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15EC81

Eighth Semester B.E. Degree Examination, June/July 2019
Wireless Cellular and LTE 4G Broadband

Time: 3 hrs. Max. Marks: 80

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

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.

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.
(iii) Doppler spread and coherence time. (09 Marks)
b. Explain with a neat diagram, adaptive modulation and coding. (07 Marks)

Module-2

3 a. With a neat block diagram, explain OFDM communication system. Also mention the need of timing and frequency synchronization. (09 Marks)
b. Explain SC-FDMA uplink transmitter with a neat figure. (07 Marks)

OR

4 a. Explain spatial diversity of multiple antenna techniques. (08 Marks)
b. Explain open-loop MIMO in spatial multiplexing. (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. Explain uplink control information. (08 Marks)
b. Explain the types of uplink reference signals. (08 Marks)

OR

8 a. Briefly explain the function of H-ARQ feedback in Downlink and Uplink transmission. (08 Marks)
b. Explain in brief types of Random Access procedure in LTE. (08 Marks)

Module-5

9 a. Explain the main services and functions of PDCP sublayer for the user plane. (08 Marks)
b. Explain RRC states and its functions. (08 Marks)

OR

10 a. Explain mobility management over the S1 transfer. (08 Marks)
b. Explain three basic approaches to mitigate ICI in downlink. (08 Marks)

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