1. What is frequency management primarily concerned with?

a) Allocating frequencies for mobile devices
b) Maximizing the utilization of available frequency spectrum
c) Minimizing the number of channels in a network
d) Restricting access to certain frequency bands

Answer: b) Maximizing the utilization of available frequency spectrum

Explanation: Frequency management focuses on efficiently utilizing the limited frequency spectrum available for communication purposes.

2. Which type of channel assignment allows for predetermined channel allocation?

a) Fixed channel assignment
b) Dynamic channel assignment
c) Hybrid channel assignment
d) Random channel assignment

Answer: a) Fixed channel assignment

Explanation: In fixed channel assignment, specific channels are allocated to cells or users based on predetermined criteria, such as proximity or frequency availability.

3. Which algorithm dynamically adjusts channel assignments based on traffic patterns?

a) Least Loaded Cell (LLC)
b) First Come First Serve (FCFS)

c) Round Robin (RR)
d) Dynamic Channel Allocation (DCA)

Answer: d) Dynamic Channel Allocation (DCA)

Explanation: DCA dynamically adjusts channel assignments based on real-time traffic demands to optimize spectrum utilization.

4. How does non-fixed channel assignment differ from fixed channel assignment?

a) Non-fixed assignment allows for more flexibility in channel allocation
b) Non-fixed assignment requires manual intervention for every channel change
c) Non-fixed assignment is more susceptible to interference
d) Non-fixed assignment is not suitable for mobile communication

Answer: a) Non-fixed assignment allows for more flexibility in channel allocation

Explanation: Unlike fixed channel assignment, non-fixed assignment dynamically allocates channels based on changing traffic conditions, offering greater flexibility.

5. Which factor influences the perception of call blocking by subscribers?

a) Signal strength
b) Channel bandwidth
c) Frequency modulation
d) Channel assignment algorithm

Answer: a) Signal strength

Explanation: Call blocking perception is influenced by factors like signal strength, which affects call quality and connectivity.

6. What is the primary value of implementing handoffs in a cellular network?

a) Minimizing dropped calls
b) Reducing channel interference
c) Maximizing battery life
d) Optimizing frequency allocation

Answer: a) Minimizing dropped calls

Explanation: Handoffs ensure seamless transition between cells, minimizing dropped calls as users move through the network.

7. Which type of handoff is initiated when a mobile device detects a stronger signal from a neighboring cell?

a) Forced handoff
b) Queuing handoff
c) Power-difference handoff
d) Mobile-assisted handoff

Answer: c) Power-difference handoff

Explanation: Power-difference handoff occurs when a mobile device detects a stronger signal from another cell, prompting a handoff to maintain connectivity.

8. What is the purpose of a soft handoff in cellular networks?

a) To reduce power consumption
b) To minimize interference
c) To enhance call quality
d) To facilitate seamless handover

Answer: d) To facilitate seamless handover

Explanation: Soft handoff allows a mobile device to simultaneously connect to multiple cells, ensuring seamless handover without call interruption.

9. Which type of handoff involves transferring a call between cells using different base stations?

a) Cell-site handoff
b) Intersystem handoff
c) Queuing handoff
d) Power-difference handoff

Answer: a) Cell-site handoff

Explanation: Cell-site handoff involves transferring a call between cells served by different base stations within the same network.

10. What is the formula for calculating dropped call rate?

a) Dropped calls / Total calls attempted

b) Dropped calls / Successful calls
c) Dropped calls / Total cells in the network
d) Dropped calls / Total handoffs

Answer: a) Dropped calls / Total calls attempted

Explanation: Dropped call rate is calculated by dividing the number of dropped calls by the total number of call attempts.

11. In a cellular network, what does the term “handoff delay” refer to?

a) The time taken for a handoff to complete
b) The interval between successive handoffs
c) The delay in signal transmission during a handoff
d) The time spent in queuing for a handoff

Answer: a) The time taken for a handoff to complete

Explanation: Handoff delay measures the time it takes for a mobile device to complete the transition from one cell to another within the network.

12. Which handoff type relies on the assistance of the mobile device for determining the timing of handovers?

a) Queuing handoff
b) Mobile-assisted handoff
c) Power-difference handoff
d) Soft handoff

Answer: b) Mobile-assisted handoff

Explanation: In mobile-assisted handoff, the mobile device provides assistance in determining the optimal timing for handovers based on signal strength and other parameters.

13. How does intersystem handoff differ from intra-system handoff?

a) Intra-system handoff occurs within the same cellular network, while intersystem handoff occurs between different networks
b) Intra-system handoff is manual, while intersystem handoff is automated
c) Intra-system handoff is faster than intersystem handoff
d) Intra-system handoff involves soft handovers, while intersystem handoff involves hard handovers

Answer: a) Intra-system handoff occurs within the same cellular network, while intersystem handoff occurs between different networks

Explanation: Intra-system handoff involves transitioning between cells within the same network, while intersystem handoff involves transitioning between cells belonging to different networks.

14. Which factor is crucial for minimizing dropped calls in a cellular network?

a) Channel bandwidth
b) Handoff delay
c) Signal-to-noise ratio
d) Base station capacity

Answer: b) Handoff delay

Explanation: Minimizing handoff delay is crucial for ensuring seamless transitions between cells and minimizing dropped calls in a cellular network.

15. What is the primary goal of power-difference handoff in a cellular network?

a) To conserve battery power in mobile devices
b) To optimize signal strength for call quality
c) To reduce interference between neighboring cells
d) To minimize handoff delay

Answer: b) To optimize signal strength for call quality

Explanation: Power-difference handoff aims to maintain optimal signal strength by transitioning a mobile device to a cell with a stronger signal, thereby improving call quality.

16. Which channel assignment method dynamically reallocates channels based on real-time traffic conditions?

a) Fixed channel assignment
b) Hybrid channel assignment
c) Dynamic channel allocation
d) Non-fixed channel assignment

Answer: c) Dynamic channel allocation

Explanation: Dynamic channel allocation adjusts channel assignments in real-time to

optimize spectrum utilization based on fluctuating traffic demands.

17. What is the purpose of queuing handoff in a cellular network?

a) To prioritize handoff requests based on signal strength
b) To minimize handoff delay during peak traffic periods
c) To prevent unnecessary handoffs between adjacent cells
d) To facilitate handovers between cells using different frequencies

Answer: b) To minimize handoff delay during peak traffic periods

Explanation: Queuing handoff allows for the orderly processing of handoff requests, minimizing delays during peak traffic periods and ensuring seamless transitions between cells.

18. How does soft handoff contribute to call reliability in a cellular network?

a) By reducing the likelihood of dropped calls
b) By increasing the coverage area of individual cells
c) By minimizing interference from neighboring cells
d) By optimizing the allocation of frequency channels

Answer: a) By reducing the likelihood of dropped calls

Explanation: Soft handoff enables seamless transitions between cells, reducing the likelihood of dropped calls and enhancing call reliability in a cellular network.

19. Which factor influences the effectiveness of a fixed channel assignment strategy?

a) Mobility patterns of users
b) Signal propagation characteristics
c) Number of available channels
d) Frequency modulation techniques

Answer: c) Number of available channels

Explanation: The effectiveness of fixed channel assignment depends on the number of available channels and how they are allocated to cells or users within the network.

20. What is the primary advantage of non-fixed channel assignment over fixed channel assignment in cellular networks?

a) Greater flexibility in adapting to changing traffic conditions
b) Lower probability of interference between neighboring cells
c) Reduced complexity in channel allocation algorithms
d) Improved call quality and signal reliability

Answer: a) Greater flexibility in adapting to changing traffic conditions

Explanation: Non-fixed channel assignment offers greater flexibility by dynamically allocating channels based on changing traffic conditions, optimizing spectrum utilization and network performance.