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10TE73

**Seventh Semester B.E. Degree Examination, Dec. 2013/Jan. 2014**  
**Wireless Communication**

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting  
atleast 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 a flow diagram, explain AMPS handoff operation. (10 Marks)
- 2 a. Explain MSC subsystems with a neat diagram. (10 Marks)
- b. Describe the mobile-terminated call operation steps with a diagram, indicating cellular network elements and data bases. (10 Marks)
- 3 a. With relevant sketches, explain cellular capacity expansion techniques. (10 Marks)
- b. For a mobile system of cluster size 7, determine the frequency reuse distance, if the cell radius is 5 km. Repeat the calculation for cluster size of 3 and 4. (06 Marks)
- c. Write a note on channel allocation schemes in cellular system. (04 Marks)
- 4 a. With a block diagram, explain GSM network architecture. (10 Marks)
- b. Explain GSM channel concept. (10 Marks)

**PART – B**

- 5 a. List the GSM call setup operations. Briefly explain any three operations. (10 Marks)
- b. With a neat diagram. Explain GSM intra – BSC handover operation steps. (10 Marks)
- 6 a. Explain the basic spectrum spreading operation and procedure used on CDMA forward channels. (10 Marks)
- b. Explain the following : (10 Marks)
  - i) CDMA mobile originated call timeline
  - ii) CDMA BS – originated call time line.
- 7 a. What is 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 1000 meters, if the transmitting antenna and receiving antennas both use dipole antennas with gains of approximately 1.6? what is the path loss in dB? (06 Marks)
- b. With the help of basic diagram, explain RAKE receiver. (09 Marks)
- c. Explain free space and two – ray path loss models of wave propagation. (05 Marks)
- 8 a. Explain the components of the Bluetooth architecture with relevant figure. (10 Marks)
- b. Describe IEEE 802.16 wireless MAN's its deployment and antenna sectoring scheme. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.