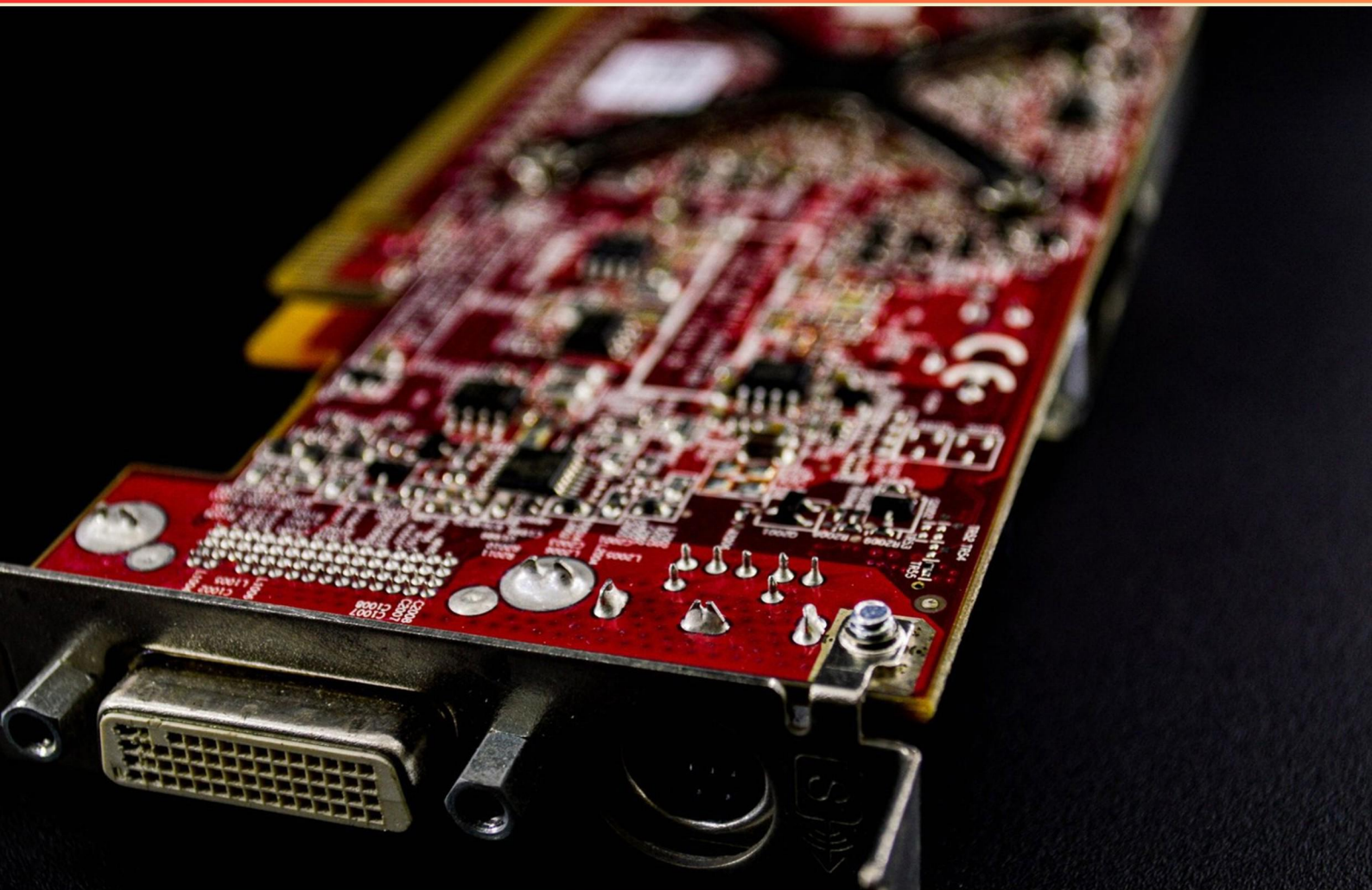


ADVANCED ROUTER TECH PRACTICE TEST (SAMPLE)

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.

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

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- 1. How can you configure a switch to become the root of a spanning-tree?**
 - A. Adjust the switch priority to a lower value.
 - B. Set the switch to use RSTP mode.
 - C. Enable PortFast on all interfaces.
 - D. Connect more uplinks to the switch.

- 2. Which command is used to enable routing on a router that is configured as a switch?**
 - A. switchport mode trunk
 - B. ip routing
 - C. router on
 - D. enable routing

- 3. In a multi-access OSPF network, what is the router role that is elected to prevent routing loops?**
 - A. Backup Designated Router
 - B. Designated Router
 - C. OSPF Area Border Router
 - D. Internal Router

- 4. In the output of the 'show etherchannel summary' command, what does the 'S' signify?**
 - A. Layer 3 EtherChannel
 - B. Layer 2 EtherChannel
 - C. Layer 1 linkage
 - D. Spanning Tree Protocol

- 5. In a networking environment, what does a "working neighbor" signify?**
 - A. A neighbor that is operational and reachable
 - B. A neighbor that is inactive
 - C. A neighbor that conflicts with another route
 - D. A neighbor with a block on traffic

6. Which spanning tree version does SW1 use in VLAN 10 according to the output?
- A. RSTP
 - B. STP
 - C. PVST+
 - D. Rapid PVST+
7. What can be concluded if the current root were to fail in STP operation?
- A. Hellos would be sent by the new root every 3 seconds
 - B. All ports would immediately block
 - C. The old root's priority would remain
 - D. There will be no change in network topology
8. Which Cisco IOS command is used to display information about all IPv4 routing protocols running on a router?
- A. show ip interface
 - B. show routing path
 - C. show ip routing
 - D. show ip protocols
9. Which Cisco STP mode extends on the IEEE 802.1w standard by providing an STP instance per VLAN?
- A. PVST+
 - B. Rapid PVST+
 - C. 802.1D
 - D. VTP+
10. OSPF utilizes what to organize topology information?
- A. RIPv
 - B. CSAs
 - C. LSAs
 - D. Neighbors

Answers

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

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Explanations

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1. How can you configure a switch to become the root of a spanning-tree?

A. Adjust the switch priority to a lower value.

B. Set the switch to use RSTP mode.

C. Enable PortFast on all interfaces.

D. Connect more uplinks to the switch.

The most effective way to configure a switch to become the root of a spanning-tree is to adjust the switch priority to a lower value. In the Spanning Tree Protocol (STP), the switch with the lowest bridge ID is elected as the root bridge. The bridge ID consists of the switch's priority and its MAC address. By lowering the priority value of the switch, you increase its chances of being elected as the root bridge. Other options, while beneficial in certain contexts, do not directly result in the switch becoming the root of the spanning-tree. Using Rapid Spanning Tree Protocol (RSTP) can improve convergence time but does not affect the root bridge election process. Enabling PortFast is useful for reducing the time it takes for ports to transition to the forwarding state but does not influence the root bridge designation. Similarly, connecting more uplinks does not apply to the priority of the switch—it can improve overall network redundancy, but it won't change election outcomes based on bridge ID.

2. Which command is used to enable routing on a router that is configured as a switch?

A. switchport mode trunk

B. ip routing

C. router on

D. enable routing

The command used to enable routing on a router that is configured as a switch is "ip routing." This command activates the routing process on the device, allowing it to forward packets between different network segments. By default, many switches operate in Layer 2 mode, meaning they primarily switch traffic within a single local area network (LAN). However, when you want to allow the switch to also perform Layer 3 routing functions, you must enter the "ip routing" command in the global configuration mode. This enables the device to manage traffic between different IP subnets and allows it to utilize its routing table. The other options do not fulfill the requirement of enabling routing. For instance, the command that sets the switch to trunk mode is specifically for Layer 2 configurations and does not affect routing capabilities. Similarly, "router on" and "enable routing" are not standard commands in Cisco IOS for activating the routing feature, which means they won't achieve the intended purpose of enabling routing on the device. Thus, the correct command to perform this action is indeed "ip routing."

3. In a multi-access OSPF network, what is the router role that is elected to prevent routing loops?

- A. Backup Designated Router
- B. Designated Router**
- C. OSPF Area Border Router
- D. Internal Router

In a multi-access OSPF (Open Shortest Path First) network, the role that is elected to prevent routing loops and manage the exchange of routing information among routers is the Designated Router (DR). The DR is responsible for generating and distributing link-state advertisements (LSAs) to other routers within the broadcast domain, reducing the amount of routing traffic on the network and ensuring that all routers have a consistent view of the network topology. The DR's role is critical because without it, each router would have to send LSAs to every other router in the network. This can lead to excessive traffic and potential routing loops. By having a single point of communication (the DR), updates are streamlined, and only the DR sends the updates to all other routers, known as the Backup Designated Router (BDR) and the other internal routers. This structure helps stabilize OSPF operation and prevents the complexities that could arise from multiple routers trying to disseminate the same information simultaneously. In contrast, while the Backup Designated Router functions as a secondary option to take over if the DR fails, it does not play the primary role of preventing routing loops. The OSPF Area Border Router serves to connect OSPF areas and exchange routing information between them

4. In the output of the 'show etherchannel summary' command, what does the 'S' signify?

- A. Layer 3 EtherChannel
- B. Layer 2 EtherChannel**
- C. Layer 1 linkage
- D. Spanning Tree Protocol

The 'S' in the output of the 'show etherchannel summary' command indicates that the EtherChannel is operating at Layer 2. EtherChannel is a technology that allows multiple physical links to be combined into a single logical link, enhancing both bandwidth and redundancy. When it operates at Layer 2, it uses protocols such as LACP (Link Aggregation Control Protocol) or PAgP (Port Aggregation Protocol) to bundle the links. The significance of the 'S' lies in its indication that the EtherChannel is successfully configured and is being treated as a single virtual interface for switching purposes. Layer 2 is fundamental in the Open Systems Interconnection (OSI) model, where it deals with the data link layer, managing how data frames are transmitted over a physical network medium and addressing devices using MAC addresses. In contrast, an EtherChannel configured at Layer 3 would involve routing, which is signified by a different designation in the command output. Layer 1 pertains to the physical layer where the actual electrical and mechanical connections reside, and Spanning Tree Protocol (STP) relates to the process for preventing loops in Layer 2 networks, which is not directly indicated by the 'S'. Therefore, 'S' specifically points to the

5. In a networking environment, what does a "working neighbor" signify?

- A. A neighbor that is operational and reachable**
- B. A neighbor that is inactive
- C. A neighbor that conflicts with another route
- D. A neighbor with a block on traffic

In a networking context, a "working neighbor" indicates a neighbor that is operational and reachable. This means that the device can send and receive data without issues, and it has a functional communication link established. Such dynamics are crucial for protocols that rely on neighbor discovery for routing decisions and maintaining network stability. When neighbors are working properly, they can exchange routing updates, share network information, and collaborate in managing data flow efficiently. This situation is essential for routing protocols such as OSPF (Open Shortest Path First) or EIGRP (Enhanced Interior Gateway Routing Protocol), where the presence of active and reachable neighbors determines the overall health and performance of the routing environment. In contrast to a working neighbor, an inactive neighbor would mean that no communication can take place, potentially leading to disrupted routing information and network inefficiencies. Similarly, neighbors that conflict with another route or have restrictions on traffic illustrate a breakdown in operational capacity, which would not classify them as "working."

6. Which spanning tree version does SW1 use in VLAN 10 according to the output?

- A. RSTP
- B. STP**
- C. PVST+
- D. Rapid PVST+

To determine which spanning tree version SW1 is using for VLAN 10, it is important to understand the characteristics of the various spanning tree protocols. In the context of spanning tree protocols, if the output indicates that SW1 is running traditional Spanning Tree Protocol, or STP, it means that the switch is utilizing the original IEEE 802.1D specification. STP is known for its slower convergence times compared to its successor protocols. This can lead to longer recovery times in the event of a link failure, which was a significant limitation when STP was widely used. The other versions, such as Rapid Spanning Tree Protocol (RSTP) and Per-VLAN Spanning Tree Plus (PVST+), offer enhancements over traditional STP, primarily aimed at providing faster convergence and better handling of VLANs. RSTP improves convergence times by replacing the original states used in STP with new ones, whereas PVST+ allows for a separate spanning tree instance for each VLAN, thereby providing better load balancing. If SW1 is confirmed to be in use with the original STP version for VLAN 10, it means that while it may not benefit from the rapid improvements of RSTP or the VLAN-specific benefits of PVST+, the switch

7. What can be concluded if the current root were to fail in STP operation?

- A. Hellos would be sent by the new root every 3 seconds**
- B. All ports would immediately block
- C. The old root's priority would remain
- D. There will be no change in network topology

In the context of Spanning Tree Protocol (STP), if the current root bridge fails, a new root bridge will need to be elected to maintain network stability and avoid loops. This election process is initiated by configuration messages, specifically Bridge Protocol Data Units (BPDUs). Once the old root bridge has failed, the remaining switches in the network will begin to detect a topology change. They will then start sending BPDUs to communicate their own bridge IDs and priorities to participate in the election of a new root bridge. Specifically, the new root executes a process where it sends out BPDUs, often referred to in this context as "hellos." The frequency of these hellos is usually set to a default of 2 seconds; however, if the network is configured using the default hello time intervals, it will result in subsequent BPDUs being sent at intervals of 3 seconds during the root election process. This means that the new root bridge will begin sending its own BPDUs, effectively announcing itself to the rest of the network and replacing the functionality of the failed root bridge, confirming its role as the new root in the STP topology. Overall, this means the first choice is correct, as it is essential to the operation and

8. Which Cisco IOS command is used to display information about all IPv4 routing protocols running on a router?

- A. show ip interface
- B. show routing path
- C. show ip routing**
- D. show ip protocols

The command used to display information about all IPv4 routing protocols running on a router is "show ip protocols." This command provides a detailed overview of the routing protocols that are currently configured and operational on the device, including information such as protocol type (e.g., RIP, OSPF, EIGRP, etc.), router IDs, timers, networks being advertised, and much more. This comprehensive output is vital for network administrators when troubleshooting or optimizing the routing configuration on the router. It allows them to understand which protocols are actively participating in routing decisions and to verify that those protocols are correctly configured and operational. In contrast, other commands do not serve this specific function. For instance, "show ip interface" is used to display the status and configuration of each interface, while "show routing path" is not a recognized command in Cisco IOS. The command "show ip routing" displays the current routing table rather than the routing protocols themselves, making it less appropriate for identifying and examining the routing protocols that are in use.

9. Which Cisco STP mode extends on the IEEE 802.1w standard by providing an STP instance per VLAN?

- A. PVST+
- B. Rapid PVST+**
- C. 802.1D
- D. VTP+

Rapid PVST+ is an enhanced version of the traditional Spanning Tree Protocol (STP) that aligns with the IEEE 802.1w standard. The primary feature of Rapid PVST+ is its ability to create a separate Spanning Tree instance for each VLAN in a network. This capability allows for faster convergence times and improved network reliability by minimizing downtime during topology changes. When a network experiences a change, such as a link failure or the addition of a new switch, Rapid PVST+ can rapidly reconfigure the STP for that specific VLAN instance without affecting the other active VLANs. The rapid transitions between states, achieved through features like the use of Proposal and Agreement messages, allows for convergence times that can be reduced to just a few seconds, which is a significant improvement over traditional STP methods. This capability of providing an STP instance per VLAN not only enhances network performance but also allows for more granular control over Spanning Tree behavior within a multi-VLAN environment, making Rapid PVST+ an advantageous choice for network engineers managing complex networks.

10. OSPF utilizes what to organize topology information?

- A. RIPs
- B. CSAs
- C. LSAs**
- D. Neighbors

OSPF (Open Shortest Path First) uses Link-State Advertisements (LSAs) to organize and disseminate topology information throughout an OSPF network. LSAs are packets that routers use to communicate information about their directly connected links and their state to other OSPF routers in the area. Each router collects LSAs from its neighbors to build a complete topology map of the OSPF area. This process enables routers to maintain an up-to-date view of the network, which is crucial for calculating the shortest path to each destination using Dijkstra's algorithm. The information contained in LSAs includes metrics like the state of each link and updates when changes occur, thus ensuring all routers have consistent and accurate routing information. In contrast to the correct choice, the other options do not serve the same purpose in OSPF. RIPs pertain to the Routing Information Protocol, CSAs are not a specified component in OSPF terminology, and while neighbors are crucial for OSPF operation, they are not the specific means by which topology information is organized and shared. This distinction makes LSAs the key element in the OSPF routing process.

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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