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**Eighth Semester B.E. Degree Examination, June/July 2014**  
**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. Explain with a neat flow diagram, land to mobile and mobile to mobile call establishment in an AMPS system. (06 Marks)
  - b. Write a brief note on AMPS forward and reverse control and voice channels. (04 Marks)
  - c. Explain AMPS hand off operation using various control messages, with the help of message sequence chart. (10 Marks)
  
- 2
  - a. With neat diagram, explain the wireless cellular network component. Briefly mention the role of NSS, BSS and administrative & control system. (07 Marks)
  - b. Explain briefly the following terms: i) MSISDN; ii) IMSI; iii) HLR; iv) IMEI; v) GTT. (10 Marks)
  - c. A cellular telephone subscriber signs up for service in spring field, MA, USA. The country code for USA is +1, the area code for Massachusetts is 413 and spring field is 732. Write the subscriber MSISDN. (03 Marks)
  
- 3
  - a. Explain the following capacity expansion techniques: i) Cell splitting; ii) Cell sectoring. (08 Marks)
  - b. A cellular scheme employed a cluster size of 7. Find the maximum number of cochannel interfering cells. Also calculate the frequency reuse distance for cell radius of 5km. (04 Marks)
  - c. A service provider wants to provide cellular communication to a particular geographic area. The total bandwidth the service provider licensed is 5MHz and system subscriber requires 10kHz of bandwidth. Determine the system capacity, if the service provider implements a cellular system with 35 transmitter sites and cluster size of 7. (08 Marks)
  
- 4
  - a. Discuss the frame format of GSM hyperframe, super frame, multiframe and TDMA frame. (10 Marks)
  - b. Explain GSM logical channel concept. (10 Marks)

**PART – B**

- 5
  - a. Explain in detail the registration and callsetup procedures in GSM. (10 Marks)
  - b. Explain GSM intra BSC handover with neat diagram. (10 Marks)
  
- 6
  - a. Compare FDMA, TDMA and CDMA interfaces. (02 Marks)
  - b. Explain basic spreading procedure used on CDMA forward channels. (08 Marks)
  - c. Describe the generation of CDMA reverse traffic channel with a neat diagram. (10 Marks)

- 7 a. Explain the spread spectrum modulation techniques FHSS and DSSS. (08 Marks)
  - b. Describe the operation of RAKE receiver with a neat diagram. (06 Marks)
  - c. What the received power in dBm for a signal in free space with a transmitting power of 1W, frequency of 1900 MHz and distance from the receiver of 1km if the transmitting antenna and receiving antennas both use dipole antennas with gains of approximately 1.6? What is path loss in dB? (06 Marks)
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- 8 a. Discuss the design issues of IEEE 802.11 and also provide the working of BSS, DS and ESS networks. (10 Marks)
  - b. Explain the architecture of a Bluetooth/WPAN with a diagram. (10 Marks)

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