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10EC81

**Eighth Semester B.E. Degree Examination, Dec.2019/Jan.2020**  
**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 neat block diagram, explain different components of SS7 system and their functions. (10 Marks)  
b. Describe with a neat flow diagram, the AMPS Initialization operation. (10 Marks)
- 2 a. Explain the following terms :  
i) MSISDN ii) IMSI iii) IMEI iv) CGI v) RBSI. (10 Marks)  
b. Explain the functions of the following cellular system components :  
i) HLR ii) VLR iii) AVC iv) EIR. (10 Marks)
- 3 a. Explain the following capacity expansion techniques :  
Cell splitting , Cell sectoring and Overlaid cells. (10 Marks)  
b. A service provider wants to provide cellular communication to a particular geographic area. The total band width the service provides licensed is 5 MHz and system subscriber required 10KHz of band width. Determine the system capacity , if the service provider implements a cellular system with 35 transmitter sites and clusters size of 7. (04 Marks)  
c. Explain the different power saving schemes. (06 Marks)
- 4 a. Explain with a neat block diagram, the GSM network interfaces. (08 Marks)  
b. Discuss the various dedicated control channels of GSM. (06 Marks)  
c. Write a short note on various frame formats used for GSM Traffic. (06 Marks)

**PART - B**

- 5 a. Define MSRN. What is the purpose of mobile station roaming number? Also explain the GSM call setup using the MSRN. (10 Marks)  
b. Describe GSM ciphering mode setting operation and IMEI check. (10 Marks)
- 6 a. With a neat diagram, explain the elements of the CDMA2000 packet core network. (10 Marks)  
b. Explain the generation of the CDMA paging channel signal. (10 Marks)
- 7 a. Explain in detail the various path loss models. (10 Marks)  
b. With the help of a neat block diagram, explain the working of RAKE receiver. (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 mts if the transmitting antenna and receiving antennas both use dipole antennas with gains of approximately 1.6? What is the path loss in dB? (04 Marks)
- 8 a. Discuss the design issues of IEEE 802.11 and explain the working of BSS, DS and ESS network. (10 Marks)  
b. Explain the details of Bluetooth protocol stack with a figure. (10 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.