Vendor: CWNP

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Version: DEMO

QUESTION 1
What best describes the area covered or connected by a WWAN?

A. City
B. Campus
C. Region
D. In-building

Answer: C
Explanation:
WWAN (Wide-Area Wireless Network): WWANs provide connectivity over extensive geographic areas, typically covering regions or even entire countries.
Cellular Technology: WWANs often rely on cellular networks (3G, 4G, 5G) offered by mobile carriers.

QUESTION 2
What function does the IEEE perform in relation to wireless technologies?

A. Promotes technology and standards development
B. Designs wireless chipsets
C. Certified equipment to be compatible
D. Brings wireless products to market

Answer: A
Explanation:
IEEE's Role: The Institute of Electrical and Electronics Engineers (IEEE) is a global organization critical in developing and promoting technical standards across various fields, including wireless technologies.
Standards Work: IEEE creates wireless technology standards like:
IEEE 802.11: Wi-Fi standards
IEEE 802.15.4: Basis for ZigBee, Thread, and other low-power networks

QUESTION 3
What is the benefit of using SINR as opposed to SNR to reference signal quality at a receiver?

A. SINR includes interference as well as the noise floor
B. SNR excludes the noise floor, which skews the results
C. SINR excludes interference and only measures the noise floor
D. SNR includes interference measurements that skew the results

Answer: A
Explanation:
SINR vs. SNR:
SNR (Signal-to-Noise Ratio): Measures the power of the desired signal relative to background noise.
SINR (Signal-to-Interference-plus-Noise Ratio): Considers both background noise and interference from other signals operating on the same frequency.
Practical Importance: SINR is a more realistic indicator of real-world signal quality in wireless environments where interference is a significant factor.

QUESTION 4

What is defined as the weakening of signal amplitude as the signal passes through a medium?

A. Diffraction
B. Reflection
C. Attenuation
D. Scattering

Answer: C
Explanation:
Attenuation: Describes the progressive loss of signal strength as it travels through a medium (like air, cables, walls). It's caused by factors like absorption, distance, and obstacles.

QUESTION 5
How is ASK modulation different from FSK modulation?

A. ASK varies the amplitude of the signal while FSK shifts its frequency
B. FSK is more sensitive to noise than ASK
C. ASK does not work at high frequencies
D. ASK can carry more data than FSK

Answer: A
Explanation:
Key Modulation Differences:
ASK (Amplitude Shift Keying): Digital data is represented by changes in the amplitude (strength) of a carrier wave.
FSK (Frequency Shift Keying): Digital data is represented by changes in the frequency of a carrier wave.

QUESTION 6
What does the number in the various Quadrature Amplitude Modulation levels, such as 16 in QAM- 16 and 64 in QAM-64, indicate? (Choose the single best answer.)

A. The speed of data transfer, which is four times the number in the QAM level
B. The channel width, which is stipulated in MHz
C. The number of target points in the QAM constellation, which are equivalent to amplitude and phase combinations
D. The number of spatial streams, which is 1/4 the number in the QAM level

Answer: C
Explanation:
QAM Constellations: QAM (Quadrature Amplitude Modulation) uses a constellation diagram where points represent unique combinations of amplitude and phase.
Bits per Symbol: The number in QAM-XX indicates the number of points:
QAM-16: 16 points = 2^4 = 4 bits per symbol
QAM-64: 64 points = 2^6 = 6 bits per symbol
Higher Data Rates: More points in the constellation enable transmitting more bits per symbol, leading to higher data rates at the same bandwidth.

QUESTION 7
What modulation is used by LoRa?

A. OFDMA
B. CSS
C. ASK
D. OFDM

Answer: B
Explanation:
LoRa Modulation: LoRa (Long Range) is a proprietary wireless technology that utilizes Chirp Spread Spectrum (CSS) modulation.
CSS Characteristics:
Spread spectrum technique for resilience against interference.
Chirps (frequency sweeps) enable operation below the noise floor for long range.

QUESTION 8
What primary component is required to implement a wireless transceiver in a device?

A. GPIO pins
B. SRAM
C. Flash memory
D. Radio

Answer: D
Explanation:
Wireless Transceiver: A transceiver is a combination of a transmitter and receiver used for wireless communication.
Radio: The radio is the primary component responsible for:
Modulation: Encoding data onto a carrier wave.
Demodulation: Extracting data from a received signal.
Transmission/Reception: Handling the actual sending and receiving of modulated signals over the air.

QUESTION 9
How does OFDMA differ from OFDM?

A. Subcarriers of OFDMA can contain data destined for a different receiver
B. OFDMA offers greater range by using multiple channels at once
C. OFDMA allows multiple devices to transmit simultaneously on the same frequency
D. OFDMA uses multiple radios to achieve higher throughput

Answer: C
Explanation:
OFDM vs. OFDMA:
OFDM (Orthogonal Frequency-Division Multiplexing): Divides a channel into multiple subcarriers for data transmission.
OFDMA (Orthogonal Frequency-Division Multiple Access): Extends OFDM by allowing multiple users to share subcarriers simultaneously, improving efficiency and spectral utilization.

QUESTION 10
What metric is used to express a relative increase or decrease in signal strength?

A. W

B. dBm
C. dB
D. mW

Answer: C
Explanation:
Decibel (dB): A logarithmic unit expressing ratios of power or signal strength. It's used in RF contexts due to the wide range of signal levels encountered.
Examples:
dBm: Decibels relative to one milliwatt (power measurement).
dBi: Decibels relative to an isotropic antenna (antenna gain).

QUESTION 11
As an RF signal propagates it becomes weaker at any given measurement point as it gets farther away from the transmitter. What concept is described?

A. RF latency
B. Free Space Path Loss
C. Beamwidth
D. Diffraction

Answer: B
Explanation:
Free Space Path Loss (FSPL): Describes how a radio signal weakens as it travels through open space, even without obstacles. It's caused by the signal spreading out, resulting in decreased power density at the receiver.
Calculation: FSPL depends on distance and frequency.

QUESTION 12
You are implementing a smart office wireless solution for a small business. The business owner indicates that It is acceptable to use consumer-targeted wireless devices. What is a common negative attribute of consumer-targeted smart home or smart office devices?

A. They rarely support features required for small business deployment
B. They often operate only in the 2.4 GHz frequency band used by 802.11 devices
C. They typically only support FHSS modulation schemes
D. They usually stop working after twelve months

Answer: B
Explanation:
Consumer Smart Devices Limitation: Many consumer-oriented smart devices are designed for simplicity and cost-effectiveness, leading to reliance on the crowded 2.4 GHz band.
Consequences:
High Interference: Increased potential for interference from Wi-Fi and other 2.4 GHz devices.
Limited scalability: Performance and reliability may degrade in busy wireless environments.

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