



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

Max. Marks: 80

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

Module-1

- 1 a. Explain the advantages of OFDM for LTE. (08 Marks)
b. Explain flat LTE SAE architecture. (08 Marks)

OR

- 2 a. Explain the following in brief,
(i) Pathloss and Shadowing.
(ii) Angular Spread and coherence distance. (09 Marks)
(iii) Doppler spread and coherence time.
b. Explain with a neat diagram, adaptive modulation and coding. (07 Marks)

Module-2

- 3 a. With the help of neat diagrams explain how the timing and frequency synchronization is performed by the receiver to demodulate an OFDM signal. (08 Marks)
b. Write the block diagrams of receive diversity and explain the principle of operation. (08 Marks)

OR

- 4 a. Write the block diagram of OFDMA down link transmitter and explain the principle of operation. (08 Marks)
b. Explain the spatial multiplexing MIMO system and the key points of single user MIMO system model. (08 Marks)

Module-3

- 5 a. Explain the LTE Radio Interference protocols. (08 Marks)
b. Explain the transport channels in LTE. (08 Marks)

OR

- 6 a. Explain the hierarchical channel structure of LTE. (08 Marks)
b. Explain briefly layer mapping and precoding in modulation mapping. (08 Marks)

Module-4

- 7 a. With the help of a neat block diagram, explain the SC-FDMA base band signal generation. (08 Marks)
b. Discuss the random access procedures in detail. (08 Marks)

OR

- 8 a. Explain the seven different transmission modes, defined for data transmission on the PDSCH channel. (07 Marks)
b. Discuss the scheduling and resource allocation in LTE. (09 Marks)

Module-5

- 9 a. Explain the main services and functions of the PDCP. (08 Marks)
b. Describe the various phases of S1 mobility with a neat diagram. (08 Marks)

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- 10 a. Explain the data transfer modes and the main services and functions of the RLC sublayer. (08 Marks)
b. Discuss the intercell interference coordination in downlink and uplink. (08 Marks)
