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Wi-Fi Training Program 2025

Module 6

Question 3:

Explain the differences between WEP, WPA, WPA2, and WPA3.

Solution:

| Feature | WEP (Wired Equivalent Privacy) | WPA (Wi-Fi Protected Access) | WPA2 (Wi-Fi Protected Access II) | WPA3 (Wi-Fi Protected Access III) |
|-----------------------------|---------------------------------------|--|---|---|
| Introduced | 1997 | 2003 | 2004 | 2018 |
| Encryption Algorithm | RC4 (weak) | TKIP (better than RC4, but still weak) | AES (strong encryption) | AES-GCMP-256 (very strong) |
| Security Level | Very Low (easily hacked) | Moderate (temporary fix to WEP) | High (industry standard) | Very High (modern standard) |
| Authentication | Shared key (static, weak) | PSK (Pre-Shared Key) or Enterprise | PSK or Enterprise | SAE (Simultaneous Authentication of Equals) for personal, stronger Enterprise |
| Vulnerabilities | Very insecure, cracked in minutes | Vulnerable to TKIP attacks | Secure if strong password is used | Much improved; resistant to brute-force attacks |
| Usage Today | Obsolete, not recommended | Obsolete, not recommended | Widely used | Becoming standard (new devices) |

| Feature | WEP (Wired Equivalent Privacy) | WPA (Wi-Fi Protected Access) | WPA2 (Wi-Fi Protected Access II) | WPA3 (Wi-Fi Protected Access III) |
|---------------------|--------------------------------|-------------------------------|----------------------------------|---|
| Additional Features | None | Message Integrity Check (MIC) | Robust Security Network (RSN) | Forward Secrecy, Better IoT device security, Easy Connect |
| Performance | Poor | Moderate | Excellent | Excellent |