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

Semester: 8   Date: 30/03/2022
Subject Code: 03107481   Time: 10:30 am to 01:00 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 network can operate without the support of any fixed infrastructure.
2. _____ Network required fixed infrastructure to operate.
3. 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
4. The _____ routing is also referred to as table driven, relies on periodic dissemination of routing information to maintain consistent and accurate routing tables across all nodes of the network.
   (a) Proactive   (b) reactive   (c) hybrid   (d) distributed
5. Bluetooth system operates in the ISM band (Industrial Scientific Medicine) at the frequency _____ GHz.
   (a) 2   (b) 2.4   (c) 3   (d) 3.2
6. In Bluetooth, during _____ mode, the slave listens for packet transmission from the master.
   (a) Active   (b) park   (c) sniff   (d) hold
7. _____occurs when two or more sensor nodes attempt to transmit simultaneously.
   (a) Congestion   (b) Collision   (c) Idle listening   (d) Over hearing
8. Category-2 of wireless sensor network uses _____ routing.
9. Category-1 of wireless sensor network follows _____ topology.
10. _____ Attacks are active attacks which are executed by nodes outside the network.
11. _____ is the nodes that is hidden (or not reachable) from the sender of data transmission session, but are reachable to the receiver for the session.
12. The responsibility of _____ protocol include exchanging the root information, finding a feasible path to a destination based on hop length, minimum power required and life time for the wireless link.
13. A _____ network is a collection of large number of sensor nodes that are deployed in a particular region.
14. The _____topology of wireless networks provides many alternate paths for data transfer session between source and destination.
15. _____ Wireless network uses distributed routing for path discovery.

Q.2 Answer the following questions. (Attempt any three)   **(15)**
A) Briefly explain the design issues in routing protocols.
B) Write brief note on Wireless sensor network.
C) State the comparisons between wireless Ad-hoc network and wireless sensor network.
D) Draw and explain the hardware architecture of sensor node.

Q.3 A) List out the sources through which energy of the sensor node wasted in wireless sensor network.   **(07)**
B) Explain SPIN protocol in detail.   **(08)**
OR
B) List out the advantages and disadvantages of schedule based MAC protocol.   **(08)**

Q.4 A) Write brief note on PEGASIS protocol.   **(07)**
OR
A) Write brief note on ESRT and PSFQ protocol for data dissemination in the WSN. **(07)**
B) List out various Network management protocols in WSN and explain any one of them in detail. **(08)**