Duration: 3 Hours   **[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.

Q1   **Solve any four**   **[20]**
    a) State the characteristics of WBAN.
    b) Compare Zigbee and 6LoWPAN.
    c) Explain link types of Bluetooth network.
    d) Illustrate the architecture of a wireless networks.
    e) Draw IOT protocol stack and discuss function of each layer in short.

Q2 **a)** Explain Hidden and exposed node problem with neat diagrams. Explain how to **[10]**
          alleviate these problems.
    b) Explain Bluetooth connection establishment states with neat flow diagram. **[10]**

Q3 **a)** State the characteristics of wirelessAdhoc networks and wireless sensor **[10]**
          networks separately. Write five points of comaparison between them.
    b) Describe architecture of IoT with any one example. Explain M2M **[10]**
          communication.

Q4 **a)** Explain the WMAN architecture with a neat diagram. Also state the **[10]**
          characteristics and benefits of WMAN.
    b) What are the factors influencing design of Wireless Sensor Network. Describe **[10]**
          the components of a sensor node.

Q5 **a)** Explain 6LoWPAN Architecture with a neat diagram. State function of each **[10]**
          layer.
    b) Calculate the uplink cell load factor and number of voice users for a WCDMA **[10]**
          system using the following data. What is the pole capacity of the cell. Given:
          Information rate (Ri) 12.2 kbps, Chip rate (Rc) 3.84Mcps, Required Eb/Nt 4 dB,
          Required interference margin 3 dB, Interference factor due to other cells 0.5,
          Channel activity factor 0.65.

Q6   **Write a short note on (Solve any 2)**   **[20]**
    a) Vehicular Adhoc Networks.
    b) Wireless Body Area Networks.
    c) IEEE 802.11

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