

Code No: RT42044A

R13

Set No. 1

IV B.Tech II Semester Regular Examinations, April/May - 2017

WIRELESS SENSORS AND NETWORKS

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

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Write the advantages of sensor networks [4]
- b) Define node and draw PANs topology. [4]
- c) Write other MAC protocols. [4]
- d) How does adhoc network differ from wireless networks? Define. [4]
- e) What is the function of transport layer? [3]
- f) Write the Smart metering applications [3]

PART-B (3x16 = 48 Marks)

2. a) Explain the need for Gateways and write about Wireless Sensor Network tunneling. [8]
- b) Explain in detail main sensor node hardware components with neat diagram. [8]
3. a) Discuss the design considerations of physical layer and transceiver. [8]
- b) Explain hidden node and exposed node problem. [8]
4. a) With relevant examples explain any two MAC layer protocols in Wireless Sensor Networks [8]
- b) What are the Design goals of a MAC Protocol for Ad Hoc Wireless Networks? [8]
5. a) Explain the difference between Proactive routing protocols and Reactive routing protocols. [8]
- b) Give the classification of routing protocol based on routing topology [8]
6. a) Explain the transport layer protocols in detail. [8]
- b) Explain in brief about the Issues in Designing a Transport Layer Protocol for Ad Hoc Wireless Networks? [8]
7. a) Write short notes on Home automation [8]
- b) Write short notes on Programming challenges in sensor network [8]



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Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) write the merits and demerits of Sensor Networks [4]
- b) What are the difference between sensor network and MANET? [4]
- c) List out the applications of wireless sensor networks. [4]
- d) Define routing protocol. [3]
- e) Write about security protocol. [4]
- f) Write the Future directions of WSN [3]

PART-B (3x16 = 48 Marks)

2. a) Define wireless Sensor network? Explain in brief about the challenges in designing a wireless Sensor network [8]
- b) Write about optimization goal and Figure of Merit [8]
3. a) Explain in detail about the different types of MANET routing Algorithms [8]
- b) Compare the topologies of PANs and WANETs. [8]
4. a) What is the principle behind scheduled based protocol? Explain any one schedule based protocol. [8]
- b) What are the different Contention based protocols, write about CSMA Protocol. [8]
5. a) Describe about various types of hybrid routing protocols. [8]
- b) Explain in brief about the Issues in Designing a Routing Protocol for Ad Hoc Wireless Networks [8]
6. a) Explain TCP over Ad Hoc wireless networks in detail.. [8]
- b) What is the design Goals of a Transport Layer Protocol for Ad Hoc Wireless Networks? [8]
7. a) Write short notes on State-centric programming [8]
- b) Write short notes on Wireless fidelity systems [8]



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Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Define the sensor networks. [3]
- b) What are the applications needed in a MANET? [4]
- c) Write about MAC protocols. [4]
- d) Write about adhoc wireless networks. [3]
- e) the classification of transport layer [4]
- f) Write the applications of wireless sensor networks [4]

PART-B (3x16 = 48 Marks)

2. a) Discuss in detail about the energy consumption of Sensor Nodes. [8]
- b) Write about the enabling technologies for wireless sensor networks. [8]
3. a) Explain in detail trans-receiver design considerations of WSNS [8]
- b) Write in detail about PAN and MANETS. [8]
4. a) Discuss different types of MAC protocols. [8]
- b) Discuss about the Contention Based MAC Protocols with Scheduling Mechanisms. [8]
5. a) Discuss about hierarchical routing protocols. [8]
- b) Discuss about efficient flooding routing protocols. [8]
6. a) Explain what are the other transport layer protocol for AdHoc wireless networks. [8]
- b) What are the challenges in transport layer for AdHoc networks? [8]
7. a) Describe the Berkeley Motes in detail. [8]
- b) What is the key management and give various key management approaches [8]

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Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Write different types of applications, Wireless sensor networks are used? [4]
- b) What is mobile ad-hoc network? [3]
- c) Differentiate between contention based protocols and schedule based protocols. [4]
- d) Classify routing protocols. [4]
- e) What is TCP? [3]
- f) Write the Applications of ultra wide band radio communication [4]

PART-B (3x16 = 48 Marks)

2. a) Describe the single node architecture with appropriate diagram. [8]
- b) Draw and explain sensor network architecture. [8]
3. a) Explain in detail personal area networks (PANs). [8]
- b) Write about the topologies of MANETs and WANETs. [8]
4. a) Explain the issues in Designing a MAC protocol for Ad Hoc Wireless Networks. [8]
- b) Write about the MAC protocol that uses Directional Antennas [8]
5. a) Write about power-Aware routing protocols, proactive routing. [8]
- b) Differentiate between Table-Driven Routing Protocols and On-Demand Routing Protocols? [8]
6. a) What is a transport layer? How to Classify Transport Layer Solutions? [8]
- b) Explain in brief about Security in Ad Hoc Wireless Networks? [8]
7. a) Describe the attacks in Network Security [8]
- b) Write short notes on Node level simulators [8]

