UNIT-1 ASSIGNMENT

Last Date of submission: 17 march 2025

Note: Submit Assignment in A4 page only. submit it on time.

1. Define **mobile computing** and explain its key characteristics. Discuss at least **five major issues** in mobile computing, such as security, bandwidth limitations, and battery life.
2. What is **frequency reuse**, and how does it help in cellular network design? Explain the importance of **handoffs** in cellular networks and describe different types of handoffs.
3. Explain the **GSM air interface** and how it facilitates communication between mobile devices and base stations. What is the role of the **HLR (Home Location Register) and VLR (Visitor Location Register)** in GSM location management?
4. Discuss the different types of **channel allocation techniques** in cellular systems, such as **Fixed Channel Allocation (FCA)** and **Dynamic Channel Allocation (DCA)**. Compare **hard handoff** and **soft handoff** with examples.
5. Explain the **basic working principle** of CDMA and its **spread spectrum technology**. How does **power control** in CDMA help reduce interference and improve call quality?
6. What are the key features of **GPRS architecture**, and how does it enable packet-switched communication? Explain the differences between **GPRS and traditional circuit-switched GSM data services**.
7. Compare GSM, CDMA, and GPRS in terms of **technology, data transfer, and applications**.

UNIT-2 ASSIGNMENT

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1. Explain the **Medium Access Control (MAC) issues** in wireless LANs and how they affect network performance. Discuss the **IEEE 802.11 standard** and its different variants (802.11a/b/g/n/ac/ax).
2. Explain the **Bluetooth technology** and its role in short-range wireless communication. What are **wireless multiple access protocols**, and how do they help in managing shared wireless channels?
3. Explain the challenges of **TCP (Transmission Control Protocol) over wireless networks**. Discuss at least two **solutions or enhancements** to improve TCP performance over wireless links.
4. Discuss the importance of **multicasting and broadcasting** in mobile and wireless environments. What is **data broadcasting**, and how is it used in wireless networks?
5. Discuss the concept of **triangular routing** in Mobile IP and its impact on network efficiency. What is the role of **Home Agents (HA)** and **Foreign Agents (FA)** in Mobile IP?
6. Explain the **WAP architecture** and its importance in mobile communication. Describe the **WAP protocol stack** and compare it with the traditional internet protocol stack.
7. Compare **Wi-Fi, Bluetooth, and Mobile IP** in terms of technology, use cases, and performance.
8. Discuss at least three **real-world applications of WAP** in mobile devices. What is the **WAP application environment**, and how does it enable mobile internet services?
9. Define **Mobile IP** and explain its working mechanism. List and explain at least three **real-world applications** of wireless communication.
10. How does **packet loss in wireless networks** impact TCP performance?