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10TE73

Seventh Semester B.E. Degree Examination, Dec.2016/Jan.2017
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. With a flow diagram, explain AMPS network operation for a mobile originated call. **(10 Marks)**

b. Describe with a neat diagram the data encapsulation process in the context of the OSI model. **(04 Marks)**

c. Mention the differences between 1G and 2G cellular systems. **(06 Marks)**

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

b. Explain mobile terminated call operation in AMPS with a neat diagram. **(10 Marks)**

3 a. Explain cell splitting and cell sectoring with suitable diagrams. **(10 Marks)**

b. A service provider has a total licensed bandwidth of 5 MHz for a particular geographic area. Each subscriber needs 10 KHz of bandwidth when using the system. For the service provider to provide service from a single transmitter site, the total number of possible simultaneous users is 500. If the service provider implements a cellular system with 35 transmitter sites located to minimize interference and provide total coverage of the area, determine the new system capacity. **(06 Marks)**

c. Draw the diagram of a typical cellular location updating. **(04 Marks)**

4 a. Explain with a block diagram, the GSM network architecture. **(10 Marks)**

b. Discuss with the frame format the different types of GSM hyperframe. **(10 Marks)**

PART – B

5 a. Explain in brief with flow a diagrams the GSM service request and authentication operations. **(10 Marks)**

b. With a neat diagram. Explain inter MSC handover of GSM with operation steps. **(10 Marks)**

6 a. Explain the basic spectrum spreading operation and procedure used on CDMA forward channels. **(10 Marks)**

b. With a neat block diagram describe the generation of CDMA reverse traffic channel. **(10 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? **(05 Marks)**

b. With the help of basic diagram, explain RAKE receiver. **(10 Marks)**

c. Explain the concept of block codes. **(05 Marks)**

8 a. Explain the components of the Bluetooth architecture with relevant figure. **(10 Marks)**

b. Describe IEEE 802.16 wireless MAN's deployment and antenna sectoring scheme. **(10 Marks)**

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