Practice Exam Questions for: Nokia Scalable IP Networks
(exam number: 4A0-100)

The following questions will test your knowledge and prepare you for the Nokia NRS I Certification Exam. Compare your responses with the Answer Key at the end of the document.

Module 1: Internet Overview

1.1 Which of the following is the physical infrastructure that provides interconnections between ISPs?
   a. A demarcation point
   b. An Internet exchange point
   c. A central office
   d. A point of presence

1.2 Which of the following provides physical separation between service provider and customer responsibilities?
   a. A provider edge router
   b. An Internet exchange point
   c. A demarcation point
   d. A point of presence

1.3 Which TCP/IP layer is responsible for path determination and end-to-end forwarding of datagrams?
   a. The application services layer
   b. The transport layer
   c. The Internet protocol layer
   d. The network interface layer

1.4 What information is part of the encapsulation done at the network interface layer?
   a. Source and destination MAC addresses
   b. Source and destination IP addresses
   c. Source and destination port numbers
   d. Source and destination email addresses

Module 2: Service Router Components and CLI

2.1 Which of the following shows a typical data packet flow when egressing an Nokia 7750 SR?
   a. SF/CPM -> MDA -> IOM -> SFP
   b. SF/CPM -> SFP -> IOM -> MDA
   c. SF/CPM -> IOM -> MDA -> SFP
   d. MDA -> IOM -> SF/CPM -> SFP

2.2 Which of the following is not a recommended usage of the compact flashes on an Nokia 7750 SR?
   a. Using CF 1 to store debug logs.
   b. Using CF 2 to store debug logs.
   c. Using CF 3 to store accounting logs.
   d. Using CF 3 to store system files.

2.3 Which of the following displays a hierarchial CLI command structure at the current context level?
   a. show
   b. info
   c. tree
   d. help

2.4 Which of the following is NOT a valid log destination in an Nokia 7750 SR?
   a. Main
   b. Session
   c. Syslog
   d. Console

2.5 Which one of the following log-IDs is typically reserved for Network Management on an Nokia 7750 SR?
   a. 0
   b. 98
   c. 99
   d. 100
Module 3: Data Link Overview

3.1 Which of the following is NOT a type of Layer 2 network?
   a. Point-to-point network
   b. Circuit-based network
   c. Virtual private routed network
   d. Shared network

3.2 Which of the following statements about SONET/SDH is FALSE?
   a. SONET/SDH is a Layer-1 technology.
   b. SDH is used primarily in North America.
   c. The basic SONET frame is the STS-1.
   d. An STS-1 frame is exactly one third of an STM-1 frame.

3.3 Which Ethernet frame field is found in the Ethernet II frame header but NOT in the Ethernet 802.3 frame header?
   a. Preamble
   b. Start Frame Delimiter
   c. Source address
   d. Type

3.4 Which address type is used to send frames to all devices in a Local Area Network?
   a. Anycast
   b. Multicast
   c. Broadcast
   d. Unicast

3.5 Which of the following is NOT a characteristic of a hub?
   a. It performs signal amplification.
   b. It replicates Ethernet frames across all ports except the receiving port.
   c. It inspects Layer 2 frame headers.
   d. It operates in half-duplex mode.

3.6 After all PCs in the below network have communicated with each other, which interface will switch D populate in its MAC FDB for PC1?

   a. 1/1/1
   b. 1/1/2
   c. 1/1/3
   d. 1/1/4
   e. 1/1/6

3.7 What happens when a switch receives an Ethernet frame with an unknown source MAC address and a destination MAC address of ff:ff:ff:ff:ff:ff?
   a. The destination MAC address is saved in the MAC FDB, and the frame is discarded.
   b. The destination MAC address is saved in the MAC FDB, and the frame is flooded to all ports except the receiving port.
   c. The source MAC address is saved in the MAC FDB, and the frame is discarded.
   d. The source MAC address is saved in the MAC FDB, and the frame is flooded to all ports except the receiving port.

3.8 An Ethernet Local Area Network (LAN) consists of the components shown in the diagram. How many broadcast and collision domains are on this LAN?

   a. 2 broadcast domains, 7 collision domains
   b. 2 broadcast domains, 9 collision domains
   c. 3 broadcast domains, 7 collision domains
   d. 3 broadcast domains, 9 collision domains
   e. 7 broadcast domains, 9 collision domains
3.9 Which of the following statements about LAG is FALSE?
   a. It aggregates physical links between devices.
   b. It improves performance by increasing bandwidth between devices.
   c. It provides point-to-point redundancy between devices.
   d. It supports auto-negotiation on ports in the LAG.

3.10 Which of the following protocols is used to prevent loops in Ethernet networks?
   a. LAG
   b. STP
   c. ARP
   d. ICMP

3.11 An 8-port Ethernet switch is configured with VLAN 100 on ports 1-4, and VLAN 200 on ports 5-8. What happens when the switch receives a frame with an unknown destination address on port 1?
   a. The switch will flood the frames on ports 1 to 4.
   b. The switch will flood the frames on ports 2 to 4.
   c. The switch will flood the frames on ports 5 to 8.
   d. The switch will flood the frames on ports 2 to 8.

3.12 Which of the following statements about VLAN stacking is FALSE?
   a. It allows a service provider to support customers that use overlapping VLAN IDs.
   b. It increases the number of VLANs a service provider can support.
   c. It increases the size of the VLAN ID field in the Ethernet header.
   d. It allows a service provider to add another VLAN tag to traffic.

Module 4: Layer 3 and IP Service

4.1 Which of the following is used to connect multiple broadcast domains?
   a. Hub
   b. Switch
   c. Router
   d. Repeater

4.2 Which of the following IP header fields is used to distinguish IPv4 from IPv6 traffic?
   a. Type of Service
   b. Version
   c. Identification
   d. Protocol

4.3 Which of the following is NOT a Regional Internet Registry?
   a. ARIN
   b. IANA
   c. RIPE NCC
   d. AfriNIC

4.4 Which of the following is a unicast address that is assigned to two or more devices on the same network?
   a. Network address
   b. Broadcast address
   c. Multicast address
   d. Anycast address

4.5 Which of the following about hierarchical IPv4 addressing is FALSE?
   a. It creates a two-level address hierarchy.
   b. It increases the number of IP addresses available in the Internet.
   c. It supports route summarization to reduce routing table size.
   d. It supports subnets to divide a network into smaller networks.

4.6 A network has an address of 206.47.132.0 and a network mask of 255.255.254.0. How many subnetworks can be created if each subnet must have at least 25 hosts?
   a. 4
   b. 8
   c. 16
   d. 32

4.7 Which of the following is the broadcast address of the network to which host 172.16.176.135/18 belongs?
   a. 172.16.176.255
   b. 172.16.191.255
   c. 172.16.255.255
   d. 172.255.255.255

4.8 How many subnets can be created from network 138.120.140.0/22 if each subnet must support 126 hosts?
   a. 4
   b. 8
   c. 16
   d. 32
4.9 Which of the following statements about a system IP address on a Nokia 7750 SR is FALSE?
   a. It is a loopback address.
   b. It has a fixed prefix value of /32.
   c. It is manually configured by an operator.
   d. It is associated with the management port.

4.10 Which of the following is a characteristic of route aggregation?
   a. It summarizes subnet addresses into classful addresses.
   b. It maps multiple private IP addresses into one public IP address.
   c. It divides a network into multiple subnets.
   d. It reduces the number of route advertisements within a network.

4.11 What is the most specific aggregate prefix for the following 3 subnets?
   134.234.123.128/25
   134.234.123.64/26
   134.234.123.0/26
   a. 134.234.123.0/25
   b. 134.234.123.0/24
   c. 134.234.123.128/24
   d. 134.234.122.0/23

4.12 Which of the following is NOT part of the IP forwarding process?
   a. Perform longest match lookup for the destination IP address.
   b. Perform MAC address learning.
   c. Push traffic through the switch fabric.
   d. Identify physical egress interface.

4.13 Which DHCP message is used by a client to inform a DHCP server that it accepts the assigned IP address?
   a. Discover
   b. Request
   c. Offer
   d. Acknowledgement

4.14 What type of message is an ARP response?
   a. A unicast message
   b. A broadcast message
   c. A multicast message
   d. An anycast message

4.15 Which of the following statements about ICMP is TRUE?
   a. ICMP is used to resolve a MAC address for a given IP address.
   b. ICMP messages are generated by Ethernet switches.
   c. ICMP messages are encapsulated within IP datagrams.
   d. ICMP relies on the CSMA/CD algorithm.

Module 5: IP Routing Protocol Basics

5.1 Which of the following about the routing table on an Nokia 7750 SR is FALSE?
   a. The routing table is maintained by the CPM.
   b. The routing table contains next-hop information.
   c. The routing table is used in the MPLS data plane.
   d. The routing table is used to construct a forwarding table.

5.2 Which of the following protocols is NOT used to build a routing table?
   a. LPD
   b. OSPF
   c. BGP
   d. Static routing

5.3 Router R5 receives four route updates for the same prefix. Which of the four routes will be installed in R5's routing table?
   a. Routes learned from R1
   b. Routes learned from R2
   c. Routes learned from R3
   d. Routes learned from R4
5.4 Router R5 receives four route updates for the same prefix. Which of the four routes will be installed in R5’s routing table?

a. Route learned from router R1  
b. Route learned from router R2  
c. Route learned from router R3  
d. Route learned from router R4

5.5 Which of the following about a static route in a Nokia 7750 SR is FALSE?

a. It is manually configured by an administrator  
b. It is preferred over dynamic protocols by default  
c. It changes dynamically if the topology changes  
d. It can be used for routing within the same autonomous system

5.6 When configuring a static route on router R2, what next hop address should be used to reach a host on 192.168.1.0/27?

a. 10.1.1.1  
b. 10.1.1.2  
c. 10.2.3.2  
d. 10.2.3.3

5.7 Which of the following about an IP filter in a Nokia 7750 SR is FALSE?

a. It is also known as an Access Control List (ACL).  
b. It is applied to all interfaces by default.  
c. It can be used to filter traffic based on IP addresses.  
d. It can be applied to egress traffic.

5.8 Which of the following about the displayed IP filter on an Nokia 7750 SR is TRUE?

![IP Filter Table]

a. It discards traffic from network 1.2.3.0/24.  
b. It discards traffic to network 1.2.3.0/24.  
c. It discards all traffic except the traffic from network 1.2.3.0/24.  
d. It discards all traffic except the traffic to network 1.2.3.0/24.

5.9 Which of the following about a router running a link state routing protocol is FALSE?

a. It uses an SPF algorithm to calculate the routing table.  
b. Route updates are driven by topology changes.  
c. It sends copies of the routing table to neighbor routers.  
d. It has a view of the entire network topology.

5.10 Which routing protocol uses hop count for path selection?

a. OSPF  
b. RIPv2  
c. IS-IS  
d. Static Routing

5.11 Which routing protocol is best used to provide routing between autonomous systems?

a. OSPF  
b. IS-IS  
c. RIPv2  
d. BGP

5.12 Which of the following about the OSPF routing protocol is TRUE?

a. It is a distance vector protocol.  
b. It uses SPF algorithm for route selection.  
c. It uses hop count to determine metric value.  
d. It is used for routing between different autonomous systems.
5.13 Which of the following is used by OSPF to identify the most up-to-date routing information?
   a. Priority value in the Hello packet.
   b. Age in the Link State Advertisement.
   c. Master/slave status in the Database Description packet.
   d. Sequence number in the Link State Advertisement.

5.14 Which of the following about BGP is FALSE?
   a. It is a link state protocol.
   b. It uses TCP sessions to establish BGP peering.
   c. It can be used for routing within an autonomous system.
   d. It can be used for routing between autonomous systems.

5.15 Which of the following about autonomous systems is FALSE?
   a. AS numbers can be assigned by RIRs.
   b. AS numbers can be assigned by ISPs.
   c. Private AS numbers are advertised on the Internet.
   d. eBGP is used between different autonomous systems.

Module 6: Services Overview

6.1 Which of the following is TRUE about a CE router that is involved in a VPN service?
   a. It is aware of the VPN services provided by the service provider.
   b. It resides on the service provider premises.
   c. It connects to at least one PE router.
   d. It connects to at least one CE router.

6.2 What is the function of a SAP?
   a. It provides a P device with service access.
   b. It provides a CE device with service access.
   c. It binds the service to an MPLS service tunnel.
   d. It binds the service to an MPLS transport tunnel.

6.3 Which of the following about the service label is FALSE?
   a. The ingress PE device encapsulates customer data with a service label.
   b. A service label identifies the service that data belongs to.
   c. The egress PE device strips the service labels and forwards unlabeled packets.
   d. A P device performs a service label swap operation.

6.4 Which device adds MPLS labels to packets that enter a service provider network?
   a. CE
   b. P
   c. iLER
   d. eLER

6.5 Which device is the termination point of a Label Switched Path (LSP)?
   a. CE
   b. P
   c. iLER
   d. eLER

6.6 What operation is performed by an iLER when it receives a packet?
   a. It pushes a new MPLS label and forwards the packet to the next LSR.
   b. It swaps the MPLS label and forwards the packet to the next LSR.
   c. It forwards the packet to the next LSR without altering the MPLS label.
   d. It pops the MPLS label and forwards the packet to the next IP router.

6.7 Which of the following devices performs a label swap operation?
   a. LSR
   b. iLER
   c. eLER
   d. CE

6.8 Which of the following about VPWS is FALSE?
   a. VPWS is a Layer 2 service.
   b. VPWS emulates a single leased line between two locations.
   c. Each VPWS maintains a MAC FDB.
   d. VPWS customers do not have knowledge of the service provider network.

6.9 Which of the following about VPLS is FALSE?
   a. VPLS is a Layer 2 service.
   b. VPLS emulates a switched Ethernet service.
   c. VPLS customers don’t have knowledge of the service provider network.
   d. Each PE maintains a VRF instance for each VPLS.
## Answer Key

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<th>Module 3</th>
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