

10/12/2024 IT SEM-VI C SCHEME WT QP CODE: 10068327

(Time: 3 Hours)

(Total Marks: 80)

- N.B. 1. Question **No. 1 compulsory**.
 2. Attempt **any three** out of **remaining five** questions.
 3. Figures to the right indicate full marks.
 4. Draw neat diagram wherever necessary.

- Q1 Attempt any **Four** of the following:
- How does OFDMA handle synchronization and interference between users? 5
 - List and explain the core components of the UMTS network? 5
 - Explain difference between Adhoc network and infrastructure based network 5
 - What role does VANET play in intelligent transportation systems (ITS)? 5
 - Explain the function of a Subscriber Identity Module (SIM) in GSM. 5
- Q2 Attempt the following:
- What is Frequency Hopping Spread Spectrum (FHSS), and how does it improve communication security? 10
 - Explain how LoRaWAN enables long-range, low-power communication by using spread spectrum techniques (Chirp Spread Spectrum). 10
- Q3 Attempt the following:
- Explain the architecture and working of 4G. 10
 - How does Wi-Fi handle multiple users and avoid collisions in the network? 10
- Q 4 Attempt the following:
- Explain the architecture and Features of a WiMAX network. 10
 - Explain the pairing and security mechanisms used in Bluetooth communication. 10
- Q5 Attempt the following:
- What is mesh networking in ZigBee, and how does it enhance the network's reliability? 10
 - What are the primary security mechanisms employed in GSM to protect user data and privacy? 10
- Q6 Write short note on
- Discuss the flaws in WEP's initialization vector (IV) implementation and how it leads to key reuse and susceptibility to attacks. 10
 - How does Cisco implement security in its Unified Wireless Network? 10