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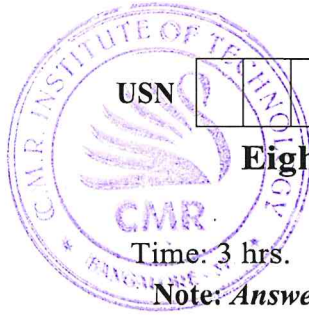
Eighth Semester B.E. Degree Examination, July/August 2022
Wireless Cellular and LTE 4G Broadband

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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