

Duration: 3hrs

[Max Marks: 80]

- N.B. :** (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

- 1 Attempt any **FOUR** [20]
 - a Classify various wireless networks. Illustrate it with a systematic diagram.
 - b Compare link types in Bluetooth.
 - c List the advantages of deploying WLAN.
 - d Discuss characteristics of VANETs.
 - e State the characteristics of WBAN.
- 2 a Construct WiMAX network architecture. Review the features of WiMAX. [10]
 - b Compare SPIN and LEACH routing Protocol [10]
- 3 a Illustrate network establishment in Bluetooth. Explain each mode of operation. [10]
 - b Determine Hidden and Exposed Node Problem in WLAN with suitable diagrams. [10]
- 4 a Classify categories of applications of NFC and List out Applications of 6LoWPAN [10]
 - b Calculate the uplink throughput for data service only for a WCDMA cell using the following information: [10]
 - Required $E_b/N_t = 1\text{dB}$
 - Required interference margin = 3 dB (cell loading = 0.5)
 - Interference factor due to other cells = 0.5
 - Channel activity factor = 1.0
 - Chip rate (R_c): 3.84 Mcps
- 5 a Explain the working principle of UWB in the time and frequency domain. Draw the UWB frequency spectrum. [10]
 - b Describe Wireless Sensor Network Architecture. Differentiate wireless sensor networks and wireless ad hoc networks. [10]
- 6 a Illustrate architecture components of RFID and explain them in brief. Discuss any one practical application of RFID. [10]
 - b Discuss architecture of IoT with any one example. Explain M2M communication [10]
