Code No: 118AA

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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