Code No: **RT42044A** **R13** **Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019

WIRELESS SENSORS AND NETWORKS

(Common to Electronics and Communications Engineering, Electronics and Instrumentation 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 THREE questions from Part-B
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PART–A *(22 Marks)*

1.	a)	Mention the unique constraints of WSNs.	[4]
	b)	What is personal area network?	[3]
	c)	Mention the few design goals of a MAC protocol.	[4]
	d)	Compare any two routing protocols.	[4]
	e)	Mention few issues in designing a transport layer protocol	[4]
	f)	Explain smart metering application.	[3]

PART–B *(3x16 = 48 Marks)*

2.	a)	Define Wireless sensor networks and mention its advantages.	[8]
	b)	Explain about optimization goals and figure of merit.	[8]
3.	a)	Explain about the responsibilities of physical layer and explain the design parameters of physical layer.	[8]
	b)	Explain about WANETs.	[8]
4.	a)	Explain about Interleaved CSMA protocol.	[8]
	b)	Discuss contention based protocols with reservation mechanism.	[8]
5.	a)	Discuss the issues in designing a routing protocol for Adhoc wireless networks.	[8]
	b)	Explain about efficient flooding routing protocols.	[8]
6.	a)	Explain in brief about TCP with explicit link failure notification.	[8]
	b)	Describe the classification of transport layer solutions.	[8]
7.	a)	Explain the network security requirements in sensor networks.	[8]
	b)	Discuss about Ultra-wide band radio communication.	[8]

Code No: **RT42044A** **R13** **Set No. 2**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019

WIRELESS SENSORS AND NETWORKS

(Common to Electronics and Communications Engineering, Electronics and Instrumentation 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 THREE questions from Part-B

*****

PART–A *(22 Marks)*

1.	a)	Mention the advantages of WSNs.	[4]
	b)	What is hidden node problem?	[3]
	c)	Mention the few issues in the design of a MAC protocol.	[4]
	d)	Write the classification of routing protocols.	[4]
	e)	Write about security protocols.	[4]
	f)	Discuss about home automation.	[3]

PART–B *(3x16 = 48 Marks)*

2.	a)	Define Wireless sensor networks and explain the challenges while designing the wireless sensor networks.	[8]
	b)	Explain sensor node hardware components with diagram.	[8]
3.	a)	Explain various topologies of Personal Area Networks.	[8]
	b)	Write in detail about Transceiver design considerations.	[8]
4.	a)	Explain about real time MAC protocol.	[8]
	b)	Explain about MAC protocols that use directional antennas.	[8]
5.	a)	Explain about power-aware routing protocols.	[8]
	b)	Differentiate between Table-driven and on-demand Routing protocols.	[8]
6.	a)	Explain the design goals of a transport layer protocol for Ad Hoc networks.	[8]
	b)	Discuss transport layer protocols.	[8]
7.	a)	Explain Berkeley Motes in detail.	[8]
	b)	Explain Wireless fidelity systems.	[8]

Code No: **RT42044A** **R13** **Set No. 3**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019

WIRELESS SENSORS AND NETWORKS

(Common to Electronics and Communications Engineering, Electronics and Instrumentation 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 THREE questions from Part-B

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PART–A *(22 Marks)*

1.	a)	Write applications of WSNs.	[4]
	b)	What is mobile adhoc network?	[3]
	c)	Write short notes on classification of MAC protocols.	[4]
	d)	Mention few issues in designing routing protocols.	[4]
	e)	Mention the design goals of a transport layer protocol.	[4]
	f)	Explain about node-level simulators.	[3]

PART–B *(3x16 = 48 Marks)*

2.	a)	Define Wireless sensor networks and explain enabling technologies for wireless sensor networks.	[8]
	b)	Discuss the optimization goals and figure of merit of sensor networks.	[8]
3.	a)	Explain hidden node and exposed node problem.	[8]
	b)	What is mobile-adhoc networks and list its applications?	[8]
4.	a)	What are the design goals of a MAC protocol for Ad Hoc wireless networks?	[8]
	b)	What are the different contention based MAC protocols? Explain.	[8]
5.	a)	Discuss the differences between proactive and reactive routing protocols.	[8]
	b)	Explain about Hierarchical Routing protocols.	[8]
6.	a)	Discuss the issues in designing a transport layer protocol.	[8]
	b)	Explain the differences between TCP over Ad Hoc wireless networks.	[8]
7.	a)	Explain network security attacks.	[8]
	b)	Write short notes on state-centric programming.	[8]

Code No: **RT42044A** **R13** **Set No. 4**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019

WIRELESS SENSORS AND NETWORKS

(Common to Electronics and Communications Engineering, Electronics and Instrumentation 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 THREE questions from Part-B
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PART–A *(22 Marks)*

1.	a)	Mention the limitations of WSNs.	[4]
	b)	What do you mean by gateway concepts?	[3]
	c)	Compare any two contention based protocols.	[4]
	d)	Mention the features of Demand Routing protocols.	[4]
	e)	Write about TCP over Ad Hoc wireless networks.	[4]
	f)	Discuss the few programming challenges in sensor networks.	[3]

PART–B *(3x16 = 48 Marks)*

2.	a)	Define Wireless sensor networks and mention its applications.	[8]
	b)	Explain the energy consumption of sensor nodes.	[8]
3.	a)	Explain about topologies of WANETs.	[8]
	b)	Discuss the security issues in MANETs.	[8]
4.	a)	Explain the issues in designing a MAC protocol for Ad Hoc wireless networks.	[8]
	b)	Explain scheduling based MAC protocol.	[8]
5.	a)	Explain the classification of routing protocols.	[8]
	b)	Explain any two of the routing protocols for wireless sensor networks.	[8]
6.	a)	Explain about transport layer protocol for Ad Hoc wireless networks.	[8]
	b)	Discuss the classification of transport layer solutions.	[8]
7.	a)	Write note on network security attacks and key management in wireless sensor networks.	[8]
	b)	Discuss any two applications of wireless sensor networks.	[8]