SAMPLE QUESTION
(TH.): WIRELESS SENSOR NETWORKS
PG Sem.: 3rd, Sub: MCA, Paper: MCA-3.5(3)

1. Define WSNs. Discuss different protocols used by the nodes in WSNs with suitable diagrams in brief.
2. Briefly discuss each of the following terminologies used in WSNs with suitable examples and diagrams:
    Sensing range; Communication range; Coverage; Connectivity; Sink hole problem; Clustering; Data aggregation; Network topology; Routing; Fault tolerance; Scalability; Hidden node problem; Idle listening; Transmission media used in WSN.
3. Briefly explain about different modulation techniques with suitable examples and diagrams.
4. Explain different multiple access techniques in wireless sensor networks.
5. Write short notes on the followings:
    i. Wireless channel characteristics
    ii. Wireless LAN
    iii. Radio propagation
    iv. PAN
6. How is WSN different from Adhoc Network? Justify your answer.
7. Cite different issues and challenges associated with Wireless Sensor Networks.
8. Briefly explain different components of a sensor node with suitable diagrams.
9. What do you mean by data dissemination and gathering?
10. Define Modulation. Briefly discuss different Analog-to-Analog modulation techniques with suitable examples and diagrams.
11. Cite about BCH Code with proper example.
12. Define Cyclic code. Briefly discuss about working of CRC mechanism during data transmission by considering Dataword = 1101 and Divisor = 1011 (where, lengths of codeword and dataword are 7 bits and 4 bits, respectively).
13. What is the Hamming distance? Justify through an example.
14. Define MAC. Briefly discuss different types of MAC protocol used in WSNs.
15. Differentiate between CSMA/CA and CSMA/CD. Why CSMA/CD is not suitable in wireless network? Justify.
16. Briefly discuss issues in designing MAC protocols for Adhoc wireless network with suitable examples and diagrams.
17. Write short notes on IEEE 802.15.4.
18. Briefly discuss S-MAC protocol in WSNs through suitable examples and diagrams.
19. Briefly explain working of CSMA protocol along with binary exponential back-off scheme through proper examples and diagrams.
20. Cite about four-way handshaking operation in WSNs.
21. What do you mean by LEACH? Briefly discuss LEACH protocol with suitable examples and diagrams.
22. Discuss different challenges for designing routing protocols in WSNs briefly.
23. Write the benefits of Hierarchical routing protocol over Flat-architecture routing protocol.
24. Define QoS. Briefly discuss QoS provisioning in the different layers of WSNs.
25. Discuss different challenges for QoS support in WSNs briefly.
26. Write down application specific QoS parameters in WSNs.