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Question Paper Code : Q 2182

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009

Eighth Semester

Electronics and Communication Engineering

EC 1013 — WIRELESS NETWORKS

(Common to B.E. (Part Time) Seventh Semester Regulation 2005)

(Regulation 2004)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. The CDPD system uses GMSK to provide a data rate of 19.2 Kbps over a 30 KHz channel find the Bandwidth efficiency of the system.

2. What type of access technologies are used for the following systems?

   (a) AMPS (b) GSM (c) IMT 2000 (d) EDGE.

3. Find the number of simultaneous users for a cellular topology if W is the total available spectrum, B is the bandwidth needed per user, N is the frequency reuse factor and m is the number of cells required to cover an area.

4. Explain 'Cell Breathing' in CDMA networks.

5. What are VLR and HLR, where they are physically located, and why we need them?

6. Distinguish soft handoff and hard handoff.

7. Draw the typical frame format of Wireless ATM.

8. What are differences between the 802.11a and HIPERLAN-2?

9. Define the grade of service and coverage capacity with respect to Geolocation systems.

10. What is Bluetooth? Give its data rate.

PART B — (5 × 16 = 80 marks)

11. (a) Define the time diversity, frequency diversity and space diversity. Explain how diversity is used in rake receiver.

Or

(b) Explain how to integrate Voice in Data oriented Network. Also explain a method to cope with voice packet jitter.

12. (a) (i) With necessary diagrams explain the mobility management process. (8)

(ii) Discuss on the power control mechanisms of wireless networks. (8)

Or

(b) Explain how cell splitting and lee's micro cell zone concept improves the capacity of a cellular system.

13. (a) Draw the GSM protocol architecture and explain the call establishment in GSM using the logical channels.

Or

(b) Explain the forward and reverse channels of WCDMA.

14. (a) (i) What is PIF,DIF and SIF time intervals and how they are used in IEEE 802.11? (8)

(ii) Explain the difference between the carrier sensing in 802.11 and 802.3. (8)

Or

(b) With the required diagram explain the HYPERLAN-1 architecture and MAC layer.

15. (a) (i) Explain the four states that a Bluetooth terminal can take. (8)

(ii) What is the difference between the MAC protocol used by Bluetooth and IEEE 802.11? (8)

Or

(b) Explain the different technologies in Wireless geolocation.