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06EC81

Eighth Semester B.E. Degree Examination, Dec.2014/Jan.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. Explain AMPS handoff operation using various control messages with the help of a message sequence chart. **(10 Marks)**

b. How do second generation cellular systems support more than one user per channel? What are the basic characteristics of 2G and 2.5G systems? **(10 Marks)**

2 a. What are the functions of an MSC? With a neat block diagram, explain the components of the MSC. **(10 Marks)**

b. Explain the following terms briefly : i) MSISDN number ii) Authentication centre (AUC) and Equipment Identity Register (EIR) iii) Global title translation (GTT). **(10 Marks)**

3 a. What is location management? Explain the three basic functions performed by location management. **(10 Marks)**

b. A service provider has bought 7MHz of spectrum. Each subscriber requires 8kHz of Bandwidth :
i) With only one transmitter site for the complete geographical area, what are the number of users that can be serviced?
ii) With 56 transmitter sites and a cluster size of 7, what would be the number of users that can be serviced?
What is the reuse distance, if the cell radius is 20kms? **(06 Marks)**

c. Bring out the differences between cell sectoring technique and Lee's Microcell technology for capacity expansion. **(04 Marks)**

4 a. Write and explain the frame formats of GSM hyper frame, super frame, multi frame and TDMA frame clearly showing the traffic and central signal bursts. **(10 Marks)**

b. Explain in brief GSM network interfaces, protocols and signaling model. **(10 Marks)**

PART – B

5 a. Explain in brief operations for call setup in GSM. **(10 Marks)**

b. With a neat diagram, explain GSM inter – MSC handover operation. **(10 Marks)**

6 a. With neat diagram, explain the major network components and network nodes found in a CDMA 2000 wireless system. **(10 Marks)**

b. Describe the generation of a forward traffic / power control channel for 14.4 kbps traffic. **(06 Marks)**

c. Explain soft handoff in CDMA systems. **(04 Marks)**

7 a. What are the different diversity techniques used to avoid signal losses due to multipath fading. **(12 Marks)**

b. If a transmitter produces 50W of power, express the transmit power in units of dBm and 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 10m from the antenna. Assume unity gain for the receiver antenna. **(08 Marks)**

8 a. What are the basic goals of IEEE 802.11 WLAN standards? What are the intensions to 802.11? **(10 Marks)**

b. List three fundamental ways in which wireless LAN's and wireless PAN's differ from each other and explain them. **(05 Marks)**

c. What kind of wireless networks 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)**