

Duration-3hrs

Marks -80

N.B i) Question no.1 is compulsory

ii) Solve any **three** from the remaining **five** questions

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|----|------------------------------------------------------------------------------------------|----|
| 1a | Discuss the Advanced Antenna systems used in HSPA and LTE.                               | 5  |
| b  | Draw and explain with a neat diagram the various components of a sensor node.            | 5  |
| C  | What are the different Network Topologies supported by Zigbee?                           | 5  |
| d  | Explain the 'Zone planning' concept for the Indoor radio planning.                       | 5  |
| 2a | What are the different requirements to plan a good Link Budget for Wireless Networks?    | 10 |
| b  | Explain 'hidden node' and 'exposed node' problems in WLANs.                              | 10 |
| 3a | What is UMTS? List important features of UMTS air interface.                             | 10 |
| b  | Explain various Bluetooth connection establishment states .Draw a complete flow diagram. | 10 |
| 4a | Explain Middleware architecture for WSNs.                                                | 10 |
| b  | Discuss Wimax in detail and compare its performance with Wifi .                          | 10 |
| 5a | Discuss the various routing challenges and design issues in WSNs.                        | 10 |
| b  | Why Network Management Design is a critical issue in WSN? Justify.                       | 10 |
| 6a | What are the different types of handovers in GSM?                                        | 10 |
| b  | How does a typical RFID system work ? Discuss its components and list its applications.  | 10 |

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