Course Code: 20EC4008 **R20**

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR (AUTONOMOUS)
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QUESTION BANK (DESCRIPTIVE)

Subject with Code: Wireless Sensor Networks(20EC4008) Course & Branch: M.Tech – VLSI

Year &Sem:II& I Regulation: R20

UNIT –I
INTRODUCTION

1	a) Explain Layered Network Architecture in detail.	[L2] [CO1]	[6M]
	b) Describe Clustered Network Architecture with neat Sketch.	[L2] [CO1]	[6M]
2	a) Mention any three design issues in wireless sensor network architecture.	[L3] [CO1]	[6M]
	b) Discuss the Computation, Clock and Quality of Service issues in wireless sensor network.	[L2] [CO1]	[6M]
3	a) Describe the structure of sensor network.	[L2][CO3]	[6M]
	b) With neat diagram, explain hardware of sensor nodes.	[L2][CO3]	[6M]
4	Compare Sensor networks and MANETS.	[L4][CO3]	[12M]
5	a) Explain the concept of Transceiver in wireless sensor network.	[L3][CO3]	[7M]
	b) Describe the characteristics of wireless sensor network.	[L2][CO1]	[5M]
6	a) Discuss the advantages of wireless sensor network.	[L2][CO1]	[5M]
	b) Mention the applications of wireless sensor network.	[L3][CO1]	[7M]
7	a) Explain the various buses used in wireless sensor network.	[L2][CO3]	[6M]
	b) Compare SPI and I2C bus.	[L4][CO3]	[6M]
8	Illustrate in detail about the various hardware components and their composition into a functioning node of wireless sensor network.	[L2][CO3]	[12M]
9	Explain the functions and responsibilities of the various layers of wireless sensor network.	[L2][CO1]	[12M]
10	Discuss the design principles for wireless sensor network.	[L2][CO1]	[12M]

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UNIT –II

HARDWARE

1	a) Compare General Parameters of Mica2 and Telosb.	[L2][CO2]	[6M]
	b) Describe the Communications Capabilities Mica2 and Telosb.	[L2][CO2]	[6M]
2	a) Write short notes on the Tmote.	[L1][CO2]	[6M]
	b) Explain characterization Parameter of Imote2.	[L2][CO2]	[6M]
3	a) Write short notes on BT node.	[L1][CO2]	[6M]
	b) Illustrate the concept of Sun Spot with characterization parameter.	[L2][CO2]	[6M]
4	Discuss in detail the simplified architecture of TinyOS.	[L2][CO3]	[12M]
5	Explain in detail about the Contiki OS with its architecture.	[L2][CO3]	[12M]
6	a) Explain the concept and Features of NS-2.	[L2][CO3]	[6M]
	b) Discuss the concept, advantage and limitations of QualNet.	[L3][CO3]	[6M]
7	a) Tabulate and compare the various OS employed in WSN.	[L3][CO3]	[6M]
	b) Summarize the experimental platform OS NS-2.	[L4][CO3]	[6M]
8	Explain in detail the programming tools used in WSN.	[L3][CO4]	[12M]
9	Discuss how partitioning of programs is carried out in Contiki OS.	[L2][CO4]	[12M]
10	Highlight the various issues with OS in WSN.	[L3][CO4]	[12M]

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UNIT –III

OVERVIEW OF SENSOR NETWORK PROTOCOLS

1	a) Discuss in detail about signal models in physical layer.	[L3][CO2]	[6M]
	b) Describe the concept of Specific channel model in WSN.	[L2][CO2]	[6M]
2	Explain the design Consideration for MAC Protocols in wireless sensor network.	[L2][CO3]	[12M]
3	a) Discuss in detail the various schedule-based MAC protocols.	[L3][CO3]	[6M]
	b) Summarize the contention-based MAC protocols.	[L3][CO3]	[6M]
4	a) Discuss the design constraints of a routing protocol.	[L4][CO3]	[6M]
	b) Classify the routing protocols employed in WSN.	[L2][CO3]	[6M]
5	a) Discuss in detail the operation of LEACH protocol used in WSN.	[L2][CO4]	[6M]
	b) Describe distributed energy efficient clustering and beacon-less routing protocol.	[L3][CO4]	[6M]
6	a) Discuss about the concept behind Bluetooth.	[L3][CO4]	[5M]
	b) Explain the working of Ultra-Wide band (UWB).	[L2][CO4]	[7M]
7	a) Explain multi hop protocols with relevant diagrams.	[L2][CO3]	[6M]
	b) Discuss the various cluster-based protocols in detail.	[L3][CO3]	[6M]
8	a) List out the fundamentals of IEEE 802.15.4	[L1][CO3]	[6M]
	b) List the various node discovery protocols available in wireless sensor networks	[L1][CO2]	[6M]
9	a) Explain the concept behind the BLE (Bluetooth Low Energy).	[L2][CO3]	[6M]
	b) Discuss in detail any two node discovery protocols.	[L3][CO3]	[6M]
10	a) Elaborate the architecture of Bluetooth.	[L4][CO2]	[6M]
	b) Discuss the characteristics of UWB.	[L3][CO2]	[6M]

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UNIT –IV

DATA DISSEMINATION AND PROCESSING

1	a) Elaborate the three main challenges of data dissemination.	[L2][CO5]	[6M]
	b) Summarize the design goals and solutions of data dissemination.	[L3][CO5]	[6M]
2	Summarize the data dissemination protocols used in sensor networks.	[L3][CO5]	[12M]
3	a) Describe the concept of directed diffusion.	[L2][CO4]	[6M]
	b) Write notes on declarative routing protocol.	[L1][CO2]	[6M]
4	a) Explain the fundamentals of cost field approach.	[L2][CO4]	[6M]
	b) Elaborate the receiver decided protocols.	[L3][CO2]	[6M]
5	a) Discuss the concept of two tier data dissemination.	[L2][CO5]	[6M]
	b) Explain the low energy adaptive clustering hierarchy.	[L2][CO4]	[6M]
6	a) Describe the data centric routing and storage in WSN.	[L2][CO4]	[6M]
	b) Illustrate the performance of data-centric Storage systems.	[L3][CO5]	[6M]
7	a) Explain the Resilient multipath directed diffusion protocol.	[L2][CO2]	[6M]
	b) What are the two ways a node makes forwarding decisions?	[L1][CO3]	[6M]
8	a) Explain the need for Query processing.	[L2][CO5]	[6M]
	b) Elaborate the concept behind TinyDB Query processing.	[L3][CO4]	[6M]
9	a) Discuss about Query processing scheduling and optimization.	[L2][CO4]	[6M]
	b) Discuss the Centralized approach in data storage.	[L2][CO5]	[6M]
10	a) Explain the concept of network storage.	[L2][CO5]	[6M]
	b) Summarize the properties while designing a sensor database.	[L3][CO4]	[6M]

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UNIT –V

SPECIALIZED FEATURES

1	a) Mention properties of localization and positioning procedure.	[L3][CO4]	[6M]
	b) What are the basic metrics utilized to judge the efficacy and quality of a topology control algorithm?	[L1][CO5]	[6M]
2	a) Summarize the concept of sensing models and its types.	[L3][CO4]	[6M]
	b) Describe the coverage measures in WSN deployment.	[L2][CO5]	[6M]
3	a) Classify the various coverage types in WSN.	[L3][CO5]	[6M]
	b) Explain any two issues in connectivity and coverage.	[L2][CO5]	[6M]
4	a) Examine the design issues and challenges in the design of sensor grid.	[L4][CO6]	[6M]
	b) Discuss about the sensor grid architecture and its design.	[L2][CO6]	[6M]
5	a) Highlight the challenges and research issues for WSN.	[L3][CO5]	[5M]
	b) Explain the concept behind Distributed beamforming for WSN.	[L2][CO6]	[7M]
6	a) Highlight the implementation of cognitive radio in WSN.	[L3][CO6]	[6M]
	b) Explain Wavelet technology for context aware and reconfigurable WSN.	[L2][CO6]	[6M]
7	a) What are the goals for localization algorithm?	[L1][CO5]	[6M]
	b) Summarize the techniques exists for determining localization.	[L3][CO5]	[6M]
8	a) Discuss the ways to obtain pairwise distance measurement.	[L2][CO4]	[6M]
	b) Explain reference point centroid scheme.	[L1][CO4]	[6M]
9	a) What are the deployment objectives of a wireless sensor network?	[L1][CO5]	[6M]
	b) Classify the various sensor node deployment carried out in WSN.	[L3][CO5]	[6M]
10	a) Define fault and classify it.	[L3][CO6]	[6M]
	b) Summarize the various fault tolerance techniques used in WSN	[L3][CO6]	[6M]

PREPARED BY:

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