Question 1. (Single Select)

Which of the following technologies can be used to improve 5G network coverage and capacity? Select all that apply.

A: Carrier Aggregation
B: Beamforming
C: Massive MIMO
D: Network Slicing

Correct Answer: A

Explanation:

Passive antennas are not typically used in 5G network design, so the correct answer is A, B, and C. Omnidirectional antennas radiate signals in all directions, while directional antennas focus signals in a specific direction. Smart antennas use digital signal processing to optimize signal strength and reduce interference.

Question 2. (Single Select)

Which of the following technologies can be used for 5G network security? Select all that apply.

A: Intrusion Detection System (IDS)
B: Virtual Private Network (VPN)
C: Software-Defined Networking (SDN)
D: Firewall

Correct Answer: A

Explanation:

All of the above technologies can be used for 5G network security. Firewalls can be used to monitor and filter network traffic, while IDS can be used to detect and prevent unauthorized access and malicious activities. VPNs can be used to secure data transmissions and protect

sensitive information from interception and eavesdropping. SDN can be used to enable network programmability and automation, which can improve security by simplifying the management of complex network configurations and policies.

Question 3. (Single Select)

What are the different types of 5G network services? Select all that apply.

A: Enhanced Mobile Broadband (eMBB)
B: Massive Machine-Type Communications (mMTC)
C: Advanced Proximity Services (APS)
D: Ultra-Reliable and Low-Latency Communications (URLLC)

Correct Answer: A

Explanation:

All of the above are types of 5G network services. Enhanced Mobile Broadband (eMBB) offers high-speed data transfer for bandwidth-intensive applications such as streaming media and virtual reality. Ultra-Reliable and Low-Latency Communications (URLLC) provides reliable and low-latency connectivity for mission-critical applications such as remote surgery and autonomous driving. Massive Machine-Type Communications (mMTC) supports a large number of connected devices with low power consumption and low data rates. Advanced Proximity Services (APS) enable high-precision location-based services and support for device-to-device communication.

Question 4. (Single Select)

Which of the following are key parameters for 5G network planning and design? Select all that apply.

A: Cell size

B: Bandwidth
C: Coverage probability
D: Antenna gain

Correct Answer: A

Explanation:

All of the above are key parameters for 5G network planning and design. Cell size determines the coverage area of a base station and affects the network's capacity and performance. Bandwidth is the amount of data that can be transmitted over the network and determines the network's speed and capacity. Coverage probability is the probability that a user can receive a signal with sufficient quality at a given location, and it determines the network's coverage area and reliability. Antenna gain is the measure of an antenna's ability to focus energy in a particular direction, and it affects the network's coverage and capacity.

Question 5. (Single Select)

What are the different types of 5G network slicing? Select all that apply.

A: Radio Access Network (RAN) slicing
B: Core Network slicing
C: Transport Network slicing
D: Service Function chaining slicing

Correct Answer: A

Explanation:

All of the above are types of 5G network slicing. Radio Access Network (RAN) slicing involves the allocation of dedicated radio resources to specific user groups or services. Core Network slicing involves the separation of network functions and resources to support specific service requirements. Transport Network slicing involves the partitioning of transport resources to support specific service requirements. Service Function chaining slicing involves the chaining of network functions to provide end-to-end services with specific characteristics.