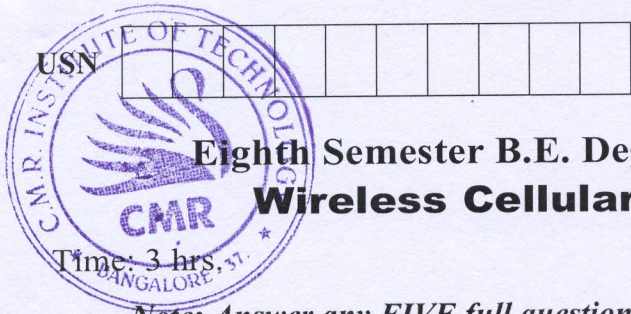


CBCS SCHEME

17EC81



Eighth Semester B.E. Degree Examination, June/July 2024 Wireless Cellular and LTE 4G Broadband

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain the advantages of OFDM leading to its selection for LTE. (08 Marks)
- b. Explain adaptive modulating and coding with neat block diagram. (08 Marks)
- c. Explain briefly path loss. (04 Marks)

OR

- 2 a. Explain with neat block diagram flat LTE SAE architecture. (08 Marks)
- b. Explain delay spread and coherence bandwidth. (08 Marks)
- c. Mention advantages and disadvantages of cell sectoring in cellular wireless communications. (04 Marks)

Module-2

- 3 a. With a neat block diagram, explain OFDM. (08 Marks)
- b. Compare OFDM-FDMA, OFDM-TDMA and OFDM-CDMA (06 Marks)
- c. Explain receive diversity selection combining and maximal ratio combining. (06 Marks)

OR

- 4 a. Write the block diagram of OFDMA downlink transmitter and explain the principle of operation. (08 Marks)
- b. Write a note on cyclic prefix in OFDM. (06 Marks)
- c. Compare OFDM system and SC-FDE system. (06 Marks)

Module-3

- 5 a. Interpret the basic design principles of LTE. (10 Marks)
- b. Sketch LTE architecture and explain components of the E-UTRAN and EPC. (10 Marks)

OR

- 6 a. With neat structure of downlink resource grid, explain different resource units. (10 Marks)
- b. Explain Frame structure type - 2 in detail. (10 Marks)

Module-4

- 7 a. Explain the types of uplink reference signals. (08 Marks)
- b. With neat block diagram, explain the uplink transport channel processing. (08 Marks)
- c. Explain buffer status reporting in uplink. (04 Marks)

OR

- 8 a. Explain with neat sketch cell search procedure used in LTE. (08 Marks)
- b. Explain random access procedure used in LTE. (08 Marks)
- c. What is meant by periodic and aperiodic reporting in CQI feedback? (04 Marks)

Module-5

- 9 a. Explain the main services and functions of PDCP sublayer. (10 Marks)
- b. Explain the data transfer model and the main services and functions of the RLC sublayer. (10 Marks)

OR

- 10 a. Explain RRC states and its functions. (10 Marks)
- b. Explain the mobility management over X2 interface. (10 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.

CMRIT LIBRARY
BANGALORE - 560 037