R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, April - 2018
AD-HOC AND SENSOR NETWORKS
(Common to CSE, IT)

Time: 3 hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) What is Personal Area Networking?   [2]
  b) Specify the importance of energy conservation protocols in Ad hoc sensor networks.[3]
  c) List four categories of Multicast routing protocols.   [2]
  d) How does the Hidden Terminal Problem affect TCP over multi-hop MANETs?   [3]
  e) What is the role of cluster head in Wireless Sensor Clustering network?   [2]
  f) Specify the difference between Flat-based and Hierarchical-based routing in WSNs.
                                                                                                      [3]
  g) How key management is done for securing WSNs?   [2]
  h) Illustrate the network programming challenges.   [3]
  i) What is concurrency and Atomicity in network programming language?   [2]
  j) Briefly explain component interface in nesC code.   [3]

PART - B

(50 Marks)

2.a) Explain the major challenges to be addressed by Ad hoc networks.
  b) Illustrate differences between Associative-based routing and QoS Routing.   [5+5]

OR

3.   Explain Proactive, reactive and hybrid routing approaches of routing in MANETs with suitable example routing protocol in each category.   [10]

4.   Describe in detail about MAC layer impact and Network layer impact on TCP.   [10]

OR

5.   Explain the working principle of
      a) Voronoi Diagram based Geo-casting
      b) Mesh based Geo-cast Routing protocol.   [5+5]

6.   Describe in detail about Sensor-MAC protocol and its design trade-offs for energy consumption.   [10]

OR

7.   Explain the operation of the following WSN routing algorithms
      a) Cluster Based Routing Protocol (CBRP)
      b) Threshold-sensitive Energy Efficient Network Protocol (TEEN).   [5+5]

8. Describe in detail the IDS Architecture for Ad hoc and Sensor networks with neat sketch.

[10]

OR

9. Explain the functionality of the following Secure routing protocols.
    a) ARIADNE
    b) SEAD.   [5+5]

10. Describe TinyOS with details of "Field Monitor" application and Timer component Interfacing.   [10]

OR

11. Explain NS-2 simulator with its sensor network extensions. Compare Ns-2 simulator with its counter parts.   [10]

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