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Nokia Bell Labs 5G Networking Exam

Nokia BL0-200

Version Demo

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QUESTION NO: 1

What are benefits of separating Central Unit and Distributed Unit functions in a 5G RAN? (Select 2)

A. Centralized processing-resource pooling

B. Flexible placement of protocol functions

C. Elimination of all transport latency requirements

D. Removal of the need for radio synchronization

ANSWER: A B

Explanation:

Centralized processing-resource pooling and flexible placement of protocol functions are correct. Separating a gNB into CU and DU functions allows higher-layer protocol functions to be centralized where appropriate, while time-sensitive lower-layer functions remain closer to the radio site. This can improve resource utilization and simplify scaling of centralized functions.

The split also gives the operator flexibility to select CU and DU locations according to transport latency, capacity, resilience, and deployment requirements. The F1 interface provides the standardized interface between CU and DU functions. The NG-RAN architecture is specified in 3GPP TS 38.401.

QUESTION NO: 2

Which functions are part of the O-RAN disaggregated radio architecture? (Select 2)

A. O-RU

B. O-DU

C. UPF

D. UDM

ANSWER: A B

Explanation:

O-RU and **O-DU** are correct. The O-RAN Radio Unit performs radio-frequency related functions close to the antenna, while the O-RAN Distributed Unit performs distributed baseband processing. These functions communicate through the Open Fronthaul interface.

An O-CU is also an O-RAN architecture function and can be further separated into control-plane and user-plane components. The UPF is not an O-RAN function; it is a 5G Core user-plane network function. O-RAN specifications define the disaggregated RAN architecture and its open interfaces. See the O-RAN Alliance Specifications.

QUESTION NO: 3

Which timing reference source is the most common and accurate for radio networks?

A. GNSS

B. SyncE

C. IEEE I588v1

D. BITS

ANSWER: A

Explanation:

GNSS is the most common and accurate timing-reference source for radio networks because it provides a highly stable time and frequency reference that is traceable to international time standards. A GNSS receiver can derive synchronized frequency, time-of-day, and pulse-per-second signals from multiple satellites, enabling radio sites to maintain the precise phase and time alignment required by modern cellular technologies. This is particularly important for LTE and 5G deployments using time-division duplexing, coordinated radio features, and accurate inter-cell synchronization. GNSS timing is widely deployed at cell sites because a receiver and antenna can obtain the reference independently of the transport network, while providing excellent long-term accuracy. Where reception conditions are suitable, it is therefore commonly used as the primary reference, with network-based timing distribution and holdover mechanisms supporting resiliency. The International Telecommunication Union describes GNSS as a global radio-navigation satellite service that provides positioning, navigation, and timing capabilities; its timing capability is the basis for its widespread use as a precise reference. See the ITU overview of global navigation satellite systems and Nokia's timing and synchronization solutions information.

QUESTION NO: 4

Which network element performs the AMF selection?

A. RAN Node

B. SMF

C. UPE

D. UDR

ANSWER: A

Explanation:

RAN Node is correct. In the 5G system, AMF selection is initially performed by the NG-RAN node, such as a gNB, when it receives a UE's initial access signalling. The RAN uses the available UE and registration context, including information such as the requested network slice, location, and any UE-provided temporary identity, to choose an appropriate AMF or AMF set. It then forwards the UE's NAS registration message to that selected AMF using the NG application protocol.

This placement of the selection function lets the access network direct a new connection to a suitable control-plane entry point before the UE has an established serving AMF context. The selected AMF subsequently handles registration and mobility-management control-plane procedures. The 5G System architecture specification identifies NG-RAN as supporting AMF selection, while NGAP defines the Initial UE Message procedure used by the RAN to convey the UE's NAS message toward the selected AMF. See 3GPP TS 23.501, section 6.3.5, at 3GPP TS 23.501, and the NGAP specification at ETSI TS 38.413.

QUESTION NO: 5

Which of the following Is a valid definition for Service Based Architecture principle (SBA)?

A. Each network function is a service producer, a service consumer, or both.

B. Provides an individual platform from which node applications can be deployed using components of external sources and suppliers.

C. Provides a separation between the transport and physical resources.

D. None of the above.

ANSWER: A

Explanation:

Each network function is a service producer, a service consumer, or both is the valid description of the Service-Based Architecture principle. In the 5G Core, network functions expose their capabilities as services through service-based interfaces. A network function acting as a service producer makes one or more services available, while a network function acting as a service consumer discovers and invokes services offered by another network function. The same network function may perform both roles, depending on the interaction and service involved.

This service-oriented model is a core architectural principle of the 5G system. It enables network functions such as the Access and Mobility Management Function, Session Management Function, Policy Control Function, and Unified Data Management function to interact through standardized APIs rather than relying solely on fixed, point-to-point interfaces. The approach supports modularity, independent evolution of functions, service discovery, authorization, and more flexible deployment of the 5G Core. 3GPP defines the Service-Based Architecture and its service-based interfaces in its 5G system architecture specification: 3GPP TS 23.501. Additional technical-stage architecture and procedure details are available in 3GPP TS 23.288.

QUESTION NO: 6

Which capabilities support closed-loop network automation? (Select 2)

A. Telemetry collection

B. Policy-driven remediation

C. Permanent manual correlation of every alarm

D. Static configuration with no feedback

ANSWER: A B

Explanation:

Telemetry collection and policy-driven remediation are correct. Closed-loop automation begins with collecting operational data such as alarms, performance measurements, configuration state, and service telemetry. Analytics and intelligence use this information to identify a condition requiring action.

After a decision is made, policy-driven remediation allows the automation system to execute or coordinate an approved corrective action. The resulting network state can then be monitored to verify that the intended outcome was achieved. This feedback cycle supports more consistent and responsive network operations. Nokia describes this operational approach in its Autonomous Networks material.

QUESTION NO: 7

Which capabilities can Segment Routing provide in an IP transport network? (Select 2)

A. Policy-based traffic steering

B. Simplified MPLS control-plane operation

C. Mandatory RSVP reservation for every traffic flow

D. Replacement of packet forwarding with circuit switching

ANSWER: A B

Explanation:

Policy-based traffic steering and **simplified MPLS control-plane operation** are correct. Segment Routing steers packets through the network by using a list of segments that represent instructions such as a node, adjacency, or service. This supports explicit path control and traffic engineering according to service policy and network conditions.

Segment Routing can be used with an MPLS data plane and removes the need for protocols such as LDP to distribute transport labels for many deployments. It does not require every packet to establish an individual end-to-end RSVP reservation, and it does not replace the IP forwarding plane with a circuit-switched technology. See IETF RFC 8402.

QUESTION NO: 8

Which transport network segment is between the gNB radio and DU function?

A. Longhaul B. Midhaul

B. Backhaul

C. Fronthaul

ANSWER: C

Explanation:

Fronthaul is correct because it is the transport segment that connects the radio-side function—commonly implemented as a radio unit or remote radio head—to the Distributed Unit in a disaggregated 5G RAN. This connection carries time-sensitive radio information and control data needed for the DU to perform lower-layer baseband processing in coordination with the radio. In 5G architectures using an open or split RAN implementation, the fronthaul interface is commonly based on enhanced Common Public Radio Interface specifications and must satisfy demanding requirements for latency, synchronization, packet delay variation, capacity, and reliability. The precise functional split affects the traffic characteristics and performance budget, but the network segment from the radio to the DU remains fronthaul. Nokia describes fronthaul as the connection between radio units and distributed baseband functions, while the O-RAN Alliance specifies open fronthaul interfaces for the connection between an O-RU and O-DU. See Nokia's Anyhaul transport overview and the O-RAN Alliance's Open Fronthaul specifications.

QUESTION NO: 9

Concentrator location is done during which phase?

A. RF design

B. Detailed design

C. Digital twin creation

D. X-Haul design

ANSWER: D

Explanation:

X-Haul design is correct because concentrators are transport-network aggregation points. Their placement is determined while designing the xHaul network—the combined fronthaul, midhaul, and backhaul connectivity that links radio sites, distributed and centralized RAN functions, and the core network. This design activity establishes the transport topology, selects aggregation layers, and evaluates fibre availability, path diversity, capacity, latency, synchronization, resiliency, and the practical locations at which traffic from multiple access sites should be collected.

A concentrator location therefore follows the traffic flows and connectivity requirements of the transport domain rather than being solely a radio-coverage or RF-parameter decision. In a 5G deployment, the chosen aggregation locations must support the required interfaces and service scale while maintaining the performance targets applicable to the relevant fronthaul, midhaul, or backhaul segment. Nokia describes Anyhaul as its approach for converged mobile transport across

these transport segments, including the transport capabilities needed to connect and aggregate 5G network elements. See Nokia Anyhaul and Nokia's 7750 Service Router portfolio for transport aggregation context.