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# P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Seventh Semester, B.E. - Computer Science and Engineering

Semester End Examination; Dec - 2016/Jan - 2017

## Wireless Technology

Time: 3 hrs

Max. Marks: 100

**Note:** Answer **FIVE** full questions, selecting **ONE** full question from each unit.

### UNIT - I

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|------|--|----|
| 1 a. | Discuss wireless transmitter for AM with neat sketch.                              | 8  |
| b.   | With neat diagram, explain hardware view of a cellular system.                     | 7  |
| c.   | List the steps performed during a call release operation.                          | 5  |
| 2 a. | Identify the different generations of wireless cellular networks. Explain briefly. | 6  |
| b.   | Explain wireless cellular system components with diagram.                          | 10 |
| c.   | What is the difference between an MSISDN number and an IMSI number?                | 4  |

### UNIT - II

- |      |  |    |
|------|--|----|
| 3 a. | Discuss the relative coverage areas of the various cell sizes.   | 7  |
| b.   | For a system with frequency reuse number $N = 7$ , $N = 3$ and $N = 4$ , show a possible frequency reuse plans for sectored cells. | 8  |
| c.   | Explain Lee's Microcell concept capacity expansion.  | 5  |
| 4 a. | Explain GSM Network Interfaces and signaling model with neat diagram.  | 12 |
| b.   | List the various GSM Identities. Explain GSM call setup using the MSRN with diagram.   | 8  |

### UNIT - III

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|------|--|----|
| 5 a. | Explain the components of a CDMA one network with diagram.               | 8  |
| b.   | Discuss the basic operations of SMS, EMS, MMS, and MIM services.         | 6  |
| c.   | What is a pilot channel? Explain operation of CDMA pilot channel signal. | 6  |
| 6 a. | Design the packet core network architecture of CDMA with diagram.        | 6  |
| b.   | Identify the three types of soft hand off of CDMA systems.               | 4  |
| c.   | Explain GPRS Network and GPRS Network components with neat diagram.      | 10 |

### UNIT - IV

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|------|--|----|
| 7 a. | Discuss the general characteristics of wire line and fiber-optic transmission lines. | 8  |
| b.   | Explain wave propagation effects for both outdoor and indoor propagation case.       | 9  |
| c.   | List any three applications of UWB.  | 3  |
| 8 a. | Discuss the comparison features of various spread spectrum modulation techniques.    | 10 |
| b.   | Compare convolutional encoder and turbin encoder.                                    | 5  |
| c.   | Explain block interleaving scheme with diagram.                                      | 5  |

### UNIT - V

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|-------|---|----|
| 9 a.  | List applications of broadband satellite systems and broadband microwave systems.   | 10 |
| b.    | Categorize the satellite systems, explain merits and demerits of satellite systems. | 10 |
| 10 a. | Construct bent-pipe satellite system with neat diagram.                             | 6  |
| b.    | Explain the applications of MIMO technology.  | 7  |
| c.    | Illustrate the basic characteristics of a 4G wireless Network.                      | 7  |