

Q7. Describe the power saving scheme in MAC layer and explore on the types of Power saving mechanisms

Basic Mechanism:

- Client informs AP it's in Power Save mode.
- AP buffers frames for the client.
- Client wakes up during beacon interval to check for buffered data.

Types:

- Legacy Power Save Mode
- U-APSD (Unscheduled Auto Power Save Delivery): Trigger-based delivery, used in QoS stations (VoIP, etc.)
- TWT (Target Wake Time in 802.11ax): Clients negotiate specific wake/sleep times for efficiency.

Q8. Describe the Medium Access Control methodologies

CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance):

Listen before talk.

Use RTS/CTS to reduce collisions.

DCF (Distributed Coordination Function):

Basic CSMA/CA with backoff timers.

PCF (Point Coordination Function):

AP polls clients for contention-free communication.

EDCA (Enhanced DCF Channel Access):

Used in QoS for different traffic categories.

TXOP (Transmission Opportunity):

Grants burst of channel access.