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06EC81

Eighth Semester B.E. Degree Examination, June/July 2015
Wireless Communication

Time: 3 hrs.

Max. Marks 100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. Briefly explain different generation of cellular systems. (10 Marks)
 b. Explain AMPS handoff operation using various control messages with the help of message sequence chart. (10 Marks)
- 2 a. Explain the purpose of global title translation. (04 Marks)
 b. What are the functions of the mobile switching centre (MSC)? With a neat block diagram, explain the component of the MSC. (10 Marks)
 c. Explain the following terms: i) MSISDN ii) IMSI iii) CGI. (06 Marks)
- 3 a. Explain the following capacity expansion techniques: cell splitting, cell sectoring and overlaid cells. (10 Marks)
 b. If a total of 33 MHz of BW is allocated to a particular FDD cellular telephone system which uses 2 25kHz simplex channels to provide full duplex voice and control channels. Compute the number of channels available per cell of a system uses,
 i) 4 cell reuse ii) Seven cell re-use iii) 12 cell reuse. (06 Marks)
 c. Determine frequency re-use distance for cell radius of 2 kilometer and cluster size of 8. (04 Marks)
- 4 a. Discuss the frame format of GSM hyper frame, superframe, multi frame and TDMA frame. (10 Marks)
 b. Briefly explain GSM channel concept. (10 Marks)

PART – B

- 5 a. Explain the steps needed for setting up a call in GSM using MSRN, with a neat diagram. (10 Marks)
 b. Define MSRN, what is the purpose of mobile station roaming number? (06 Marks)
 c. Explain the TDMA concept. (04 Marks)
- 6 a. Explain with a neat block diagram, the generation of the CDMA paging channel signal. (08 Marks)
 b. Describe the CDMA soft handoff and its types. (08 Marks)
 c. How is the CDMA forward traffic channel power level controlled in a CDMA system? (04 Marks)

- 7 a. Describe the implementation of space diversity for a wireless system. What are the advantages of employing diversity? (10 Marks)
- b. Explain the concept of block interleaving. (05 Marks)
- c. If a transmitter produces 50W of power express the transmit power in units of i) dBm; ii) dBW. If 50W is applied to a unity gain antenna with a 900MHz carrier frequency, find the received power in dBm at a free space distance of 100M from the antenna. (05 Marks)
- 8 a. List three fundamental ways in which wireless LAN's and wireless PAN's differ from each other and explain them. (06 Marks)
- b. Contrast downlink and uplink operation for a wireless MAN. (06 Marks)
- c. Describe the Bluetooth protocol stack. (08 Marks)
