

Code No: **R42047**

R10

Set No. 1

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016

WIRELESS SENSOR NETWORKS

(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) How does adhoc network differ from wireless networks? [8]
b) Mention the major applications of Wireless Sensor Networks. [7]
- 2 a) Describe the single node architecture with appropriate diagram. [8]
b) Explain energy aware protocols in WSN. [7]
- 3 a) Discuss the Security issues in MANETs. [8]
b) Explain in detail about the different types of MANET routing Algorithms. [7]
- 4 a) Mention the MAC layer challenges in Wireless Sensor Networks. [8]
b) What are the Design goals of a MAC Protocol for Ad Hoc Wireless Networks? [7]
- 5 a) List the classification of routing protocols in ad hoc networks. Explain any two in detail. [8]
b) What are the issues in designing a Routing Protocol for Ad Hoc Wireless Networks? [7]
- 6 a) What are the design Goals of a Transport Layer Protocol for Ad Hoc Wireless Networks? [8]
b) Justify what are the solutions for classification of transport layer. [7]
- 7 a) Explain how security is provided in adhoc sensor networks. [8]
b) Describe the time synchronization in adhoc sensor networks. [7]
- 8 a) Describe the Berkeley Motes in detail. [8]
b) Give the description of future direction of Wireless Sensor Networks. [7]



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Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) What are the deployment challenges in Wireless Sensor Networks? [8]
b) List the application areas of sensor networks. [7]
- 2 a) Discuss about quality of sensor network. [8]
b) Draw and explain sensor network architecture. [7]
- 3 a) Define the problem of Hidden and Exposed terminals. [8]
b) What are the different kinds of multiplexing techniques? Explain them. [7]
- 4 a) Explain the issues in Designing a MAC protocol for Ad Hoc Wireless Networks. [8]
b) With relevant examples explain any two MAC layer protocols in Wireless Sensor Networks. [7]
- 5 a) Why TCP protocols used in wired network is not suitable for wireless networks? Compare the different TCP protocols over ad hoc networks. [8]
b) Explain the OLSR protocol in detail. Compare it with AODV protocol. [7]
- 6 a) Describe the issues in Designing a Transport Layer Protocol for Ad Hoc Wireless Networks. [8]
b) What are the challenges in transport layer for Adhoc networks? [7]
- 7 a) Explain the Clustering in detail. [8]
b) What are the requirements in network security? [7]
- 8 a) Explain the Node level simulators in detail. [8]
b) Describe the Wireless Fidelity systems in detail. [7]



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Set No. 3

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Time: 3 hours

Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) Differentiate ad hoc networks & sensor networks. Outline the features of Wireless Sensor Networks. [8]
b) Compare the features of cellular networks and ad hoc networks. [7]
- 2 a) Draw and explain the architecture of Sensor Networks. [8]
b) Describe in detail about the energy consumption of sensor nodes. [7]
- 3 a) Explain in detail about Transceiver Design Considerations. [8]
b) Explain the properties of MANETs. [7]
- 4 a) Explain MAC layer challenges in Wireless Sensor Networks. [8]
b) Explain the design goals of a MAC Protocol for Ad Hoc Wireless Networks. [7]
- 5 a) Describe about various types of hybrid routing protocols. [8]
b) Explain in detail about the source initiated routing protocols for adhoc networks. [7]
- 6 a) What is a transport layer? How to Classify Transport Layer Solutions? [8]
b) Explain the transport layer protocols in detail. [7]
- 7 a) Explain about Sensor Tasking and Control. [8]
b) Explain in detail about Security in Ad Hoc Wireless Networks. [7]
- 8 a) Explain the programming challenges in Wireless Sensor Networks. [8]
b) Using sensors how to automate a home? Explain it. [7]



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Set No. 4

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WIRELESS SENSOR NETWORKS
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Time: 3 hours

Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) What are the major issues and challenges that need to be considered for designing adhoc wireless system? [9]
b) Describe the Enabling Technologies for Wireless Sensor Networks. [6]
- 2 a) Explain the optimization goals of Sensor Networks. [7]
b) Explain the merits and demerits of Sensor Networks. [8]
- 3 a) What are the applications needed in a MANET? [8]
b) What is mobile ad-hoc network? What are the applications of MANET? [7]
- 4 a) Discuss about the Contention Based MAC Protocols with Scheduling Mechanisms. [7]
b) Explain the any two MAC Protocols that use Directional Antennas. [8]
- 5 a) Explain the difference between Proactive routing protocols and Reactive routing protocols. [8]
b) Explain the OLSR protocol in detail. Compare it with AODV protocol. [7]
- 6 a) What are the issues designing in transport layer for adhoc networks? [8]
b) Describe the classification of transport layer and its solutions. [7]
- 7 a) What are the issues and Challenges in Security Provisioning? [8]
b) Describe the attacks in Network Security. [7]
- 8 a) Explain the Node- level software in detail. [8]
b) Describe in detail about the state centric programming. [7]

