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N-Radio-Network-Performance-Optimization

**MN: NCSS NPS - SRAN Radio Network Performance
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GS40-NPS-SRPER-E-S03-2510**



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Question: 1

Which statement is not true about MantaRay SON ?

- A. It supports multi-vendor and multi-technology RAN.
- B. Energy savings management is not covered.
- C. It was previously known as EdenNet SON.
- D. It has an open framework for module development.

Answer: B

Explanation:

The statement “Energy savings management is not covered” is not true . Nokia describes MantaRay SON as supporting radio network performance, quality, and energy efficiency optimization. Nokia also references AI-powered energy savings management and RAN energy efficiency use cases under its SON/MantaRay automation portfolio.

The other statements are aligned with Nokia SON/MantaRay positioning. Nokia describes MantaRay SON as an automation layer within the MantaRay SMO framework, with support for multi-supplier/non-real-time RIC functionality and an application ecosystem. Nokia also has historical EdenNet SON material, including EdenNet SON Energy Saving Management.

Therefore, the statement that is not true is:
Energy savings management is not covered.

Question: 2

What is the role of admission control in 5G networks ?

- A. To manage the modulation schemes
- B. To increase the spectral efficiency
- C. To optimize the downlink throughput
- D. To check whether there are enough resources for new connections

Answer: D

Explanation:

Admission control is responsible for deciding whether a new UE connection, bearer, service, or session can be accepted by the cell without negatively affecting existing users and services.

In 5G RAN, admission control checks available radio resources such as:

- PRB availability
- PDCCH/PUCCH capacity
- UE context capacity
- QoS requirements

GBR or non-GBR bearer requirements

Cell load and congestion status

It does not directly manage modulation schemes; that is handled by link adaptation. It also does not directly increase spectral efficiency or optimize downlink throughput, although good admission control indirectly protects user experience and avoids overload.

So the main role of admission control is:

To check whether there are enough resources for new connections.

Question: 3

Which parameter defines the PRACH format ?

- A. msg1-FrequencyStart
- B. prachConfigurationIndex
- C. prachRootSequenceIndex
- D. totalNumberOfRAPreambles

Answer: B

Explanation:

The prachConfigurationIndex defines the PRACH configuration, including the PRACH time-domain occasions and the associated PRACH format according to the PRACH configuration tables. In 5G NR, PRACH configuration is based on 3GPP-defined PRACH tables, where the configuration index maps to the PRACH format and PRACH occasion structure.

The other options have different meanings:

- A. msg1-FrequencyStart defines the frequency-domain starting position of PRACH occasion resources.
- C. prachRootSequenceIndex defines the root sequence used for PRACH preamble generation.
- D. totalNumberOfRAPreambles defines how many random access preambles are available.

Therefore, the parameter that defines the PRACH format is:

prachConfigurationIndex.

Question: 4

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Question: 5

Evaluate the impact of extended FR2 cell range on power consumption.

- A. It has no impact on power consumption.
- B. It decreases power consumption due to better radio conditions.
- C. It increases power consumption because UEs need more energy to transmit uplink signals.
- D. It reduces power consumption by optimizing beamforming.

Answer: C

Explanation:

In FR2/mmWave, uplink coverage is often the limiting factor because UE transmit power is much lower than gNodeB transmit power, and mmWave propagation suffers from high path loss and blockage. Ericsson's mmWave coverage discussion also notes that high-band coverage is limited by uplink signal quality and high-band propagation characteristics.

When the FR2 cell range is extended, UEs farther from the serving cell must transmit uplink signals over a more difficult radio path. This usually requires higher UE transmit power, more robust MCS, more repetitions or retransmissions, and potentially longer uplink activity. As a result, UE battery consumption can increase.

Therefore, extended FR2 range generally:

Increases power consumption because UEs need more energy to transmit uplink signals.

Question: 6

During an intra-gNB DU handover, what is the role of the RRC Reconfiguration message sent by the gNB-CU to the UE?

- A. It instructs the UE to perform handover to the target PCell and provides measurement configuration.
- B. It confirms admission control and suspends UE scheduling in the source cell.
- C. It transfers user-plane resources and allocates a dedicated preamble index.
- D. It reestablishes the RLC layer and recovers PDCP PDUs for uplink data.

Answer: A

Explanation:

During an intra-gNB DU handover , the UE is moved from one cell/DU resource to another under the same gNB-CU control. The gNB-CU coordinates the handover preparation and sends an RRC Reconfiguration message to the UE.

The role of this message is to provide the UE with the required handover command information, such as:

Target PCell configuration

Radio resource configuration

Mobility control information

Random access configuration, when needed

Measurement or reconfiguration-related information

After receiving the RRC Reconfiguration , the UE performs the handover execution procedure toward the target cell and later responds with RRC Reconfiguration Complete .

Option B is incorrect because admission control and source-cell scheduling suspension are internal network-side procedures, not the UE-facing role of the RRC Reconfiguration message.

Option C is not the best answer because user-plane resource transfer is handled between gNB-CU/gNB-DU functions, while dedicated preamble allocation may be part of the configuration but is not the main purpose of the message.

Option D is incorrect because RLC reestablishment and PDCP recovery are lower-layer/user-plane handling actions, not the primary purpose of the RRC Reconfiguration message.

Therefore, the correct role is:

It instructs the UE to perform handover to the target PCell and provides measurement/configuration information.

Question: 7

The CB009425 feature provides several enhancements to improve the transmission link budget for VoNR, offering a better customer experience. Which statements are correct regarding this feature?

- A) Packet Loss Rate, or PLR, for VoNR is minimized, improving voice call quality.
- B) Specific initial BLER targets are used for VoNR DRBs.
- C) Configurable uplink minimum TBS is used for VoNR DRBs.
- D) MCS downgrade control is used for VoNR DRBs.

- A. A only
- B. B and C
- C. A, B, and C
- D. A, B, C, and D

Answer: D

Explanation:

The feature is focused on improving VoNR link robustness and user experience, especially near the cell edge or in difficult RF conditions. VoNR is sensitive to packet loss, delay, and uplink coverage limitations. Therefore, link-budget improvement features commonly target BLER behavior, transport block sizing, and MCS robustness.

Statement A is correct because minimizing Packet Loss Rate, or PLR, directly improves VoNR speech quality and reduces mute, clipping, or robotic voice effects.

Statement B is correct because VoNR bearers can use specific initial BLER targets. A more suitable BLER target helps the scheduler choose a more robust MCS for voice traffic.

Statement C is correct because a configurable uplink minimum TBS, or Transport Block Size, helps ensure that small VoNR packets are transmitted efficiently and reliably.

Statement D is correct because MCS downgrade control can improve robustness by selecting a more conservative modulation and coding scheme for VoNR DRBs when radio conditions require it.

Therefore, all listed enhancements are part of the VoNR link-budget improvement concept:
A, B, C, and D.

Question: 8

Single Network Slice Selection Assistance Information , or S-NSSAI , identifies a network slice. Which of the following statements are correct regarding NSSAI ? Refer to the diagram for basic information.

A) SD , or Slice Differentiator , pairs with SST , or Slice/Service Type , to uniquely define a slice.

B) SST , or Slice/Service Type , is a mandatory numeric parameter that refers to defined slice characteristics.

C) SD , or Slice Differentiator , is an optional parameter that identifies or differentiates slices.

D) The SST field may have standardized and non-standardized values.

A. B, C, and D

B. A and B

C. A, B, and C

D. A, B, C and D

Answer: D

Explanation:

In 5G network slicing, S-NSSAI identifies a single network slice. It is composed of:

SST , or Slice/Service Type

SD , or Slice Differentiator

Statement A is correct.

The combination of SST + SD can uniquely identify a slice. For example, two slices may both use SST 1 for eMBB/MBB-type service, but different SD values can separate them for different enterprises, tenants, or service groups.

Statement B is correct.

SST is mandatory. It is an 8-bit numeric field that indicates the expected slice/service behavior, such as eMBB, URLLC, or mMTC.

Statement C is correct.

SD is optional. It is a 24-bit field used to differentiate multiple slices that may share the same SST.

Statement D is correct.

SST may use standardized values, such as SST 1 for eMBB, SST 2 for URLLC, and SST 3 for mMTC/MIoT. It may also use operator-specific or non-standardized values depending on deployment requirements.

Question: 9

In the context of radio capacity management , what is the significance of Scheduling Request periodicity ?

- A. It sets the maximum number of SSBs.
- B. It determines the modulation scheme used.
- C. It affects the latency and number of connected users.
- D. It controls the downlink throughput.

Answer: C

Explanation:

Scheduling Request , or SR , is used by the UE to request uplink resources when it has uplink data to send. The SR periodicity defines how often the UE gets an opportunity to send this scheduling request. A shorter SR periodicity means the UE can request uplink resources more quickly, which improves uplink latency. However, it consumes more PUCCH/control-channel resources, reducing the number of UEs that can be efficiently supported.

A longer SR periodicity saves control-channel resources and can support more connected users, but it increases uplink access delay.

Therefore, SR periodicity is important because it creates a trade-off between:
Lower latency and higher connected-user capacity.

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