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# P.E.S. College of Engineering, Mandya - 571 401

*(An Autonomous Institution affiliated to VTU, Belagavi)*

**Eighth Semester, B.E. - Electronics and Communication Engineering**
**Semester End Examination; May/June - 2018**
**Adhoc Wireless Networks**

*Time: 3 hrs*                                                          *Max. Marks: 100*

*Note*: *Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

## UNIT - I

1 a. Discuss the major issues that make sensor networks a distinct category of adhoc wireless networks.    10

  b. Discuss the major issues that affect the design, deployment, performance of an adhoc wireless system.    10

2 a. Which protocol is used to provide real time traffic support in multi-hop wireless networks and explain how it works?    10

  b. Explain the classifications of MAC protocols, write a short note on contention based protocols with reservation mechanism.    10

## UNIT - II

3 a. Write a short note on directional busy tone based MAC protocol.    6

  b. Explain the working of the BASIC power control protocols in briefly.    8

  c. Discuss the following main issues of designing protocol for adhoc wireless networks:
   i) Mobility
   ii) Bandwidth constraint
   iii) Errorprone shared Broadcast radio channel    6

4 a. What are the pros and cons of using multichannel MAC protocols over single channel MAC protocols?    6

  b. Is a table driven routing protocol suitable for high mobility environments? Justify.    6

  c. Discuss the differences in topology reorganization in DSR and AODV routing protocols.    8

## UNIT - III

5 a. What are the advantages of hierarchical topology based protocols over protocols that use flat topologies?    10

  b. For the network shown in Fig. - 1, determine the fisheye routing table for nodes 1, 2, 3 and 4.



Figure 1.

    10
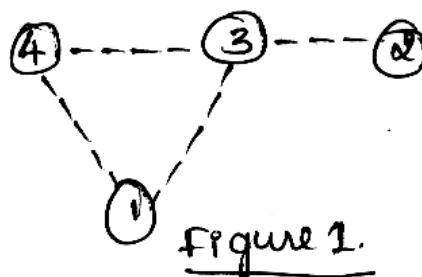
6 a. Discuss the design goals of a transport layer protocol for adhoc wireless network. 6

b. Write a short note on TCP over adhoc wireless networks and why does TCP not perform well in adhoc wireless networks? 8

c. Explain any three major issues in designing transport layer protocol for adhoc wireless network. 6

## UNIT - IV

7 a. List the requirements of secure routing protocols for adhoc wireless networks. 5

b. What is the impact of the failure of proxy nodes in split TCP? 5

c. Explain how network security requirements vary in the following application scenarios of adhoc wireless networks :

i) Home networks

ii) Classroom networks

iii) Emergency search and rescue networks

iv) Military networks

10

8 a. Explain the Key Encrypting Key (KEK) method. 10

b. Explain the comparison of vulnerabilities of ARAN with DSR and AODV protocols. 3

c. List and explain how some of the inherent properties of the wireless adhoc networks introduce difficulties while implementing security in routing protocols? 7

## UNIT - V

9 a. Discuss the issues and challenges in providing QOS in adhoc wireless network. 10

b. Express various inter – frame spaces (IFSs) of IEEE 802.11e MAC protocol in terms of SIFS and slot time. 10

10 a. Compare and contrast the IEEE 802.11e MAC protocol with the DBASE protocol. 8

b. Discuss the QOS support mechanisms of IEEE 802.11e. 6

c. Write a short note on node Hybrid coordination function. 6

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