QUESTION : DIFFERENCE BETWEEN IEEE AND WFA

IEEE (INSTITUE OF ELECTRICAL AND ELECTRONICS ENGINEERING)

1. A **global standards body** that works on various engineering disciplines, including Wi-Fi.
2. Develops and maintains the **IEEE 802.11 Wi-Fi standards**.
3. **Defining technical specifications** for wireless and wired networks.
4. **Standardization body** that defines the **protocols and features** of Wi-Fi , Ethernet etc.
5. Creates and updates the **802.11 Wi-Fi , 802.3 Ethernet protocols etc**.
6. Example Standards : 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac, 802.11ax, etc.
7. IEEE **working groups** (like 802.11 WG develop Wi-Fi specifications).
8. **IEEE defines the Wi-Fi protocol, including modulation techniques (OFDM, OFDMA), security (WPA3), and MAC layer operations**.
9. Devices can implement IEEE standards without WFA certification
10. Any device can support newer protocols without the approval from IEEE.
11. IEEE focuses on technical accuracy.
12. Defines Wi-Fi security standards (e.g., **802.11i**, which led to WPA, WPA2).
13. Specifies technical details of encryption (AES, TKIP) and authentication.

WFA (WiFi – Alliance):

1. **Consortium of companies** (Cisco, Intel, Broadcom, Qualcomm, etc) focused on promoting Wi-Fi.
2. Certifies devices for **Wi-Fi interoperability and compliance** with IEEE 802.11 standards.
3. **Certification body** that ensures devices work together properly and meet performance standards.
4. Ensures **802.11-compliant devices** work seamlessly together.
5. Wi-Fi 4 (802.11n), Wi-Fi 5 (802.11ac), Wi-Fi 6 (802.11ax), Wi-Fi 6E.
6. **WFA ensures vendors implement these features correctly and can interoperate**.
7. Provides **Wi-Fi CERTIFIED** branding for devices.
8. Develops and enforces security certifications (e.g., **WPA3 certification**).
9. Ensures devices implement **secure authentication mechanisms** (WPA2-Personal, WPA3-Enterprise).
10. Defines Wifi-Direct for wifi devices to directly connect to each other in decentralized manner.