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17EC81

Eighth Semester B.E. Degree Examination, July/August 2022
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. Discuss the advantages of OFDM, which made it to use in LTE technology. **(10 Marks)**
   b. With neat sketch, Interpret the importance of each module of Evolved packet core architecture of LTE. **(10 Marks)**

OR

2 a. Explain Adaptive modulation and coding with neat Block diagram. **(10 Marks)**
   b. Analyse the techniques used to mitigate the Broadband fading. **(10 Marks)**

Module-2

3 a. State the importance of timing synchronization used to demodulate an OFDM signal. **(08 Marks)**
   b. With neat block diagram, analyze the principle operation of OFDMA in downlink transmitter. **(08 Marks)**
   c. List advantages of OFDMA. **(04 Marks)**

OR

4 a. Explain Spatial diversity of multiple antenna technique. **(06 Marks)**
   b. With neat block diagram, explain SC-FDMA uplink transmitter and receiver. **(10 Marks)**
   c. Compare FDMA, TDMA and CDMA. **(04 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. In detail, discuss the channel coding procedure for uplink control information. **(12 Marks)**
   b. Write note on H-ARQ in the uplink. **(08 Marks)**

OR

8 a. Explain Non-synchronized Random access procedures in LTE. **(10 Marks)**
   b. Explain the seven different transmission modes defined for PDSCH channel. **(10 Marks)**

Module-5

9 a. Discuss the different fields of RLC PDU formats. **(12 Marks)**
   b. Explain the main services and functions of the PDCP sublayer. **(08 Marks)**

OR

10 a. What is X2 Interface? With neat flow diagram, explain mobility management over X2 interface. **(12 Marks)**
   b. Interpret the interaction between MAC and RLC sublayer along with three data transfer modes. **(08 Marks)**

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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.