NETWORK IMPLEMENTATION: ROUTING, SWITCHING, AND WIRELESS PROTOCOLS 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

1. Which statement correctly describes static NAT and dynamic NAT?

A. The static NAT maps a private IP to another private IP; dynamic NAT translates to external.

B. Static NAT uses a pool of public IPs; dynamic NAT maps private to private.

C. Static NAT maps a fixed private IP to a fixed public IP; dynamic NAT uses a pool of public IPs and assigns them on demand.

D. Static NAT allows translation for a single session only.

2. Which routing protocol is described as Cisco-originated, now open standard, using a composite metric and fast convergence?

A. BGP

B. RIP

C. OSPF

D. EIGRP

3. Describe the differences and use cases for controller-based vs standalone wireless architectures.

A. Controller-based centralizes management, policy, and RF control for large deployments; standalone APs operate independently and are easier to deploy for small networks or branch sites.

B. Controller-based is always cheaper.

C. Standalone APs require controllers to function.

D. Both architectures are identical.

4. What is the name of a wireless network broadcast by an access point?

A. BSSID

B. ESSID

C. MAC Address

D. SSID

5. What device is capable of performing routing functions between VLANs internally without needing an external router?

A. Layer 3 Switch

B. 10GBASE-T

C. Sticky MAC

D. BPDU Guard

6. What are the advantages and limitations of using QoS in networks, and how would you implement basic QoS for VoIP traffic?

A. QoS always improves throughput and has no downsides.

B. QoS provides predictable performance but adds complexity and may reduce throughput if misconfigured; implement by classifying traffic, marking DSCP/CoS, creating queues, and prioritizing VoIP with strict or high priority.

C. QoS is only for wireless networks; VoIP does not require QoS.

D. QoS eliminates all congestion with no configuration.

7. Which Wi-Fi standard uses 2.4 GHz and has a maximum speed of 11 Mbps?

A. 802.11b

B. 802.11a

C. 802.11g

D. 802.11n

8. Which protocol routes traffic between different autonomous systems?

A. NAT Network Address Translation

B. IGP Interior Gateway Protocol

C. EGP Exterior Gateway Protocol

D. BGP Border Gateway Protocol

9. Which PoE standard provides the highest power per port among common standards?

A. 802.3bt (PoE++)

B. 802.3af (PoE)

C. 802.3at (PoE+)

D. All provide the same power

10. When redistributing routes between OSPF and EIGRP on a single router, which technique helps prevent redistribution loops?

A. Tag routes to prevent re-redistribution loops

B. Enable redistribution with route-maps to control metrics

C. Monitor administrative distance and ensure proper route selection

D. Disable redistribution entirely

Answers

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

Explanations

1. Which statement correctly describes static NAT and dynamic NAT?

A. The static NAT maps a private IP to another private IP; dynamic NAT translates to external.

B. Static NAT uses a pool of public IPs; dynamic NAT maps private to private.

C. Static NAT maps a fixed private IP to a fixed public IP; dynamic NAT uses a pool of public IPs and assigns them on demand.

D. Static NAT allows translation for a single session only.

Understanding NAT translations: static NAT provides a fixed one to one mapping between a private address and a public address, while dynamic NAT uses a pool of public addresses and assigns them on demand as sessions are created. Static NAT keeps the same public address for a given private device, so external partners always reach that device at the same publicly visible IP. Dynamic NAT, by contrast, pulls addresses from a pool; when a host needs to reach outside, the NAT device temporarily assigns an available public address from the pool for the duration of the session and returns it to the pool afterward. If the pool runs out of addresses, new sessions can be delayed or blocked until a public address becomes available. This aligns with the described statement: a fixed private IP maps to a fixed public IP in static NAT, while dynamic NAT uses a pool of public IPs assigned on demand.

2. Which routing protocol is described as Cisco-originated, now open standard, using a composite metric and fast convergence?

A. BGP

B. RIP

C. OSPF

D. EIGRP

EIGRP is designed around using a composite metric to choose the best path, rather than relying on a single factor like hop count. It can weigh several path characteristics—such as bandwidth, delay, and optional factors like reliability and load—to determine the most efficient route. This gives more accurate and scalable routing decisions in diverse networks. What makes it really fast is the Diffusing Update Algorithm, which provides rapid, loop-free convergence. EIGRP sends updates only when there's a topology change, and it can identify feasible successors to immediately switch to if the primary route fails, avoiding full network rebuilds. Historically, this protocol originated with Cisco, but it's now available as an open standard, which aligns with the description given. In contrast, other protocols mentioned are either not Cisco-originated or use different mechanisms: RIP relies on hop count, OSPF is a link-state protocol, and BGP is a path-vector exterior gateway protocol with a very different metric and convergence behavior.

3. Describe the differences and use cases for controller-based vs standalone wireless architectures.

A. Controller-based centralizes management, policy, and RF control for large deployments; standalone APs operate independently and are easier to deploy for small networks or branch sites.

B. Controller-based is always cheaper.

C. Standalone APs require controllers to function.

D. Both architectures are identical.

The main idea here is the division between centralized control and distributed control in wireless networks. In a controller-based setup, a Wireless LAN Controller handles configuration, policy enforcement, and radio frequency (RF) optimization for many APs from a single point. The access points are usually lightweight and rely on the controller for decisions, which makes it easier to push consistent security, QoS, guest access, roaming policies, and firmware updates across a large campus or enterprise network. This approach scales well as you add more APs, because you manage everything from one place and benefit from unified monitoring and troubleshooting. The trade-off is that it requires reliable connectivity to the controller and can be more complex or costly to deploy. In contrast, standalone (fat) APs operate with local control. Each AP is configured and managed independently, handling its own security, VLANs, and client roaming decisions. This makes installation quick and inexpensive for small networks or branch sites where centralized management isn't necessary or practical. However, roaming between many APs isn't as seamless, policy consistency across devices is harder to maintain, and scaling up means managing many individual devices rather than a single central system. So, the described option—centralized management, policy, and RF control for large deployments, versus independent operation for small networks or branch sites—best captures the practical differences and use cases.

4. What is the name of a wireless network broadcast by an access point?

A. BSSID

B. ESSID

C. MAC Address

D. SSID

The network name broadcast by an access point is the SSID, which stands for Service Set Identifier. This is the human-friendly name that devices scan for to identify and connect to a wireless network, and it is what you see in your Wi Fi list (like "HomeNetwork" or "GuestWiFi"). The beacon frames from the AP include this SSID so nearby clients can discover the network. The BSSID, by contrast, is the MAC address of the AP's wireless interface, used to distinguish one AP from another within the same network. The MAC address is a hardware address, not the network name. ESSID is sometimes used in different contexts to refer to the extended service set name, but the standard term for the network name broadcast by the AP is SSID.

5. What device is capable of performing routing functions between VLANs internally without needing an external router?

A. Layer 3 Switch

B. 10GBASE-T

C. Sticky MAC

D. BPDU Guard

Inter-VLAN routing is the process that lets devices in different VLANs communicate by moving packets between their separate IP subnets. A Layer 3 switch includes both switching and routing capabilities, so it can perform this routing internally. By creating a separate VLAN interface (an SVI) for each VLAN, the switch acts like a router for those subnets and can route traffic between them without sending it to an external router. It also typically serves as the default gateway for hosts in each VLAN, with IP addresses assigned to those SVIs. This setup combines fast hardware-based routing with streamlined network design, reducing latency and complexity. The other options aren't devices or features that perform inter-VLAN routing: 10GBASE-T is just a physical Ethernet standard for 10 Gbps copper links, not a device. Sticky MAC is a security feature for learning and locking MAC addresses on ports. BPDU Guard is a Spanning Tree protection feature.

6. What are the advantages and limitations of using QoS in networks, and how would you implement basic QoS for VoIP traffic?

A. QoS always improves throughput and has no downsides.

B. QoS provides predictable performance but adds complexity and may reduce throughput if misconfigured; implement by classifying traffic, marking DSCP/CoS, creating queues, and prioritizing VoIP with strict or high priority.

C. QoS is only for wireless networks; VoIP does not require QoS.

D. QoS eliminates all congestion with no configuration.

QoS is about ensuring latency-sensitive traffic like VoIP gets timely treatment even when the network is busy. The best answer captures that QoS can provide predictable performance for voice, but it also adds complexity and can reduce throughput if misconfigured. Implementing basic VoIP QoS follows a simple pattern: identify VoIP traffic so it can be handled differently, mark those packets so devices understand their priority, and place VoIP into a high-priority queue. Practically, you classify traffic (using policies or ACLs) to separate VoIP from other traffic, mark it with a DSCP value (often Expedited Forwarding) or CoS, and configure network devices to trust those marks and route VoIP into a high-priority or low-latency queue (such as a strict priority or LLQ). You typically reserve or guarantee a minimum path for VoIP, and you monitor jitter, delay, and packet loss to tune the setup. Remember, QoS doesn't create extra bandwidth and can harm overall throughput if configured incorrectly, and it won't eliminate congestion on its own.

7. Which Wi-Fi standard uses 2.4 GHz and has a maximum speed of 11 Mbps?

A. 802.11b

B. 802.11a

C. 802.11g

D. 802.11n

The main idea here is matching a Wi Fi standard to its frequency band and its typical maximum data rate. A standard that operates in the 2.4 GHz band and has a maximum speed of 11 Mbps is the early 802.11b standard. It was designed to share the crowded 2.4 GHz space and uses a modest 11 Mbps ceiling to maintain reliability in environments with many nearby devices. Why this fits: 802.11a runs in the 5 GHz band and delivers much higher speeds, so it's not a match. 802.11g does use 2.4 GHz but supports up to 54 Mbps, which is well above 11 Mbps. 802.11n can use 2.4 GHz or 5 GHz and typically provides hundreds of Mbps with MIMO, far exceeding 11 Mbps. So the combination of 2.4 GHz operation with an 11 Mbps maximum is specific to 802.11b.

8. Which protocol routes traffic between different autonomous systems?

A. NAT Network Address Translation

B. IGP Interior Gateway Protocol

C. EGP Exterior Gateway Protocol

D. BGP Border Gateway Protocol

Routing between different autonomous systems is about interdomain routing, where different networks must share reachability information to forward traffic across the internet. The protocol designed for this job is Border Gateway Protocol. It operates between ASes, using TCP for a reliable connection, and it makes path decisions based on attributes like AS_PATH, next-hop, and various policy rules that administrators set. This combination lets networks control routing policies and avoid loops while selecting the best path to a destination across multiple autonomous systems. Historically, Exterior Gateway Protocols like EGP handled inter-AS routing, but they're largely obsolete today due to limitations in scalability and policy control. NAT and Interior Gateway Protocols serve different purposes—NAT translates addresses, and IGPs route inside a single AS. So the protocol that routes traffic between autonomous systems is BGP.

9. Which PoE standard provides the highest power per port among common standards?

A. 802.3bt (PoE++)

B. 802.3af (PoE)

C. 802.3at (PoE+)

D. All provide the same power

In PoE, how much power per port you can deliver is set by the standard, and newer revisions boost that amount by using all four pairs and higher current. The earliest PoE standard allows about 15.4 W to the device (PD). PoE+ increased that to roughly 25.5 W. The PoE++ family introduces Type 3 and Type 4, with Type 3 delivering up to about 60 W per port and Type 4 up to about 90 W per port, when the network hardware and cable support it. Because of these higher capabilities, PoE++ provides the highest power per port among the common standards. In real deployments, the actual power depends on cable quality and length (which affects voltage drop) and on the specific PSE/PD negotiation and capabilities.

10. When redistributing routes between OSPF and EIGRP on a single router, which technique helps prevent redistribution loops?

A. Tag routes to prevent re-redistribution loops

B. Enable redistribution with route-maps to control metrics

C. Monitor administrative distance and ensure proper route selection

D. Disable redistribution entirely

Preventing redistribution loops between OSPF and EIGRP relies on tagging redistributed routes. When a route is moved from one protocol to the other, you attach a tag to that route. Then the reverse redistribution is filtered to ignore any routes that already carry that tag. This way a route learned from OSPF and redistributed into EIGRP won't be re-redistributed back into OSPF, breaking the potential loop while still allowing initial redistribution to occur. Practically, you configure a route-map on the redistribution process to set a tag on the redistributed routes, and you filter the opposite direction by denying routes with that tag. Other methods don't inherently prevent loops: adjusting metrics affects path choice but not the loop mechanism, administrative distance controls preference rather than loop avoidance, and disabling redistribution eliminates the capability altogether.

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!