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Eighth Semester B.E. Degree Examination, June/July 2011

Wireless Communication

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions selecting
at least TWO questions from each part.**

PART – A

- 1
 - a. Describe with a block diagram the AMPs cellular system. Illustrate with a diagram the various signals that flow over the AMPs forward and reverse channels. (10 Marks)
 - b. With flow diagrams explain how a mobile – mobile call is established in AMPs system. (06 Marks)
 - c. List the characteristics of 3G mobile networks assuming cell size and mobile speed as reference. (04 Marks)
- 2
 - a. With a block diagram, explain the MSC subsystem. (07 Marks)
 - b. Describe the subscription profile of HLR and its usage in handoff. (06 Marks)
 - c. Define and explain |ME| used in international mobile networks. (07 Marks)
- 3
 - a. Define : i) Reuse number ; ii) Interferences in mobile systems. (05 Marks)
 - b. For a mobile service provider, license is provided for 5 MHz and provides 10 kHz of bandwidth to every user. Considering a single transmitter site, 500 users get connectivity simultaneously. If however service provider implements a cellular system with 35 transmitter sites and cluster size, determine the new system capacity. Also, if mobile system has a cluster size of 7, determine frequency reuse distance for a cell radius of 5 kms. (05 Marks)
 - c. With relevant figures, explain a typical cellular handoff operation. (10 Marks)
- 4
 - a. List the services provided by GSM. Explain briefly. (07 Marks)
 - b. Find the maximum number of subscribers who can get connectivity simultaneously in a GSM network. What are the features of SIM card in a GSM system? (06 Marks)
 - c. Describe the frame format used for GSM traffic. (07 Marks)

PART – B

- 5
 - a. Explain in detail the registration and call setup procedures in GSM. (10 Marks)
 - b. Describe GSM ciphering mode settling operations and |ME| check. (10 Marks)
- 6
 - a. With a block diagram, explain IS95 CD MA architecture. (08 Marks)
 - b. Compare the FDMA, TDMA and CDMA interfaces. (05 Marks)
 - c. Explain spreading procedure used on CDMA forward channels. (07 Marks)
- 7
 - a. Describe the path loss model used for analyzing wireless channels. What are the parameters affecting signal transmission on wireless channels? Find the received power at a distance of 1 km for a transmitting 900 MHz. Assume transmitting and receiving antenna gains as zero dB. (08 Marks)
 - b. Explain the concept of block inter learning. (05 Marks)
 - c. Differentiate between space and polarization diversity scheme. What are advantages of employing diversity? (07 Marks)
- 8
 - a. List the features of IEEE 802.11x technologies. (05 Marks)
 - b. Describe the Bluetooth protocol stack with relevant figures. (08 Marks)
 - c. Explain the two types of links defined by Bluetooth standards. (07 Marks)

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