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15EC81

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

Time: 3 hrs.

Max. Marks: 80

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

Module-1

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|---|-------------------------------------------------------------|------------|
| 1 | a. What are the key enabling features of LTE? | (04 Marks) |
| | b. Explain with necessary diagram LTE network architecture. | (08 Marks) |
| | c. What are the advantages of OFDM in LTE? | (04 Marks) |

OR

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|---|----------------------------------------------------------------------------------|------------|
| 2 | a. Explain cellular concept in wireless communication. | (04 Marks) |
| | b. Explain effect of fading in communication. | (06 Marks) |
| | c. Explain coding and other learning technique with necessary encoder technique. | (06 Marks) |

Module-2

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|---|------------------------------------------------------------------------|------------|
| 3 | a. Explain basics of OFDM. | (04 Marks) |
| | b. With necessary block diagram, explain OFDM and OFDM in LTE network. | (08 Marks) |
| | c. Explain concept of SC-FDE. | (04 Marks) |

OR

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|---|-------------------------------------------------------------|------------|
| 4 | a. Explain OFDM-FDMA, TDMA and CDMA. | (08 Marks) |
| | b. Briefly explain with diagram, working operation of OFDM. | (08 Marks) |

Module-3

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|---|---------------------------------------------------|------------|
| 5 | a. Explain design principles followed in LTE. | (08 Marks) |
| | b. Explain logical and transport channels of LTE. | (08 Marks) |

OR

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|---|------------------------------------------------|------------|
| 6 | a. Explain convolution turbo coding. | (08 Marks) |
| | b. Explain in brief multicast channels of LTE. | (08 Marks) |

Module-4

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|---|--------------------------------------------------------------|------------|
| 7 | a. Explain uplink control information of LTE physical layer. | (08 Marks) |
| | b. Explain formats of PUCCH 1, 1a, 1b, 2a, 2b. | (08 Marks) |

OR

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|---|-----------------------------------------------------------------|------------|
| 8 | a. Explain channel quality indicator and estimation techniques. | (08 Marks) |
| | b. Explain non-synchronized random access procedure. | (08 Marks) |

Module-5

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|---|-------------------------------------------------------------------------------|------------|
| 9 | a. Explain what are the services and functions of PDCP. | (08 Marks) |
| | b. Explain HRQ procedure, also in brief give the RRC states with explanation. | (08 Marks) |

OR

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|----|----------------------------------------------------------------------------|------------|
| 10 | a. With timing diagram, explain mobility management over the SI interface. | (08 Marks) |
| | b. What are the basic approaches to mitigate ICI in downlink? | (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.