

# CBCS SCHEME

USN

1A716EC003

15EC81

## Eighth Semester B.E. Degree Examination, November 2020 Wireless Cellular and LTE 4G Broadband

Time: 3 hrs.

Max. Marks: 80

*Note: Answer any FIVE full questions irrespective of modules.*

### Module-1

- 1 a. With a neat block diagram, explain LTE network architecture and describe briefly the new elements provided in it. (08 Marks)
- b. Explain Cellular concept. Discuss how interference can be reduced in cellular communication. (08 Marks)
- 2 a. Explain the steps involved in developing a statistical model. Discuss any one type of model. (08 Marks)
- b. Explain the techniques used for mitigating narrow band fading. (08 Marks)

### Module-2

- 3 a. With a neat diagram, explain the Orthogonal Frequency Division Multiplexing (OFDM) used in LTE. (08 Marks)
- b. What is PAR problem? Explain the methods used for PAR reduction. (08 Marks)
- 4 a. Explain the concept of Diversity gain and Array gain. (08 Marks)
- b. Explain receive diversity combining algorithm. (08 Marks)

### Module-3

- 5 a. Discuss the various design principles used in LTE specification. (08 Marks)
- b. Discuss the Radio Interface protocol layers of LTE. (08 Marks)
- 6 a. With a neat sketch, explain the frame structure used in LTE. (08 Marks)
- b. Discuss down link transport channel processing. (08 Marks)

### Module-4

- 7 a. Discuss channel coding for up – link channel information. (08 Marks)
- b. Briefly explain up – link reference signals and resource mapping of them. (08 Marks)
- 8 a. Explain Channel Quality Indicator (CQI) feed back with the help of CQI estimation and reporting modes. (08 Marks)
- b. Discuss Random Access Procedures used in LTE. (08 Marks)

### Module-5

- 9 a. Discuss the main functions and services of PDCP sub layers for user plane and control plane. (08 Marks)
- b. Explain the functions and services of RLC and MAC layers. (08 Marks)
- 10 a. With a neat flow diagram, explain Mobility Management over X<sub>2</sub> interface. (08 Marks)
- b. Discuss briefly methods used to mitigate Inter Cell Interference (ICI) in uplink and down link. (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.