

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]
