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10TE73

Seventh Semester B.E. Degree Examination, Jan./Feb. 2021

Wireless Communication

Time: 3 hrs. Max. Marks:100

Note: Answer any 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 a flow diagram, explain AMPS handoff operation. **(10 Marks)**

2 a. Explain common cellular network components. **(10 Marks)**

b. Explain the following terms:
i) MSISDN ii) IMSI iii) CGI iv) RBSIC v) GTT **(10 Marks)**

3 a. Explain the different capacity expansion techniques used in cellular system. **(09 Marks)**

b. Discuss the concept of power management as applied to wireless communication system. **(08 Marks)**

c. Write a note on channel allocation scheme in cellular system. **(03 Marks)**

4 a. With a block diagram, explain GSM network architecture. **(10 Marks)**

b. 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. Explain the inter-BSC handover operation in GSM. **(10 Marks)**

6 a. With a neat block diagram, explain the generation of the CDMA synchronization channel signal. **(07 Marks)**

b. Mention different system task required for call setup in CDMA system and explain mobile originated call in CDMA system. **(07 Marks)**

c. What is the difference between soft handoff, softer handoff and soft-softer handoff in CDMA system with a neat sketch? **(06 Marks)**

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 Bluetooth piconet architecture. **(07 Marks)**

b. With a neat diagram, explain IEEE 802.15.1 Bluetooth WPAN architecture. **(07 Marks)**

c. Explain Wired Equivalent Privacy (WEP) encryption and decryption with a neat sketch. **(06 Marks)**

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