USN ☐☐☐☐☐☐☐☐☐☐   **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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