

Duration-3hrs

Marks -80

N.B i) Question no.1 is compulsory

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

- 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
