**4. Explain the significance of the 6 GHz frequency band in Wi-Fi 6E.**

* **Wi-Fi 6E** extends Wi-Fi 6 into the **6 GHz frequency band**.
* **Adds up to 1200 MHz** of new, unused spectrum (depending on country rules).
* Provides **more channels**: 14 extra 80 MHz channels, 7 extra 160 MHz channels.
* **Less congestion**: 6 GHz is clean and free from interference by older Wi-Fi and Bluetooth devices.
* **Higher speeds**: Wider channels (like 160 MHz) allow more data to be transmitted quickly.
* **Lower latency**: Faster response times for applications like VR, gaming, video calls, etc.
* **Better performance**: Ideal for high-bandwidth needs like 8K streaming, AR/VR, cloud computing.
* Only newer devices (Wi-Fi 6E certified) can use 6 GHz it keeps the band cleaner and faster.
* Improves efficiency in dense environments (stadiums, offices, smart homes).