B.E / B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2011

DEPARTMENT OF INFORMATION TECHNOLOGY

SEVENTH SEMESTER

CS 471 – MOBILE COMPUTING

(REGULATIONS 2004)

Time: 3 hr **Max Mark: 100**

Answer ALL Questions

Part – A (10 X 2 =20 Marks)

1. Is it possible to transmit a digital signal, e.g., coded as square wave as used inside a computer, using radio transmission without any loss? Why?

2. Is a directional antenna useful for mobile phones? Why?

3. How are guard spaces realized between users in CDMA?

4. Why and when are different signaling channels needed?

5. What is Roaming?

6. Distinguish between collisions on PHY and MAC layer.

7. What advantages does the use of IPv6 offer for mobility?

8. Why are special protocols for the support of micro mobility on the network layer needed?

9. Compare the different types of transmission errors that can occur in wireless and wired networks.

10. Why is strong consistency of file systems problematic in a wireless and mobile environment?

PART – B (5 X 16 = 80)

11. a) How does the near/far effect influence TDMA system? (4)
    b) How are guard spaces realized between users in CDMA? (4)
    c) What is a hidden/exposed terminals problem? How MACA solve it? (8)

12. a) With neat sketch of GSM architecture, discuss the key features of GSM systems.

OR

b) Give reasons for a handover in GSM and the problems associated with it. Discuss what the typical steps for handover are and what types of handover can occur?

13. a) Compare IEEE 802.11, HIPERLAN2 and Bluetooth with regard to their ad-hoc capabilities. (8)
b) Discuss Power management in infrastructure based networks. (8)

OR

b) What are the different transport channels defined by HIPERLAN2? Discuss elaborately.

14. a) Explain how tunneling works in general and especially for mobile IP using IP-in-IP, minimal, and generic routing encapsulation, respectively. Discuss the advantages and disadvantages of these three methods.

OR

b) i) Name the main differences between multi-hop ad hoc networks and other networks. What advantages do these ad hoc networks offer? (8)
ii) Why is routing in multi-hop ad hoc networks complicated, what are the special challenges? (8)

15. a) How and why does I-TCP isolate problems on the wireless link? What are the main drawbacks of this solution?

OR

b) i) Sketch neatly WAP Architecture diagram. (4)
ii) Why does WAP define its own security layer and does not rely on the security provided by the mobile phone network? What problems does the WAP security layer cause? Think of end-to-end security. (12)