15/05/2025 BE EXTC SEM-VIII C-SCHEME WIRELESS NETWORKS QP CODE: 10080166

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.

1   **Attempt any FOUR**   **[20]**

a   Compare WLAN, WPAN, WWAN w.r.t. coverage and applications.

b   Explain the three phases in planning and design of a Wireless Network.

c   State the characteristics of WBAN.

d   Illustrate the architecture of wireless networks.

e   State and explain IoT characteristics.

2   a   Explain the factors influencing Wireless Sensor Network design.   **[10]**

    b   Calculate the uplink cell load factor and number of voice users for a WCDMA   **[10]**
       system using following data:
       Information Rate Ri =12.2 Kbps, Chip Rate = 3.84Mcps, required Eb/Nt = 4dB, Required inference margin = 3dB, Inference factor due to other cell = 0.5, Channel activity factor = 0.65.

3   a   Explain Hidden Node and Exposed Node problem in wireless LANs with   **[10]**
       neat diagrams.

    b   Write a short note on Vehicular Network Architecture.   **[10]**

4   a   Illustrate network establishment in Bluetooth. Explain each mode of   **[10]**
       operation.

    b   Explain the features of 6LoWPAN? List out its advantages, disadvantages   **[10]**
       and Applications.

5   a   Describe the architecture of Sensor Node. Differentiate between wireless   **[10]**
       sensor network and wireless ad hoc networks.

    b   Illustrate architecture components of RFID. Discuss any one practical   **[10]**
       application of RFID.

6   a   Discuss architecture of IoT with any one example. Explain   **[10]**
       M2Mcommunication.

    b   Explain the IEEE802.16 architecture with a neat diagram.   **[10]**

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