Huawei

H12-821_V1.0 Exam

HCIP-Datacom-Core Technology V1.0

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Version: 8.0

Question: 1

DRAG DROP

Huawei modular devices have multiple hardware modules that provide different functions. Match the following hardware modules with their functions.

MPU		Acts as the data plane of the entire system.
SFU		Forwards data and provides optical and electrical ports of different rates.
LPU		Acts as the control plane and management plane of the entire system.

Answer:

Explanation:

The hardware modules of Huawei modular devices and their functions are:

Main Processing Unit (MPU): Provides control and management planes for the entire system, responsible for protocol processing, system security, and software upgrades.

Switch Fabric Unit (SFU): Provides the data plane, enabling high-speed data switching between service modules.

Line Processing Unit (LPU): Manages data forwarding, offering various interfaces (optical and electrical) for data access.

Question: 2

A router performs a lookup in its FIB table for a packet. If the tunnel ID in the matching entry is 0, the packet needs to be forwarded through a tunnel, such as an MPLS tunnel.

A. TRUE
B. FALSE

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Answer: B

Explanation:

The question indicates that a router performs a lookup in its FIB table for a packet and determines that the tunnel ID in the matching entry is 0, suggesting that the packet needs to be forwarded through a tunnel such as an MPLS tunnel. However, this is a misunderstanding of the FIB functionality.

FIB Table Overview
The Forwarding Information Base (FIB) is used to make packet-forwarding decisions. Entries in the FIB include next-hop information, which can be directly linked to an interface or a tunnel.

If the Tunnel ID is 0, it indicates that the packet is forwarded via a normal routing path and not through a tunnel.

For MPLS or other tunnels, the Tunnel ID would have a non-zero value pointing to the associated tunnel.

MPLS Tunnel Operation
When a router forwards packets through an MPLS tunnel, a label-switched path (LSP) is set up. The FIB would reflect specific tunnel identifiers for packets that need such encapsulation.

HCIP-Datacom-Core Reference

Routing Principles and MPLSexplain the forwarding mechanisms clearly, stating that if a packet is routed normally, the tunnel ID remains 0.

The section on MPLSclarifies the encapsulation process and the role of tunnel identifiers.

Hence, the claim in the question is incorrect. A Tunnel ID of 0 implies no tunneling is required, and normal IP forwarding occurs

Question: 3

On an OSPF network, one router with P2P as the network type is directly connected to another router with P2MP as the network type. If the Hello intervals on the two routers are changed to be the same, neighbor relationship establishment and LSDB synchronization are not affected.

A. TRUE
B. FALSE

Answer: B

Explanation:

The scenario describes a mismatch in OSPF network types between two connected routers: one set to Point-to-Point (P2P) and the other set to Point-to-Multipoint (P2MP). While aligning Hello intervals may

seem sufficient for establishing an OSPF neighbor relationship, the fundamental mismatch in network types introduces issues.

OSPF Network Types

P2P: Assumes a direct connection with a single neighbor, uses faster convergence and simpler LSDB synchronization.

P2MP: Supports multiple neighbors on a single interface, requiring different handling for DR/BDR roles and LSDB updates.

Impact of Network Type Mismatch

If Hello intervals are aligned, adjacency establishment might occur. However, mismatched network types affect neighbor role assignment and LSDB synchronization.

P2P expects a direct link and would handle updates differently than P2MP, which assumes multiple neighbors. This leads to inconsistencies in route calculation and forwarding.

HCIP-Datacom-Core Reference

OSPF Basics and Configurationclearly outlines the criticality of consistent network type configuration for stable OSPF operation.

Lab examples in the HCIP Datacom Lab Guidefurther demonstrate the consequences of such mismatches, including unstable neighbor states and incomplete LSDB synchronization.

Hence, the statement that neighbor relationships and LSDB synchronization remain unaffected is incorrect. Proper OSPF operation requires matching network types in addition to aligned Hello intervals.

Question: 4

On an enterprise network, the directly connected interfaces of two OSPF routers are on different network segments and have different masks. To establish an OSPF neighbor relationship between the two interfaces, you can change their network types to which of the following?

A. Point-to-point
B. NBMA
C. P2MP
D. Broadcast

Answer: A

Explanation:

When OSPF routers have interfaces on different network segments with different subnet masks, the network type can be adjusted to establish adjacency. A point-to-point (P2P) network type eliminates the requirement for matching subnet masks by treating the link as directly connected without intermediate devices.

P2P Network Characteristics

OSPF treats the link as a direct connection between two routers.

No DR/BDR election occurs, simplifying adjacency establishment.

Subnet mask differences do not hinder neighbor relationships as the link is viewed as a logical tunnel.

HCIP-Datacom-Core Reference

The OSPF configuration section explicitly mentions P2P as a suitable network type for resolving adjacency issues caused by mismatched subnet masks.

Question: 5

On an OSPF network, an algorithm is used to prevent loops within an area, but loops may occur between areas. Therefore, OSPF defines a loop prevention mechanism for inter-area routes. Which of the following statements are true about the loop prevention mechanism?

A. Inter-area routes cannot be directly transmitted between non-backbone areas.
B. All non-backbone areas must be directly connected to area 0.
C. Inter-area routes need to be forwarded through area 0.
D. An ABR cannot inject Type 3 LSAs that describe routes to a network segment in an area back to the same area.

Answer: A, B, C,D

Explanation:

  OSPF Area Design and Loop Prevention:
OSPF uses a hierarchical structure with areas to improve scalability and efficiency. Area 0, the backbone area, plays a crucial role in ensuring loop-free route distribution between areas. The following

mechanisms are key to preventing routing loops:

Strict adherence to hierarchical area design.

Prohibition of direct inter-area route exchanges between non-backbone areas.

Reference: HCIP-Datacom-Core Technology Training Material (OSPF Basics and Advanced Concepts).

  Analysis of Each Statement:

A . Inter-area routes cannot be directly transmitted between non-backbone areas.
This statement is TRUE. OSPF mandates that all inter-area routing must pass through Area 0. Direct inter-area route exchanges between two non-backbone areas are not allowed to prevent loops.

Reference: HCIP-Datacom-Core Technology Training Material (Inter-Area Routing Mechanisms).

B . All non-backbone areas must be directly connected to area 0.
This statement is TRUE. OSPF requires every non-backbone area to connect directly to Area 0 to facilitate loop-free inter-area routing. Virtual links may be configured in exceptional cases where direct connection is not possible.

Reference: HCIP-Datacom-Core Technology Training Material (OSPF Backbone and Area Connectivity).

C . Inter-area routes need to be forwarded through area 0.
This statement is TRUE. All inter-area traffic must traverse Area 0 to ensure hierarchical routing and loop prevention. This rule is a core design principle of OSPF.

Reference: HCIP-Datacom-Core Technology Training Material (Routing Control and Loop Prevention in OSPF).

D . An ABR cannot inject Type 3 LSAs that describe routes to a network segment in an area back to the same area.
This statement is TRUE. OSPF explicitly prohibits an ABR from injecting Type 3 LSAs describing a route into the same area where the route originates. This mechanism prevents routing loops within an area.

Reference: HCIP-Datacom Advanced Routing & Switching Technology (OSPF LSA Types and ABR Behavior).

  Conclusion:
All options (A, B, C, D) are correct. OSPF enforces a robust loop prevention mechanism through hierarchical routing, mandatory traversal via Area 0, and strict rules on LSA propagation by ABRs. This ensures reliable and loop-free inter-area routing in OSPF networks.

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