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Question Paper Code : 51203

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Eighth / Sixth Semester

Electronics and Communication Engineering

EC 1016 — WIRELESS NETWORKS

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write a short note on UWB pulse transmission.

2. List the smart receiving techniques.

3. Discriminate the mobile –controlled and mobile assisted handoff.

4. How do message authentication mechanism works with hash functions?

5. Write the frame hierarchy in GSM.

6. How many physical channels are available in each IS-95 carrier? What type of coding separates these channels from one another?

7. Write a short note on provisions for the privacy in IEEE 802.11.

8. Identify the major challenges in implementing WATM that does not exists for data oriented Ethernets.

9. Write the significance of RFCOMM protocol.

10. Summarize the hopping sequencing mechanism in Bluetooth.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Analyze the applied wireless transmission techniques. (6)

(ii) Explain Frequency Hopping Spread Spectrum and Direct Sequence Spread Spectrum with suitable examples. (10)

Or

(b) (i) Explain the time diversity techniques of DSSS and RAKE receiver. (8)

(ii) Explain the random access for data oriented networks. (8)

12. (a) (i) Analyze architectural methods for capacity expansion. (8)

(ii) Explain Mobile IP. (8)

Or

(b) (i) How can smart antennas improve the capacity of a cellular network? (8)

(ii) Analyze important issues involved in the handoff mechanism. (8)

13. (a) (i) Explain the functioning mechanism of Layer III in GSM communications. (8)

(ii) Explain the registration mechanism to support a mobile environment. (8)

Or

(b) (i) Summarize your understanding on packet and frame formats in IS-95. (8)

(ii) Sketch all four of the 4-bit Walsh codes. Then Sketch the autocorrelation function of all codes. (8)

14. (a) (i) Explain the reference model and protocol entitles of Wireless ATM network. (8)

(ii) Perform a detailed comparison on 802.11 and HIPERLAN-2. (8)

Or

(b) (i) Explain MAC layer responsibilities in IEEE 802.11 WLANs. (8)

(ii) What is the symbol transmission rate in the IEEE 802.11b? How many complex QPSK symbols are used in one coded symbol? How many bits are mapped into one transmitted symbol? What is the redundancy of the coded symbols? (8)

15. (a) (i) Explain the interference between Bluetooth and IEEE 802.11. (8)

(ii) Give the complete stack protocol for the implementation of file transfer application over Bluetooth. (8)

Or

(b) (i) Explain the technologies for wireless geo-location. (6)

(ii) Two base stations located at (500,150) and (200. 200) are measuring the angle of arrival of signal from a mobile terminal with regard to X-axis. The first base station measures this angle as 45 degrees and the second as 75 degrees. What are the coordinates of the terminal? What happens if the first base station incorrectly measures the AOA from the mobile terminal as 50 degrees? 30 degrees? (10)
