

USN

--	--	--	--	--	--	--	--	--	--

10EC81

Eighth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Wireless Communication

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. Compare 1G and 2G cellular system. (04 Marks)
b. Explain the different steps involved in AMPS-Mobile originated call. (08 Marks)
c. With a neat diagram, explain the network elements of the SS7 system. (08 Marks)
- 2 a. With a block diagram, explain the MSC subsystem. (06 Marks)
b. Explain the functions of HLR, VLR and MSC. (06 Marks)
c. Explain with necessary diagrams the formats of MSISDN number, IMSI number, IMEI number and LAI number. (08 Marks)
- 3 a. Explain capacity expansion techniques.
(i) Cell splitting (ii) Cell sectoring. (06 Marks)
b. Explain the different power saving schemes. (06 Marks)
c. For a particular radio transmission technology, a minimum S/I ratio of 15 dB is needed for proper operation. What is the minimum required cluster size? If the path loss exponent is $\alpha = 4$? Assume that there are six-co-channel cells in the first tier and all of them are at the same distance from the mobile. (05 Marks)
c. Determine the frequency reuse distance for a cell radius of two kilometers and a cluster size of 4. (03 Marks)
- 4 a. Explain the various logical channels used in GSM. (10 Marks)
b. Describe GSM protocols and signalling model with a neat diagram. (10 Marks)

PART – B

- 5 a. List out the ten operations in call setup in GSM system. Explain in detail authentication and ciphering mode operation. (12 Marks)
b. Explain the intra-BSC-handover operation in GSM. (08 Marks)
- 6 a. Explain the basic spread spreading operation in CDMA. (06 Marks)
b. Explain the different types of soft and hard handoffs supported by CDMA system. (06 Marks)
c. Explain the generation of CDMA paging channels. (08 Marks)
- 7 a. Explain the path loss model for free space propagation. (06 Marks)
b. With a neat block diagram, explain the RAKE receiver. (06 Marks)
c. What is the received power in dBm for a signal in free space with a transmitting power of 50 W, frequency of 900 MHz and distance from the receiver of 100 meters if the transmitting antenna and receiving antennas have a gain of 1? What is P_r at 10 km? (08 Marks)
- 8 a. Explain with a neat figure the Bluetooth protocol stack. (08 Marks)
b. Discuss the design issues of IEEE 802.11 and also provide the working of BSS, DS and ESS networks. (08 Marks)
c. Describe the basic wireless MAN. (04 Marks)

* * * * *

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.