



CBCS SCHEME

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18EC81

Eighth Semester B.E. Degree Examination, Jan./Feb. 2023 Wireless and Cellular Communication

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain path loss model for free space propagation with equations. (08 Marks)
- b. Explain Doppler Spread and Coherence time. (06 Marks)
- c. Find a Fraunhofer distance for an antenna with maximum dimension of 1 meter and operating frequency of 900 MHz. If antennas have unity gain, calculate path loss. (06 Marks)

OR

- 2 a. Explain two ray models of ground reflections with necessary equations. (08 Marks)
- b. Explain cell splitting and cell sectoring. (06 Marks)
- c. Explain static channel models. (06 Marks)

Module-2

- 3 a. Explain the various logical channels used in GSM. (08 Marks)
- b. List out ten operations in a call set up in GSM system. Explain in detail authentication and Ciphering mode operations. (12 Marks)

OR

- 4 a. Describe GSM protocols and signaling model with neat diagram. (06 Marks)
- b. Explain the TDMA heperframe structure with diagram in detail. (07 Marks)
- c. Explain steps involved during Intra-BSC handover. (07 Marks)

Module-3

- 5 a. Explain the basic spectrum spreading operation. (07 Marks)
- b. Explain the generation of CDMA paging channels. (06 Marks)
- c. Explain network nodes found in CDMA2000 wireless system. (07 Marks)

OR

- 6 a. Explain with block diagram the generation of CDMA forward traffic control with power control for 14.4 kbps traffic. (12 Marks)
- b. Explain typical components of cdmaOne network. (08 Marks)

Module-4

- 7 a. Explain the advantages of OFDM leading to its selection of LTE. (06 Marks)
- b. Explain OFDM baseband and passband transmitter with block diagram. (07 Marks)
- c. Compare OFDM and SCFDE. (07 Marks)

OR

- 8 a. Explain with block diagram, flat LTE SAE architecture. (06 Marks)
b. Explain peak to Average Power Ratio (PAR). (07 Marks)
c. Explain SC-FDE system description. (07 Marks)

Module-5

- 9 a. Explain SCFDMA uplink transmitter and receiver with neat block diagrams. (12 Marks)
b. Explain Hierarchical channel structure of LTE. (08 Marks)

OR

- 10 a. Explain OFDMA downlink and uplink transmitter with diagram. (12 Marks)
b. Explain frame structure used in LTE. (08 Marks)
