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Question Paper Code : 86562

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Sixth/Eighth Semester

Electronics and Communication Engineering

EC 1016 — WIRELESS NETWORKS

(Regulations 2008)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Name the factors to be considered in the design of wireless Modems.

2. What is the difference between the received signal strength of two terminals located in 10m, and 1Km from a base station in an open area?

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

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

5. State the important features of CDMA-2000.

6. Give the frame format of IS-95.

7. Why is the physical layer in IEEE 802.11 subdivided? What about HIPERLAN?

8. Mention handover problems in WATM (Wireless ATM).

9. What are the enhancements that need to be done in Bluetooth to implement Wireless Application Environment (WAE)?

10. When distance between two Bluetooth devices is 2m, P_{BT} = 1mW, S_{min} = 10dB and P_{MT} = 100mW, compute the interference range between them.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the issues and challenges in the design of wireless Modem? Explain.   (8)

        (ii) Compare and context short distance baseband transmission and UWB pulse transmission.   (8)

Or

(b)   (i)   Discuss in detail diversity and smart receiving techniques.   (8)

       (ii)   Explain the concept of broad modems for higher speeds.   (8)

12.   (a)   Derive the signal to interference ratio calculation performed in existing cellular architecture. Assume that you have six-sector cells in a hexagonal geometry. Draw the hexagonal grid corresponding to this case. Computer S_r for reuse factors of 7, 4, and 3. Comment on your results.

Or

(b)   Compare FCA and DCA frequency assignment technique? Discuss the requirements and overview of network security in wireless network.

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)   Discuss the technical issues related to Physical and MAC layer of WLAN addressed by IEEE 802.11 standard.

Or

(b)   Compare and contrast HiPERLAN with IEEE 802.11 WL.AN with relevant diagrams.

15.   (a)   Write short notes on the following:

       (i)   The Hopping sequence mechanism in Bluetooth.   (8)

       (ii)   Architecture of Geolocation system.   (8)

Or

(b)   (i)   Discuss the Geolocation standards for E-911 services.   (8)

       (ii)   Explain the significance of Home RF.   (8)

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