

## **Q5. Difference between Bridge mode and Repeater mode**

Bridge Mode:

- Connects two separate networks (wired or wireless).
- Devices on different networks can communicate with each other.
- Usually operates on Data Link Layer.
- used for interconnecting offices or buildings.
- Requires two routers or APs in bridge mode.
- No bandwidth loss as it doesn't rebroadcast signals.

Repeater Mode:

- Extends the coverage of an existing Wi-Fi network.
- Simply rebroadcasts the received signal to reach dead zones.
- Works wirelessly, no extra cables needed, devices connect to the same network.
- Can cause bandwidth loss due to signal retransmission.
- Best for home or office Wi-Fi range extension.

## **Q6. what are the differences between 802.11a and 802.11b.**

802.11a:

- Frequency Band: 5 GHz
- Speed: Up to 54 Mbps
- Range: Shorter due to higher frequency (~25-30 meters indoors)
- Interference: Less, as 5 GHz has fewer overlapping signals
- Adoption: Mostly used in enterprise environments
- Cost: More expensive than 802.11b

802.11b:

- Frequency Band: 2.4 GHz
- Speed: Up to 11 Mbps
- Range: Longer (~35-40 meters indoors)

- Interference: More, due to congestion from Bluetooth, microwaves, and other devices
- Adoption: Popular for home networks in early Wi-Fi days
- Cost: Cheaper than 802.11a

#### Overall

802.11a is faster but has a shorter range.

802.11b is slower but has better coverage and more interference.