

M.E. (Electronics and Communication Engineering)  
Third Semester  
ECE-1308: Wireless Sensor Networks

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part. Use of scientific calculator is allowed.

x-x-x

- I. (a) Why wireless sensor networks need localization protocols? (2)  
(b) What is data dissemination in a wireless sensor network? (2)  
(c) What are the different topologies of MANETs and WANETs. (2)  
(d) What is black hole attack. (2)  
(e) What do you mean by geographic routing? (2)

Part- A

- II. (a) Explain low duty cycle and wakeup concepts in WSN. (5)  
(b) Explain basics of zigbee technology. Also explain Zigbee network architecture and how it is established? (5)
- III. (a) Explain security algorithms in Tiny OS and nesC operating systems. (5)  
(b) Discuss about time synchronization mechanisms in WSN with necessary equations. (5)
- IV. (a) Explain sensor network architecture: layered, clustered, OSI based and cross layer in detail. (5)  
(b) Explain classification of MAC protocol. Differentiate between S-MAC and B-MAC protocol. (5)

Part-B

- V. (a) Assume that as an attacker, you are planning to propose DoS attack. Write down the steps involved for DoS attack. Explain the effect of DoS attack in WSN. (5)  
(b) Explain deployment options for WSN's. What is data centric network. (5)
- VI. (a) Explain about efficient routing protocol with flooding mechanism in WSN. (5)  
(b) What are data aggregation techniques? Why they are important. (5)
- VII. (a) What do you mean by Reconfigurable Sensor Networks. Give its application. (5)  
(b) Design wireless sensor network that can be used for surveillance and environment monitoring in a zoo. A zoo is a facility in which animals are confined within enclosures, displayed to the public, and in which they may also be bred. State the functional requirements you are considering. (5)

x-x-x