B.E.(FULL-TIME) DEGREE END SEMESTER EXAMINATIONS, APRIL/ MAY 2011
ELECTRONICS AND COMMUNICATION ENGINEERING BRANCH
EIGHTH SEMESTER
EC 527 – WIRELESS NETWORKS
(REGULATION 2004)

Time: 3 Hours   Max.marks: 100
Answer ALL Questions

PART-A (10x2=20 Marks)

1. What is Hidden terminal problem? Suggest a technique to overcome this problem.
2. What is the difference between performance evaluations of voice oriented fixed assignment and data oriented random access methods?
3. A cellular service provider decides to use a digital TDMA scheme which can tolerate a SIR of 15 dB in the worst case. Find the optimal value of N for 120^0 sectoring.
4. What are the most popular frequency reuse factors for AMPS, GSM and IS-95?
5. How does GSM convert 260 (20 ms) bits of the speech packet into 456 bits of speech packet?
6. What is CDPD?
7. Compare DSSS and FHSS used by the IEEE 802.11.
8. What are the differences between the 802.11 and HIPERLAN-2?
9. How many different voice services does Bluetooth support and how they are differentiated from one another?
10. Why are AOA techniques not popular in indoor geolocation application?

PART-B (5x16=80 Marks)

11. (i) Explain the following wireless random multiple access techniques:
    (I). Dynamic slotted ALOHA (II). Packet reservation multiple access (PRMA)
    (III). CSMA/CA   (10)
    (ii) Compare the features of FDMA, TDMA and CDMA.   (6)

12. (a) Explain the architectural issues in handoff, handoff decision time algorithms and generic handoff management process.
                              OR
12. (b) Explain the following Architectural methods for capacity expansion:
    (i) Cell splitting   (ii) Cell Sectoring   (iii) Lee's Micro cell method
    (iv) Overlaid cell concept.

13. (a) (i) With neat diagram, explain the GPRS reference architecture.   (8)
        (ii) Describe the CDMA forward channels and their processing of IS 95. (8)

                              OR

13. (b) With the help of neat block diagram, explain the protocol architecture of GSM.

14. (a) Describe the responsibilities of MAC and MAC management sub layer of the IEEE 802.11.

OR

14. (b) (i) Explain the channel access cycle in the HIPERLAN-1. (8)

(ii) With neat frame format diagram, explain the various PLCP of the IEEE 802.11. (8)

15. (a) (i) Explain the various frame formats of Bluetooth. (12)

(ii) Name the four states that a Bluetooth terminal can take and explain the difference among these states. (4)

OR

15. (b) (i) With neat diagram, explain the wireless Geolocation System Architecture. (8)

(ii) Explain any two technologies for wireless geolocation. (8)