1. Which of the following parameters quantifies the power radiated by an antenna in all directions with respect to a hypothetical isotropic antenna?

a) Antenna gain
b) Equivalent isotropic radiated power (EIRP)
c) Carrier-to-noise ratio (C/N)
d) Intermodulation noise

Answer: b) Equivalent isotropic radiated power (EIRP)
Explanation: EIRP measures the power radiated by an antenna in all directions, taking into account antenna gain.

2. In a satellite communication link, transmission losses mainly occur due to:

a) Atmospheric disturbances
b) Intermodulation noise
c) Absorption by the Earth’s atmosphere
d) Signal attenuation

Answer: d) Signal attenuation
Explanation: Transmission losses primarily result from signal attenuation, which occurs due to various factors such as distance and atmospheric absorption.

3. The link power budget equation is primarily used to:

a) Calculate the equivalent isotropic radiated power (EIRP)
b) Determine the system noise temperature
c) Estimate the available power margin in a communication link

d) Assess the effects of rain on the link

Answer: c) Estimate the available power margin in a communication link
Explanation: The link power budget equation helps in estimating the available power margin by considering various parameters such as transmitted power, antenna gains, and losses.

4. System noise in a communication system arises from:

a) Atmospheric disturbances
b) Thermal noise
c) Interference from other communication systems
d) Intermodulation noise

Answer: b) Thermal noise
Explanation: System noise mainly originates from thermal noise, which is generated by the random motion of electrons in electronic components.

5. Carrier-to-noise ratio (C/N) is a measure of:

a) Signal strength compared to noise
b) Interference between satellite circuits
c) Transmission losses
d) Atmospheric disturbances

Answer: a) Signal strength compared to noise
Explanation: C/N ratio indicates the strength of the signal compared to the background noise in a communication system.

6. The uplink in satellite communication refers to:

a) Transmission from satellite to ground station
b) Transmission from ground station to satellite
c) Communication between two satellites
d) Interference between different satellite signals

Answer: b) Transmission from ground station to satellite
Explanation: The uplink involves transmitting signals from ground stations to satellites.

7. The downlink in satellite communication refers to:

a) Transmission from satellite to ground station
b) Transmission from ground station to satellite
c) Communication between two satellites
d) Interference between different satellite signals

Answer: a) Transmission from satellite to ground station
Explanation: The downlink involves transmitting signals from satellites to ground stations.

8. Rain attenuation affects satellite communication links primarily by:

a) Increasing signal strength
b) Decreasing signal strength
c) Introducing intermodulation noise
d) Improving carrier-to-noise ratio

Answer: b) Decreasing signal strength

Explanation: Rain attenuation reduces the strength of the signal in satellite communication links due to absorption and scattering of electromagnetic waves by raindrops.

9. The combined uplink and downlink carrier-to-noise ratio (C/N) is crucial for assessing:

a) Interference between satellite circuits
b) Signal attenuation
c) Overall link performance
d) Atmospheric disturbances

Answer: c) Overall link performance
Explanation: Combined uplink and downlink C/N ratio is essential for evaluating the overall performance of the communication link, considering both transmission directions.

10. Interference between satellite circuits mainly occurs due to:

a) Atmospheric disturbances
b) Intermodulation noise
c) Cross-talk between satellite signals
d) Absorption by the Earth’s atmosphere

Answer: c) Cross-talk between satellite signals
Explanation: Interference between satellite circuits often arises from cross-talk, where signals intended for one satellite interfere with signals intended for another.