



CBCS SCHEME

15EC81

Eighth Semester B.E. Degree Examination, Aug./Sept. 2020 Wireless Cellular and LTE 4G Broadband

Time: 3 hrs.

Max. Marks: 80

- Note : i) For Regular Students: Answer any FIVE full questions irrespective of modules.
ii) For Arrear Students : Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Discuss the key enabling technologies used in LTE design. (08 Marks)
b. Explain with a neat diagram, how 3 GPP network evolved towards flat LTE – SAE architecture. (04 Marks)
c. Give a brief description of evolved packet core architecture. (04 Marks)
- 2 a. Explain the cellular concept briefly. Discuss how interference can be reduced in cellular communication. (08 Marks)
b. What are the techniques used for mitigating broad band fading? Explain. (08 Marks)

Module-2

- 3 a. Briefly explain the different multiple access system which can be implemented with OFDM. (08 Marks)
b. Discuss the significance of PAR problem in LTE. Briefly explain PAR reduction technique. (08 Marks)
- 4 a. With a neat diagram, explain SC–FDMA. List out the advantages and disadvantages SC–FDM. (08 Marks)
b. Explain open loop MIMO with a neat sketch. (08 Marks)

Module-3

- 5 a. Discuss the basic design principles followed in designing LTE specifications. (06 Marks)
b. Explain the different logical channels supported in LTE. (06 Marks)
c. With a neat diagram, explain briefly the frame structures used in LTE. (04 Marks)
- 6 a. Briefly explain downlink transport channel processing. (08 Marks)
b. Explain the different physical signals in down link. (08 Marks)

Module-4

- 7 a. Discuss the uplink Control Information (uCI) which will assist physical layer procedures. (08 Marks)
b. Briefly explain Random Access Preamble formats. (08 Marks)

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.

- 8 a. Explain Channel Quality Indicator (CQI) feedback by describing CQI estimation and different reporting modes. (08 Marks)
- b. Discuss the power control schemes used in LTE. (08 Marks)

Module-5

- 9 a. Explain the main services and functions of PDCP sublayer. (08 Marks)
- b. What are the different modes of operations of RLC entity? (04 Marks)
- c. Briefly explain ARQ procedures in LTE. (04 Marks)
- 10 a. With a neat flow diagram explain mobility management over S1 interface. (08 Marks)
- b. Discuss intra – LTE and inter – RAT mobility briefly. (03 Marks)
- c. Explain the approaches to mitigate Inter Cell Interference (ICI) in the down link. (05 Marks)

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