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18TE81

Eighth Semester B.E. Degree Examination, June/July 2023
Advanced Cellular Communication

Time: 3 hrs.

Max. Marks: 100

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

Module-1

1
a. Enumerate key enabling features of LTE4G. **(06 Marks)**
b. Explain IP based flat network architecture. **(06 Marks)**
c. Explain statistical modeling used for broadband fading channels. **(08 Marks)**

OR

2
a. What are the advantages and disadvantages of OFDM? **(06 Marks)**
b. Explain shadowing in BWC. **(06 Marks)**
c. Explain the following in brief:
    (i)   Delay spread.
    (ii)   Coherence Band width.
    (iii) Doppler spread.
    (iv) Coherence time. **(08 Marks)**

Module-2

3
a. Explain how the data blocks preparation using cyclic prefix are represented in OFDM.
(08 Marks)
b. Enumerate how timing and frequency synchronization is achieved in OFDM. **(06 Marks)**
c. Explain the working of OFDM downlink transmitter. **(06 Marks)**

OR

4
a. Explain with neat block diagram the concept of OFDM. **(06 Marks)**
b. Describe the features of SC-FDE with a neat block diagram. Also compare its performance with OFDM. **(06 Marks)**
c. Explain receive diversity in multiple antenna technique. **(08 Marks)**

Module-3

5
a. With a neat diagram, explain end to end network architecture of LTE. **(10 Marks)**
b. With a neat block diagram, explain downlink transport channel processing. **(10 Marks)**

OR

6
a. Elaborate on protocol stack of LTE radio interface. **(10 Marks)**
b. Explain frame structure type 2 used in LTE. **(10 Marks)**

Module-4

7
a. Describe Random access procedures in detail. **(06 Marks)**
b. Discuss two different classes of CQI feedback modes. **(06 Marks)**
c. Explain the importance of H-ARQ f/b for both uplink and downlink. **(08 Marks)**

OR

8 a. Explain in detail the process of cell search. (06 Marks)
   b. Elaborate on the methods of scheduling and resource allocation to UE's. (08 Marks)
   c. Briefly explain uplink reference signals. (06 Marks)

Module-5

9 a. Explain main service and function of PDCP. (06 Marks)
   b. Discuss different data transfer modes available in MAC/RLC. (06 Marks)
   c. Illustrate mobility management over S1 interface. (08 Marks)

OR

10 a. Explain the main services and functions of RLC and MAC layers. (06 Marks)
   b. Explain RRC states and function with neat sketch. (06 Marks)
   c. Explain mobility management over X2 mobility with neat sketch. (08 Marks)

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