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Specialist Implementation Engineer Data Center Networking Exam

EMC DES-5221

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QUESTION NO: 1

A network administrator wants to advertise a loopback interface into OSPF without forming an OSPF adjacency on that interface. Which OSPF interface type should be configured?

A. Passive

B. Point-to-multipoint

C. Broadcast

D. Non-broadcast

ANSWER: A

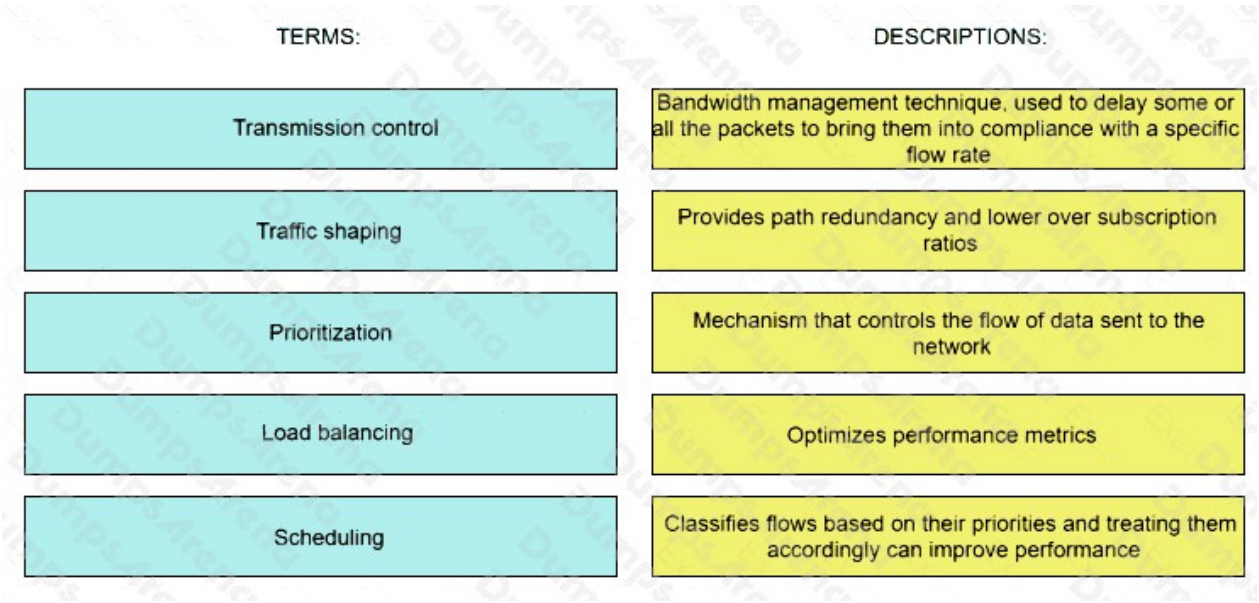
Explanation:

Passive is correct. Configuring an OSPF interface as passive prevents the interface from sending OSPF hello packets and from forming neighbor adjacencies on that interface. The connected network can still be advertised by the OSPF process, provided it is enabled for OSPF.

Loopback interfaces are commonly made passive because they represent stable router-identification or management addresses and do not require OSPF neighbor discovery. This approach advertises the loopback prefix while preventing unnecessary OSPF protocol traffic. OSPF interface operation is defined in RFC 2328.

QUESTION NO: 2 - (SIMULATION)

Match the QoS terms to their descriptions.



ANSWER: Check the explanation for the answer

Explanation:

Match the QoS terms as follows:

Transmission control — *Mechanism that controls the flow of data sent to the network*
Traffic shaping — *Bandwidth management technique, used to delay some or all the packets to bring them into compliance with a specific flow rate*
Prioritization — *Classifies flows based on their priorities and treating them accordingly can improve performance*
Load balancing — *Provides path redundancy and lower over subscription ratios*
Scheduling — *Optimizes performance metrics*

QUESTION NO: 3

What is the valid range of VLAN IDs for Dell EMC Networking OS10 switches?

A. 1-4096

B. 1-4093

C. 0-4092

D. 0-4095

E. 1-4094

ANSWER: E

Explanation:

The valid VLAN ID range for Dell EMC Networking OS10 switches is **1-4094**. VLAN identifiers use the 12-bit VLAN ID field defined by IEEE 802.1Q, which provides values from 0 through 4095. Of those values, 0 and 4095 are reserved and are not usable as normal customer-configured VLANs. Consequently, OS10 VLAN configuration uses the usable range beginning at VLAN 1 and ending at VLAN 4094. VLAN 1 is the default VLAN on an OS10 switch, while VLANs throughout the remainder of this range can be created and assigned to switch interfaces, port channels, or virtual interfaces as required by the network design. This range is also important when planning interoperability with other standards-compliant switches, since it reflects the standard Ethernet VLAN identifier space rather than a platform-specific reduced range. Dell's OS10 documentation and command references are available through the Dell EMC Networking OS10 Information Hub. The underlying VLAN tagging standard is specified by IEEE 802.1Q.

QUESTION NO: 4

What is the purpose of the local preference BGP path attribute?

A. Selects the preferred outbound path from an autonomous system.

B. Prevents BGP route advertisement to eBGP peers.

C. Sets the OSPF cost of a redistributed route.

D. Identifies the originating BGP router ID.

ANSWER: A

Explanation:

Local preference determines the preferred outbound path from an autonomous system. When multiple BGP paths exist for the same destination, a higher local-preference value is preferred. The attribute is propagated to iBGP peers within the autonomous system so that routers can make a consistent exit-path decision for traffic destined outside the AS.

Local preference is not advertised to eBGP peers because it is an intra-autonomous-system routing policy attribute. Network administrators commonly use it to prefer a primary Internet provider, WAN exit, or data-center border path while retaining another path as a backup. The LOCAL_PREF attribute is specified in RFC 4271, section 5.1.5.

QUESTION NO: 5

How are multiple hardware based ACLs filtered?

A. NTP

B. DHCP

C. NPU

D. IP

ANSWER: C

Explanation:

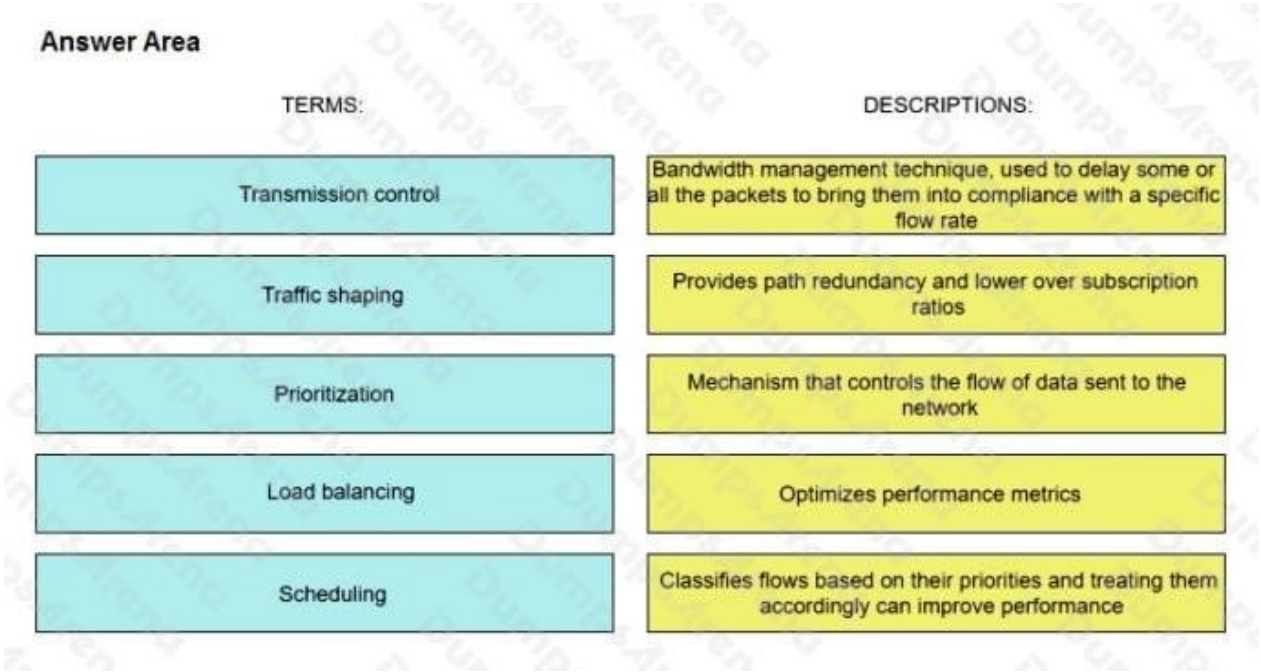
NPU is correct because hardware-based ACL processing occurs in the Network Processing Unit, where the switch evaluates and enforces packet-filtering entries in hardware. When multiple hardware ACLs are configured, the NPU is the forwarding component responsible for compiling the applicable rules into its hardware resources and applying the resulting policy to packets at line rate. This hardware implementation avoids sending each packet to the control plane for ACL evaluation, which enables efficient filtering while maintaining high throughput. The applicable ACL entries are programmed into the platform's hardware forwarding and filtering tables; consequently, the NPU performs the packet match and associated action, such as permit, deny, counting, or other supported handling, as traffic traverses the switch. Dell OS10 documentation describes ACL operation and the hardware resources used to implement ACL policies on supported platforms. See the Dell OS10 Enterprise Edition ACL documentation at Dell OS10 Access Control Lists.

QUESTION NO: 6 - (DRAG DROP)

DRAG DROP

Match the QoS terms to their descriptions.

Select and Place:



ANSWER:

Answer Area



Explanation:

The correct mapping reflects the distinct roles that QoS and traffic-management mechanisms play in a data-center network. Traffic shaping is the bandwidth-management function that intentionally delays packets so a traffic stream conforms to a configured transmission rate. This produces a smoother output rate and helps prevent bursts from exceeding the allowed flow profile. Load balancing distributes traffic across available paths or resources. In a network design, that use of multiple paths supplies redundancy and helps make more effective use of aggregate capacity, which can reduce oversubscription pressure.

Transmission control is the mechanism concerned with regulating the flow of data sent toward the network. It governs the sending behavior so traffic is delivered in a controlled manner rather than being emitted without regard for available capacity. Scheduling determines the order and service behavior used for queued traffic, allowing the network to optimize relevant performance measures such as delay, throughput, and queue utilization according to policy. Prioritization identifies traffic flows by their assigned importance and applies the appropriate treatment, ensuring that business-critical or delay-sensitive traffic receives service consistent with its priority.

Together, these functions provide the core QoS behavior used to manage congestion and deliver differentiated handling for applications. Cisco's overview of QoS describes classification, scheduling, shaping, and congestion-management concepts in this context: Cisco: What Is Quality of Service?. The final placements shown in the answered image correctly associate every term with the description of its operational purpose.

QUESTION NO: 7

When implementing QoS on a 10Gb connection, 6Gb is required by the customer. What QoS level best fits the requirement while keeping resource use to a minimum?

A. Differentiated service

B. Guaranteed service

C. FIFO

D. Best-effort service

ANSWER: B

Explanation:

Guaranteed service is the appropriate QoS level because the customer has a specific, measurable bandwidth requirement: 6 Gb/s on a 10 Gb/s connection. Guaranteed service reserves and controls the required network resources for the defined

traffic flow or class, allowing the implementation to commit only the capacity needed for that service rather than overprovisioning the entire link. In this case, reserving 6 Gb/s leaves the remaining 4 Gb/s available for other traffic and provides the customer with a predictable service level.

More broadly, guaranteed QoS is associated with resource reservation and admission-control principles. Before accepting traffic that needs a committed level of service, the network verifies that sufficient capacity is available to meet that commitment. This is important where a stated bandwidth requirement must be honored during congestion, rather than merely receiving preferential treatment. The IETF Integrated Services architecture describes service models that provide quantitative commitments through controlled resource allocation, while the Differentiated Services architecture describes traffic classification and per-hop forwarding behavior without itself defining an end-to-end bandwidth reservation. See RFC 1633: Integrated Services in the Internet Architecture and RFC 2475: An Architecture for Differentiated Services.

QUESTION NO: 8

What is the default PIM-SSM IP range?

A. 224.0.0.0/4

B. 224.0.0.0/24

C. 232.0.0.0/8

D. 232.0.0.0/4

ANSWER: C

Explanation:

The default PIM Source-Specific Multicast (SSM) group-address range is **232.0.0.0/8**. This prefix covers multicast group addresses from 232.0.0.0 through 232.255.255.255 and is reserved by IANA specifically for SSM use. In PIM-SSM, receivers identify both a multicast source and a group address, represented as an (S,G) channel. This differs from Any-Source Multicast, where a receiver initially joins only a group and traffic can be received from multiple sources. The dedicated 232.0.0.0/8 range lets network devices recognize that joins for these groups are SSM joins and process them using source-specific multicast behavior. Dell Networking OS documentation for the PIM SSM range command specifies 232.0.0.0/8 as the default range. The same default is consistent with the IANA IPv4 multicast address registry, which identifies 232.0.0.0/8 as the Source-Specific Multicast block. Administrators can alter the configured SSM range where the platform supports it, but the factory/default PIM-SSM range remains 232.0.0.0/8. References: Dell Networking OS IP PIM SSM Range command reference; IANA IPv4 Multicast Address Space Registry.