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06EC81

Eighth Semester B.E. Degree Examination, December 2010
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. With a neat block diagram, explain different components of SS7 system and their functions. **(10 Marks)**

b. Explain AMPS handoff operation using various control messages, with the help of message sequence chart. **(10 Marks)**

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

b. Explain mobile originated call operations in a cellular network, with a neat diagram showing the components and steps. **(10 Marks)**

3 a. Explain the following capacity expansion techniques : cell splitting, cell sectoring and overlaid cells. **(10 Marks)**

b. A service provider wants to provide cellular communication to a particular geographic area. The total bandwidth the service provider licensed is 5 MHz and system subscriber requires 10 KHz of bandwidth. Determine the system capacity, if the service provider implements a cellular system with 35 transmitter sites and cluster size of 7. **(06 Marks)**

c. Determine frequency reuse distance for a cell radius of 2 kilometers and cluster size of 8. **(04 Marks)**

4 a. Discuss the frame format of GSM hyper frame, super frame, multi frame and TDMA frame. **(10 Marks)**

b. Draw a neat diagram for GSM signaling model. Explain the different protocols used in the diagram. **(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 GAM intra BSC handover, with a neat diagram. **(10 Marks)**

6 a. Describe generation of CDMA reverse traffic channel, with a neat diagram. **(10 Marks)**

b. How does the use of spreading codes increase the bandwidth? What is the length of CDMA burst PN spreading code? **(10 Marks)**

7 a. Describe operation of RAKE receiver, with a neat diagram. **(06 Marks)**

b. If transmitted power is 600 mw at a frequency of 850 MHz, determine the path loss at a distance of 5000 meters and received signal power in dBm. Use free space path loss model. **(10 Marks)**

c. If an OFDM system transmits 32 Kbps over each carrier and uses 16 carriers, what is the overall data rate? **(04 Marks)**

8 a. Discuss the design issues of IEEE 802.11 and also provide the working of BSS, DS and ESS networks. **(10 Marks)**

b. List three fundamental ways in which wireless LANs and wireless PANs differ from each other and explain them. **(05 Marks)**

c. What kind of wireless network can be used to connect buildings in a city to exchange information? Name the IEEE standard and explain a typical network based on the standard. **(05 Marks)**

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