

CBCS SCHEME

17EC81



Eight Semester B.E. Degree Examination, June/July 2023
Wireless Cellular and LTE 4G Broadband

Max. Marks: 100

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

Module-1

- 1 a. Explain key enabling technologies and features of LTE with advantage of OFDM. (10 Marks)
- b. Explain Evolved packet core architecture with neat figure and goal of EPC. (10 Marks)

OR

- 2 a. What is frequency reuse? Explain the cellular concept with frequency reuse. (08 Marks)
- b. Explain the LTE channel model for multipath propagation. (08 Marks)
- c. Write short notes on Adaptive Modulation and coding (AMC). (04 Marks)

Module-2

- 3 a. What is OFDM? Explain circular convolution and DFT to remove the ISE within each OFDM.s (08 Marks)
- b. Explain OFDM encoding and decoding in the frequency domain. (08 Marks)
- c. Define :
 - i) Peak to average ratio (PAR)
 - ii) Cyclic prefix. (04 Marks)

OR

- 4 a. Explain Orthogonal Frequency Division Multiple Access (OFDMA) for downlink transmitter and downlink receiver. (10 Marks)
- b. Explain the receive diversity of maximal ratio combining and transmit diversity of 2×1 space Frequency Block Coding (SFBC). (10 Marks)

Module-3

- 5 a. Briefly explain the end – to – end. Architecture of LTE with designed principles. (10 Marks)
- b. Explain the time – frequency grid for OFDMA of the downlink. (10 Marks)

OR

- 6 a. What are the common aspects of channel coding? Explain the channel coding processing. (08 Marks)
- b. Explain downlink shared channels DL – SCH uses the rate $\frac{1}{3}$ convolution turbo codes. (08 Marks)
- c. Write short notes on synchronization signals. (04 Marks)

Module-4

- 7 a. Explain uplink shared channels with frequency hopping and multiantenna transmission techniques. (10 Marks)
- b. Explain random access channels during initial uplink synchronization. (10 Marks)

OR

- 8 a. What is channel quality mediator? Explain CQI estimation. (10 Marks)
b. What is the purpose of scheduling? Explain scheduling and resource allocation. (10 Marks)

Module-5

- 9 a. Explain PDCP overview associated with control plane and user plane. (10 Marks)
b. Explain the mobility management within LTE system over S₁ interface with neat flow diagram. (10 Marks)

OR

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- 10 a. Explain the PDU header formats of RLC PDU with block diagram. (10 Marks)
b. Explain inter-cell interference coordination downlink and uplink. (10 Marks)

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