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10EC81

Eighth Semester B.E. Degree Examination, Feb./Mar. 2022

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. List the characteristics of 2G and 3G generations of cellular system. **(06 Marks)**

b. Describe with a neat flow diagram, the AMPS initialization operation. **(08 Marks)**

c. Write on UMTS 3G cellular system and CDMA 2000 3G cellular system. **(06 Marks)**

2 a. With a block diagram, explain a typical subscriber device of cellular system. **(07 Marks)**

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

c. Define and explain the generation of MISDN, IMSI and IMEI. **(03 Marks)**

3 a. Explain the different capacity expansion techniques in cellular system. **(12 Marks)**

b. Explain the location management in a wireless cellular network. **(08 Marks)**

4 a. With a neat schematic, explain the GSM network interfaces and protocols. **(10 Marks)**

b. Briefly explain the GSM channel concept. **(10 Marks)**

PART – B

5 a. Define MSRN. What is the purpose of MSRN? Also explain the GSM call set up using MSRN. **(10 Marks)**

b. With neat flow diagram, briefly explain GSM Intra-BSC and Inter-BSC handover. **(10 Marks)**

6 a. Explain with a neat diagram, the network nodes found in a CDMA 2000 wireless system. **(10 Marks)**

b. Describe three types of soft CDMA handoff. **(06 Marks)**

c. Describe the three states that a CDMA mobile may be in while in the attached mode. **(04 Marks)**

7 a. What is the received power in dBm for a signal in free space with a transmitter power of 1W, frequency of 1900 MHz and distance from the receiver of 1000 mts, if assume the $G_t = G_r = 1.6$, what is the path loss in dB. **(04 Marks)**

b. Describe OFDM and UWB technologies. **(10 Marks)**

c. With neat block diagram, explain RAKE Receiver. **(06 Marks)**

8 a. List the characteristics of IEEE 802.11X technologies. **(06 Marks)**

b. Explain Bluetooth piconet and scatternet architectures. **(08 Marks)**

c. Describe basic wireless MAN. **(06 Marks)**

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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.