

IV B.Tech II Semester Regular Examinations, September - 2020

WIRELESS SENSORS AND NETWORKS(Common to Electronics & Communication Engineering and Electronics and
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 FOUR questions from Part-B*

PART-A(14 Marks)

1. a) Define a sensor Network. [2]
- b) List different topologies of PAN. [2]
- c) What is Hop Reservation Multiple Access Protocol? [3]
- d) Discuss about On Demand Routing protocol. [2]
- e) What is split TCP? [2]
- f) How secure routing is done on wireless channels? [3]

PART-B(4x14 = 56 Marks)

2. a) Explain about single node architecture. [7]
- b) Discuss about enabling technologies for wireless sensor networks. [7]
3. a) Analyze hidden node and exposed node problem. [7]
- b) Define MANET and WANET and list differences between them. [7]
4. a) Compare the advantages and disadvantages of MAC protocols using directional antennas? [7]
- b) Explain scheduling based MAC protocols. [7]
5. a) Describe about various types of hybrid routing protocols. [7]
- b) Illustrate the basics of table driven Routing Protocols. [7]
6. a) Explain about Ad Hoc Transport control Protocol network layer. [7]
- b) Discuss in detail about Transport layer protocols with neat sketch. [7]
7. a) Discuss about Node level software Platforms. [7]
- b) Explain about network security attacks. [7]

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PART-A(14 Marks)

1. a) What are the merits and demerits of WSNs. [2]
- b) Define MANET and list different types of MANETS. [2]
- c) Draw the diagram of MACA with Piggy-Backed Reservation. [3]
- d) Write a short note on table - driven routing protocols. [2]
- e) Why does TCP shall not work well in ad hoc network? [2]
- f) Discuss about home automation? [3]

PART-B(4x14 = 56 Marks)

2. a) Explain sensor node hardware components with a diagram. [7]
- b) Define Wireless sensor networks and explain the challenges while designing the wireless sensor networks. [7]
3. a) Explain about WANETS and describe its characteristics. [7]
- b) Define PAN and list its applications. [7]
4. a) Compare Hidden and Exposed Terminal problems. [7]
- b) Give application scenarios where contention-based, reservation-based, and packet scheduling-based MAC protocols can be used. [7]
5. a) Discuss about hierarchical routing protocols and explain its types. [7]
- b) Explain briefly about proactive routing protocols. [7]
6. a) With any five major reasons, analyze why TCP is exposed to significant throughput degradation in Ad Hoc networks. [7]
- b) Explain the classification of transport layer protocol solutions. [7]
7. a) Give details for the key management and explain various key management approaches. [7]
- b) Write short notes on state-centric programming. [7]

Code No:R164204A

R16

Set No. 3

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Answer any FOUR questions from Part-B

PART-A(14 Marks)

1. a) Discuss some challenges of WSNs. [2]
- b) List applications of WANETS. [2]
- c) Classify MAC Protocols. [3]
- d) State advantages and disadvantages of hybrid routing protocols. [2]
- e) Explain advantages and disadvantages of Ad Hoc TCP network layer. [2]
- f) List the Future directions of WSN? [3]

PART-B(4x14 = 56 Marks)

2. a) Discuss in detail about the energy consumption of Sensor Nodes. [7]
- b) List out the advantages and applications of sensor networks. [7]
3. a) Write in detail about Transceiver design considerations. [7]
- b) Describe security issues in MANETS. [7]
4. a) Mention the design goals of a MAC protocol for Ad Hoc Wireless Network? [7]
- b) What are the different contention based protocols, write about CSMA protocol. [7]
5. a) Give the classification of routing protocol based on routing Topology. [7]
- b) Illustrate in detail about efficient routing protocols with flooding mechanisms for WSNs. [7]
6. a) List out the design goals of a transport Layer protocol for Ad Hoc wireless networks. [7]
- b) Compare the differences of TCP over Ad hoc wireless networks. [7]
7. a) Write short notes on Wireless fidelity systems. [7]
- b) Explain Berkeley Motes in detail. [7]

Code No:R164204A

R16

Set No. 4

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Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

PART-A(14 Marks)

1. a) List out the advantages of Wireless Sensor Networks. [2]
- b) Describe exposed node problem. [2]
- c) Compare any two contention based protocols. [3]
- d) Define Routing protocol. [2]
- e) What is the function of transport layer? [2]
- f) Write about Smart metering applications? [3]

PART-B(4x14 = 56 Marks)

2. a) Write about the enabling technologies for wireless sensor networks. [7]
- b) Explain about single node architecture. [7]
3. a) What are various topologies of Personal Area Networks?-Explain. [7]
- b) How the responsibilities of physical layer can be done? List the design parameters of physical layer. [7]
4. a) What are the issues in designing a MAC protocol for Ad Hoc Wireless Networks? [7]
- b) Discuss about MAC protocols that use directional antennas. [7]
5. a) Write about power-aware routing protocols in WSNs. [7]
- b) Explain in detail about issues in designing a Routing protocol for Ad Hoc wireless networks? [7]
6. a) How feedback based TCP system works?-Give details. [7]
- b) What are the design issues of transport layer protocol for Ad hoc wireless network? [7]
7. a) Write about Wireless fidelity system. [7]
- b) Explain the network security requirements in sensor networks. [7]