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10EC81

Eighth Semester B.E. Degree Examination, June/July 2015
Wireless Communication

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

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.

PART – A

1 a. With a neat diagram, explain the network elements of the SS7 system. **(08 Marks)**

b. Explain the different steps involved in AMPS mobile-terminated call operation with a neat flow diagram. **(08 Marks)**

c. Write a note on basic characteristics of 4G cellular system. **(04 Marks)**

2 a. Explain the common wireless cellular network components with a neat block diagram. **(10 Marks)**

b. With a block diagram, explain the MSC subsystem. **(06 Marks)**

c. Describe hardware view of a cellular network with a suitable diagram. **(04 Marks)**

3 a. Explain the different capacity expansion techniques used in cellular system with relevant figures. **(10 Marks)**

b. Explain the concept of frequency reuse for cellular system. For a mobile system of cluster size of 7, determine the frequency reuse distance if the cell radius is 5km. Repeat the calculation for a cluster size of 4. **(07 Marks)**

c. Write a note on cellular channel assignment strategies. **(03 Marks)**

4 a. Explain the various logical channels used in GSM. **(10 Marks)**

b. Describe GSM protocols and signaling model with a neat diagram. **(10 Marks)**

PART – B

5 a. List different call setup operations. Explain interrogation and radio resource connection operations with a neat flow diagram. **(10 Marks)**

b. Explain GSM inter-BSC handover operation with a neat diagram. **(10 Marks)**

6 a. Explain the basic spectrum spreading operation in CDMA. **(06 Marks)**

b. Describe the generation of the CDMA pilot channel signal with a neat figure. **(08 Marks)**

c. Describe in detail, the process of soft handoff in CDMA. **(06 Marks)**

7 a. Describe the error detection and correction codes used for wireless telecommunication. **(08 Marks)**

b. Write a short note on path loss models for various coverage areas. **(06 Marks)**

c. 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 antenna both use dipole antenna with gains of approximately 1.6? What is the path loss in dB? **(06 Marks)**

8 a. Explain with a neat figure the Bluetooth protocol stack. **(08 Marks)**

b. Describe the typical wireless MAN deployment scenario. **(08 Marks)**

c. Depict the relationship between IEEE802.11 sending and receiving station with a state diagram. **(04 Marks)**

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