PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2021 - 22 Examination

Semester: 8   Date: 30/03/2022
Subject Code: 203107467   Time: 10:30 am to 1:00 pm
Subject Name: Wireless Sensor Networks   Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Answer the Following.   **(15)**

1. _____ Wireless networks utilizes multi hop radio relaying.
2. _____ Wireless network uses distributed routing for path discovery.
3. The _____topology of wireless networks provides many alternate paths for data transfer session between source and destination.
4. A _____ network is a collection of large number of sensor nodes that are deployed in a particular region.
5. The performance of any Ad-hoc network depends on _____ protocol.
   (a) Routing   (b) MAC   (c) transport   (d) Security
6. _____ is the node which is in the transmission rage from the sender of ongoing session, are prevented from making a transmission.
7. _____ Attack disrupt the operation of the network.
8. A _____ network is an infrastructure comprised of sensing (measuring), computing, and communication elements that gives an administrator the ability to instrument, observe, and react to events and phenomena in a specified environment.
9. Category-2 of wireless sensor network follows _____ topology.
10. _____ Node in wireless sensor network forwards information on behalf of another node.
11. In _____, a sensor node listening information that is not sent for it.
    (a) Congestion   (b) Collision   (c) Idle listening   (d) Over hearing
12. The main objective of _____ MAC protocols is to achieve a high level of energy efficiency in order to prolong the network lifetime.
    (a) Contention based (b) scheduled based (c) secure (d) random assignment
13. In Bluetooth, during _____ mode, a slave goes into the sleep mode for a specified amount of time
    (a) Active   (b) park   (c) sniff   (d) hold
14. Under IEEE 802.15.4, wireless links can operate in three unlicensed frequency bands: 868 MHz, 902 to 928 MHz, and _____ GHz.
    (a) 2   (b) 2.4   (c) 3   (d) 3.2
15. A _____ node is a node added by Intruder in the network and feed false data or block the passage of True data.
    (a) False node   (b) Cooperative node   (c) Non Cooperative node   (d) smart node

Q.2 Answer the following questions. (Attempt any three)   (15)
   A) State the comparisons between cellular network and wireless Ad-hoc network.
   B) List out the applications of Ad-hoc wireless network and explain in brief.
   C) Briefly explain the design issues in routing protocols.
   D) Draw and explain the generalized architecture of wireless sensor network.

Q.3 A) List out various contention based MAC Protocols and explain one of them in detail. (07)

    B) Explain SPIN protocol in detail. (08)

<div align="center">OR</div>

    B) Write brief note on IEEE 802.15.4(Zigbee) standard. (08)

Q.4 A) List out various Transport control protocol for WSN and explain any one of them in detail. (07)

<div align="center">OR</div>

    A) Briefly explain security key distribution technique in WSN. (07)

    B) Explain Tiny OS with reference to WSN. (08)