INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad - 500 043

ELECTRONICS AND COMMUNICATION ENGINEERING

TUTORIAL QUESTION BANK

Course Title	**WIRELESS SENSOR NETWORKS AND ARCHITECTURE**				
Course Code	AEC526				
Programme	B.Tech				
Semester	VII	ECE			
Course Type	Elective				
Regulation	IARE - R16				
Course Structure	Theory			Practical	
	Lectures	Tutorials	Credits	Laboratory	Credits
	3	-	3	-	-
Chief Coordinator	Mr. K Chaitanya, Assistant Professor				
Course Faculty	Mr. K Chaitanya, Assistant Professor				

COURSE OBJECTIVES

The course should enable the students to:	
I	Provide fundamental treatment about many practical and theoretical concepts that forms basic of wireless communications.
II	Equip various kinds of wireless networks and its operations.
III	Understand the concept of frequency reuse, and be able to apply it in the design of mobile cellular system.
IV	Understand various modulation schemes and multiple access techniques that are used in wireless communications

COURSE OUTCOMES (COs):

CO 1	Understand and explain the Fundamental Concepts and applications of ad hoc and wireless sensor networks
CO 2	Understand and explain common wireless sensor node architectures.
CO 3	Be able to carry out simple analysis and planning of WSNs.
CO 4	Demonstrate knowledge of routing protocols developed for WSN
CO 5	Understand and explain mobile data-centric networking principles.

COURSE LEARNING OUTCOMES (CLOs):

AEC526.01	Understand the fundamentals of wireless sensor networks.
AEC526.02	Explain the challenges of sensor networks.
AEC526.03	Understand the characteristic requirements of wireless sensor networks.
AEC526.04	Understand the architecture of sensor networks.
AEC526.05	Understand the optimization of goals.
AEC526.06	Explain the gateway concepts.
AEC526.07	Understand the design considerations
AEC526.08	Understand the MAC protocols for wireless sensor networks
AEC526.09	Explain the geographic routing.
AEC526.10	Understand the topology control
AEC526.11	Explain the hierarchical networks by clustering time synchronization.
AEC526.12	Understand the joint routing and information aggregation
AEC526.13	Understand the Sensor node hardware
AEC526.14	Explain the programming challenges
AEC526.15	Understand state-centric programming

TUTORIAL QUESTION BANK

S.No	QUESTION	Blooms Taxonomy level	Course Outcomes	Course Learning Outcomes
UNIT-I **OVERVIEW OFWIRELESS** **SENSOR NETWORKS**				
Part - A(Short Answer Questions)				
1	List any four applications of WSN.	Understand	CO 1	CLO 1
2	State the important characteristics of WSN.	Understand	CO 1	CLO 3
3	State the deployment options for WSNs.	Remember	CO 1	CLO 2
4	What is Data-Centric Network?	Understand	CO 2	CLO 1
5	List out the different types of interaction pattern between sources and sinks in WSN.	Understand	CO 2	CLO 2
6	What is meant by energy scavenging?	Remember	CO 1	CLO 1
7	State about the Event Detection application.	Understand	CO 2	CLO 2
8	Why is multi hop wireless communication required for WSN?	Understand	CO 2	CLO 3
9	What are the advantages of sensor networks?	Understand	CO 1	CLO 1
10	What are the applications of sensor network?	Understand	CO 1	CLO 3
11	Explain the challenges in the sensor networks	Remember	CO 1	CLO 2
12	Define first generation of sensor network	Understand	CO 2	CLO 1
13	Explain design Issues of a Wireless Sensor Network	Understand	CO 2	CLO 2
14	Define Fault Tolerance	Remember	CO 1	CLO 1
15	Explain different generations of sensor network	Understand	CO 2	CLO 2
16	Define Scalability	Understand	CO 2	CLO 3
17	Define Hardware Constraints	Understand	CO 1	CLO 1
18	Explain Second Generation Sensor Network -2GSN	Understand	CO 1	CLO 1
19	Explain Third Generation Sensor Network - 3GSN	Understand	CO 1	CLO 3
20	Explain Sensor Network Topology	Remember	CO 1	CLO 2
Part - B (Long Answer Questions)				
1	Discuss the characteristic requirements of WSN.	Understand	CO 1	CLO 1
2	Explain the innovative mechanisms to realize the characteristic requirements of WSN.	Understand	CO 1	CLO 3
3	Discuss the potential applications of WSN.	Remember	CO 1	CLO 2
4	Compare MANET and WSN.	Understand	CO 2	CLO 1
5	Discuss about the enabling technologies to build up WSN.	Understand	CO 2	CLO 2
6	Explain Challenges in Wireless Sensor Network	Remember	CO 1	CLO 1
7	Explain the design of Application awareness.	Understand	CO 2	CLO 2
8	Discuss the Security Services from the WSNs Perspective	Understand	CO 2	CLO 3
9	Explain the Key Management Mechanisms	Understand	CO 1	CLO 1
10	Briefly explain the Current Approaches of sensors	Understand	CO 1	CLO 3
11	Explain the Sensor Network Classes	Remember	CO 1	CLO 2
12	Discuss the Environmental Data Collection	Understand	CO 1	CLO 1
13	Explain the Security Monitoring	Understand	CO 1	CLO 3
14	State the Node Tracking Scenarios	Remember	CO 1	CLO 2
15	Briefly explain the characteristics of wireless sensor network	Understand	CO 2	CLO 1
16	Discuss the enabling technologies for wireless sensor networks	Understand	CO 1	CLO 1
17	Explain the developments of sensor networks	Understand	CO 1	CLO 3
18	Discuss the basic concepts of sensor networks	Remember	CO 1	CLO 2
19	What are the components of a sensor node	Understand	CO 2	CLO 1
20	Explain the sensor networks communication	Understand	CO 2	CLO 2
Part - C (Analytical Questions)				
1	Write about the generations of Sensor Network	Understand	CO 1	CLO 1
2	Briefly explain about the design Issues of a Wireless Sensor Network	Understand	CO 1	CLO 3
3	Challenges in Wireless Sensor Network	Remember	CO 1	CLO 2
4	Discuss about the lack of global identification	Understand	CO 2	CLO 1

S.No	QUESTION	Blooms Taxonomy level	Course Outcomes	Course Learning Outcomes
5	List out various of In-Network Processing	Understand	CO 2	CLO 2
6	Mention the different Desired Security Services from the WSNs Perspective	Remember	CO 1	CLO 1
7	Draw and explain the Encryption Mechanisms	Understand	CO 1	CLO 1
8	Write about the Key Management Mechanisms	Understand	CO 1	CLO 3
9	Explain the different types of Sensor Network Classes	Remember	CO 1	CLO 2
10	Write about the Node Tracking Scenarios	Understand	CO 2	CLO 1
UNIT–II ARCHITECTURES				
Part – A (Short Answer Questions)				
1	Draw the architecture of a sensor node.	Understand	CO 2	CLO 4
2	List various modes of a sensor node.	Understand	CO 2	CLO 6
3	Differentiate between active and passive sensors	Remember	CO 2	CLO 5
4	Define Figure of Merits..	Understand	CO 2	CLO 4
5	Give any four commercially available Radio Transceivers used in sensor nodes.	Understand	CO 2	CLO 6
6	State the mathematical model of energy consumption during transmission & reception of a transceiver.	Understand	CO 2	CLO 4
7	Mention the most relevant kinds of memory for sensor nodes from energy perspective	Understand	CO 2	CLO 6
8	What is Receiver Sensitivity?	Remember	CO 2	CLO 5
9	Define dynamic voltage scaling.	Understand	CO 2	CLO 4
10	State some examples of sensor nodes.	Understand	CO 2	CLO 4
11	Can ASIC be used in a Wireless Sensor Network?	Understand	CO 2	CLO 6
12	What is a gateway?	Understand	CO 2	CLO 4
13	Define the architecture of a typical sensor network	Understand	CO 2	CLO 6
14	Define layered architecture.	Remember	CO 2	CLO 5
15	Define clustered architecture.	Understand	CO 2	CLO 4
16	Define physical layer.	Understand	CO 2	CLO 4
17	Define data link layer.	Understand	CO 2	CLO 6
18	Define etiquette protocol.	Remember	CO 2	CLO 5
19	Define network layer.	Understand	CO 2	CLO 4
20	Define ideal dissemination.	Understand	CO 2	CLO 6
Part - B (Long Answer Questions)				
1	Discuss in detail the Transceiver characteristics and structure.	Understand	CO 2	CLO 4
2	Define the types of Sensors and give examples.	Understand	CO 2	CLO 4
3	Elaborate on the energy scavenging techniques for sensor nodes.	Understand	CO 2	CLO 6
4	Write about the operational states of a sensor node.	Understand	CO 2	CLO 4
5	Discuss about the energy consumption of the different components of a sensor node.	Understand	CO 2	CLO 6
6	Write notes on (i). Dynamic Energy and power management (ii). Tiny OS and nes C (iii). Programming Models of WSN iv). structure of operating system and protocol stack	Remember	CO 2	CLO 5
7	Discuss in detail the design principles for WSN.	Understand	CO 2	CLO 4
8	Explain about energy consumption of sensor nodes in detail.	Understand	CO 2	CLO 6
9	Write in detail about the communication device in a WSN.	Remember	CO 2	CLO 5
10	What are the different programming models and indicate which model is best suited for WSN?	Understand	CO 2	CLO 4
11	Write about the structure of OS and protocol stack in a WSN.	Understand	CO 2	CLO 6
12	Describe about optimization goals of a WSN and figures of merit in detail.	Understand	CO 2	CLO 4
13	What is WSN tunnelling?	Understand	CO 2	CLO 6

S.No	QUESTION	Blooms Taxonomy level	Course Outcomes	Course Learning Outcomes
14	Explain the concept of Gateway with different scenarios in WSN.	Remember	CO 2	CLO 5
15	Explain the routing challenges and design issues in WSNs	Understand	CO 2	CLO 4
16	Discuss the SPIN(Sensor Protocols for Information via Negotiation)	Understand	CO 2	CLO 6
17	Write about the sensor node deployment strategies	Remember	CO 2	CLO 5
18	Discuss about the cross layer architecture	Understand	CO 2	CLO 4
19	Write description of cross-layer architecture	Understand	CO 2	CLO 6
20	Discuss the classification of routing protocols for wireless sensor networks	Understand	CO 2	CLO 4
	Part - C (Analytical Questions)			
1	Explain about the Sensor Protocols for Information via Negotiation (SPIN)	Understand	CO 2	CLO 4
2	Briefly explain the Low-Energy adaptive clustering hierarchy	Understand	CO 2	CLO 6
3	Write about the directed diffusion	Understand	CO 2	CLO 4
4	Discuss about the rumor routing	Understand	CO 2	CLO 6
5	Explain about the geographic and energy aware routing	Remember	CO 2	CLO 5
6	Mention various performance in Position Based Routing	Understand	CO 2	CLO 4
7	List out the locating sensors	Understand	CO 2	CLO 4
8	Explain about Coverage and Connectivity	Understand	CO 2	CLO 6
9	Briefly explain about Routing algorithms based on sensor position	Understand	CO 2	CLO 4
10	Explain about the Curve-based routing	Understand	CO 2	CLO 6
	UNIT-III **NETWORKING SENSORS**			
	Part - A (Short Answer Questions)			
1	Mention various performance metrics of WSN.	Understand	CO 3	CLO 7
2	List the factors that are essential for PHY design in WSNs.	Remember	CO 3	CLO 9
3	Define Dynamic Modulation Scaling	Remember	CO 3	CLO 8
4	Differentiate between contention based protocols and schedule based protocols	Remember	CO 3	CLO 9
5	What is geographic addressing?	Understand	CO 3	CLO 7
6	What are Nested Queries?	Remember	CO 3	CLO 9
7	Differentiate WSN routing with Adhoc routing	Understand	CO 3	CLO 8
8	Highlight the salient feature in location based routing.	Remember	CO 3	CLO 9
9	State the fundamental tasks of Address Management in WSN	Understand	CO 3	CLO 7
10	Give the significance of uniqueness of addresses w.r.t WSN	Remember	CO 3	CLO 9
	CIE-II			
1	Mention the most relevant kinds of memory for sensor nodes from energy perspective	Remember	CO 3	CLO 7
2	List out the key ingredients of ARQ protocols	Understand	CO 3	CLO 9
3	List the factors that are essential for PHY design in WSNs	Remember	CO 3	CLO 8
4	Differentiate between contention based protocols and schedule based protocols.	Remember	CO 3	CLO 9
5	Give any four commercially available Radio Transceivers used in sensor nodes.	Remember	CO 3	CLO 7
6	Write about the concept of TRAMA protocol.	Remember	CO 3	CLO 9
7	Give the important classes of MAC protocols in sensor networks	Understand	CO 3	CLO 8
8	Elaborate the geographical routing protocol with necessary sketch	Remember	CO 3	CLO 9
9	Explain about the transceiver unit in the sensor network	Remember	CO 3	CLO 7
10	Write about the graph model of static network	Remember	CO 3	CLO 9

S.No	QUESTION	Blooms Taxonomy level	Course Outcomes	Course Learning Outcomes
Part - B (Long Answer Questions)				
1	Explain the concepts of Mediation Device protocol.	Understand	CO 3	CLO 7
2	Elaborate on the requirements of MAC protocols for WSNs.	Remember	CO 3	CLO 9
3	Discuss the PAMAS protocol in detail.	Remember	CO 3	CLO 8
4	Explain the design approaches and performance of S-MAC protocol	Remember	CO 3	CLO 7
5	Describe the Low Energy Adaptive Clustering Hierarchy.	Understand	CO 3	CLO 9
6	Explain the important classes of MAC protocols.	Remember	CO 3	CLO 8
7	Explain the concept of TRAMA protocol.	Understand	CO 3	CLO 9
8	Discuss the distributed assignment of network wide and locally unique MAC address for WSN	Remember	CO 3	CLO 7
9	Elaborate on the concepts of Energy Efficient Unicast Routing Protocol	Remember	CO 3	CLO 9
10	Discuss the basics of Position Based Routing Protocol for WSN.	Understand	CO 3	CLO 8
CIE-II				
1	Can the MAC protocols of 802.11 & Bluetooth be used for WSN? Justify	Understand	CO 3	CLO 7
2	State the mathematical model of energy consumption during transmission & reception of a transceiver	Remember	CO 3	CLO 9
3	Consider the third iteration of leach protocol. If the desired number of nodes per cluster is 10,what is the threshold calculated for a node during its random number generation.	Remember	CO 3	CLO 8
4	Briefly specify IEEE 802.15.4 MAC protocol.	Remember	CO 3	CLO 9
5	Explain in detail about spare topology and energy management	Understand	CO 3	CLO 7
6	Explain about geographical routing protocol.	Remember	CO 3	CLO 7
7	Explain how duty cycled approach is used to transit between listen state and sleep state in S-MAC control	Remember	CO 3	CLO 9
8	Discuss the working procedure of IEEE802.11 in wireless sensor network.	Remember	CO 3	CLO 7
9	Explain geographical forwarding	Remember	CO 3	CLO 9
10	Explain data centric routing protocols.	Remember	CO 3	CLO 8
Part - C (Analytical Questions)				
1	Discuss about content-based addressing in detail	Understand	CO 3	CLO 7
2	Explain briefly the address assignment algorithm.	Remember	CO 3	CLO 9
3	Describe in detail about SMACS	Understand	CO 3	CLO 8
4	Explain efficiency by in-network processing	Understand	CO 3	CLO 9
5	Discuss the random geometric graphs	Understand	CO 3	CLO 7
CIE-II				
1	Explain in detail model of RSG	Understand	CO 3	CLO 7
2	What are the general communication issues?	Remember	CO 3	CLO 9
3	Explain the problem localization.	Understand	CO 3	CLO 8
4	Discuss the communication RF	Understand	CO 3	CLO 9
5	List out the broadcasting techniques	Understand	CO 3	CLO 7
UNIT-IV INFRASTRUCTURE ESTABLISHMENT				
Part - A (Short Answer Questions)				
S.No	**QUESTION**	**Blooms taxonomy level**	**Course Outcomes**	**Course Learning Outcomes**
1	What is localization and what is the advantage of localization?	Understand	CO 4	CLO 11
2	Discuss on the parameters defined by the homogenous topology control	Understand	CO 4	CLO 10
3	Explain how clustering solves the issue of scalability on WSN	Remember	CO 4	CLO 11

S.No	QUESTION	Blooms Taxonomy level	Course Outcomes	Course Learning Outcomes
4	List various services offered by localization	Remember	CO 4	CLO 10
5	Why is topology control necessary for WSN?	Remember	CO 4	CLO 12
6	What are the advantages of clustering?	Remember	CO 4	CLO 11
7	Explain the Challenges in Topology Control	Remember	CO 4	CLO 10
8	Explain about design of effective topology control mechanisms.	Remember	CO 4	CLO 11
9	Explain the three major tunable parameters for topology control in wireless sensor networks.	Remember	CO 4	CLO 10
10	Explain about clustering.	Remember	CO 4	CLO 12
11	Explain about sensor tasking.	Remember	CO 4	CLO 11
12	What are the approaches for localization.	Understand	CO 4	CLO 10
13	Classify routing protocols.	Understand	CO 4	CLO 11
14	Write about Power-Aware routing protocols.	Understand	CO 4	CLO 10
15	Write about information aggregation.	Understand	CO 4	CLO 12
16	What is mobile ad-hoc network?	Remember	CO 4	CLO 11
17	Write about adhoc wireless networks.	Remember	CO 4	CLO 10
18	Write short note on Hierarchical routing protocols.	Understand	CO 4	CLO 11
19	Explain about joint routing.	Remember	CO 4	CLO 10
20	Explain about synchronization	Remember	CO 4	CLO 12
Part – B (Long Answer Questions)				
1	Discuss in details any two localization and positioning algorithms.	Understand	CO 4	CLO 11
2	Explain in details sensor tasking and control mechanism.	Understand	CO 4	CLO 10
3	Explain any two time synchronization algorithms of WSN.	Understand	CO 4	CLO 11
4	Discuss on Angle of Arrival (AOA) and Time difference of Arrival (TDOA) based tracking mechanisms.	Understand	CO 4	CLO 10
5	Discuss about importance of time synchronization in WSN . Explain the different latency in the channel. Also estimate the clock phase difference using three message exchange.	Understand	CO 4	CLO 12
6	Explain the concept of localization and positioning in detail.	Remember	CO 4	CLO 11
7	Write a brief note on sensor tasking and control	Remember	CO 4	CLO 10
8	What are task-driven in sensor nodes and explain.	Remember	CO 4	CLO 11
9	What is the information based tasking and explain utility measures.	Understand	CO 4	CLO 10
10	Briefly explain Hierarchical routing protocols.	Understand	CO 4	CLO 11
11	Analyze the functionality and performance of two tier hierarchical cluster topology in comparison to other topologies	Understand	CO 4	CLO 10
12	Explain sensor Tasking and Control.	Understand	CO 4	CLO 11
13	Explain secure routing in Ad Hoc Wireless Networks	Understand	CO 4	CLO 10
14	Discuss about the different security protocols.	Understand	CO 4	CLO 11
15	Explain how security is provided in adhoc sensor networks.	Remember	CO 4	CLO 10
16	Describe the time synchronization in adhoc sensor networks.	Understand	CO 4	CLO 12
17	Describe the Low Energy Adaptive Clustering Hierarchy.	Understand	CO 4	CLO 11
18	Explain about cluster head gateway switch routing protocol.	Understand	CO 4	CLO 10
19	Explain in brief about Clustering in WSN?	Understand	CO 4	CLO 11
20	Explain in brief about Network Security Requirements in WSN?	Understand	CO 4	CLO 10
Part - C (Analytical Questions)				
S.No	**QUESTION**	**Blooms taxonomy level**	**Course Outcomes**	**Course Learning Outcomes**
1	Explain about the topology control of sensors	Understand	CO 4	CLO 11
2	Discuss the critical transmitting range.	Remember	CO 4	CLO 10
3	Explain about clustering and write about their advantages	Remember	CO 4	CLO 11

S.No	QUESTION	Blooms Taxonomy level	Course Outcomes	Course Learning Outcomes
4	Describe about the time synchronization	Remember	CO 4	CLO 10
5	Write about the localization and localization services	Remember	CO 4	CLO 11
6	Explain about the ranging techniques	Understand	CO 4	CLO 10
7	Discuss about the range based localization algorithms	Remember	CO 4	CLO 11
8	Explain about the clock phase difference estimation in time synchronization	Remember	CO 4	CLO 10
9	Describe the ranging techniques uses RSS	Understand	CO 4	CLO 12
10	Explain about the other localization algorithms	Remember	CO 4	CLO 11
UNIT-V SENSOR NETWORK PLATFORM AND TOOLS				
Part - A (Short Answer Questions)				
1	List the major concern sensor node hardware.	Remember	CO 5	CLO 13
2	What is TinyOS? Where is it used?	Remember	CO 5	CLO 15
3	Highlight the salient feature of component-based operating system	Understand	CO 5	CLO 14
4	Classify sensor node hardware	Remember	CO 5	CLO 13
5	What are the challenges in selecting a programming tool?	Understand	CO 5	CLO 14
6	What do you mean by node level simulation?	Understand	CO 5	CLO 13
7	Define Berkely motes	Understand	CO 5	CLO 15
8	Write the Future directions of WSN.	Understand	CO 5	CLO 14
9	What are the various node level simulation.	Understand	CO 5	CLO 13
10	What are the attacks in Network Security?	Understand	CO 5	CLO 13
11	write various key management approaches	Understand	CO 5	CLO 15
12	Explain MANTIS.	Understand	CO 5	CLO 14
13	Explain Sen OS.	Remember	CO 5	CLO 13
14	What are the various node level software platforms.	Remember	CO 5	CLO 14
15	write short note on MECN	Remember	CO 5	CLO 13
16	What is fidelity management?	Understand	CO 5	CLO 13
17	Explain the basic requirements of network security	Understand	CO 5	CLO 15
18	What is called Wormhole attack?	Understand	CO 5	CLO 14
19	Describe the sensor node architecture with appropriate figure.	Remember	CO 5	CLO 13
20	Explain EYES OS	Remember	CO 5	CLO 14
Part – B (Long Answer Questions)				
1	Explain in detail the programming challenges and state-centric programming in sensor networks.	Understand	CO 5	CLO 13
2	Write detailed notes on any one node-level software platforms.	Understand	CO 5	CLO 15
3	Briefly explain node-level software platforms and node-level simulators.	Understand	CO 5	CLO 14
4	Explain clearly about Berkely Motes. Mention the advantages and disadvantages of it.	Remember	CO 5	CLO 13
5	What are the different types of platforms available for sensor networks and explain any one in details.	Remember	CO 5	CLO 14
6	Explain the challenges for sensor network platforms.	Remember	CO 5	CLO 13
7	Explain about TINYGALS	Understand	CO 5	CLO 13
8	Explain about PIECES	Understand	CO 5	CLO 15
9	Discuss about the Node level simulators.	Understand	CO 5	CLO 14
10	Explain briefly the address assignment algorithm	Remember	CO 5	CLO 13
11	Describe the Berkeley Motes in detail.	Remember	CO 5	CLO 14
12	Give the description of future direction of Wireless Sensor Networks.	Remember	CO 5	CLO 13
13	Explain different symmetric key algorithms	Understand	CO 5	CLO 13

S.No	QUESTION	Blooms Taxonomy level	Course Outcomes	Course Learning Outcomes
14	Write short notes on a) Node level simulators b) Ultra wide band radio communication	Understand	CO 5	CLO 15
15	Write short notes on State-centric programming.	Understand	CO 5	CLO 14
16	Write short notes on Wireless fidelity systems.	Remember	CO 5	CLO 13
17	What are the issues and Challenges in Security Provisioning?	Remember	CO 5	CLO 14
18	What is the key management and give various key management approaches	Remember	CO 5	CLO 13
19	List all the Operating Systems used with WSNs. (i) Explain Tiny OS. (ii) Explain MANTIS. (iii) Explain Sen OS. (iv) Explain EYES OS	Understand	CO 5	CLO 13
20	What are the design issues with network management? Taking example of MANNA, explain network management architecture	Understand	CO 5	CLO 13
Part - C (Analytical Questions)				
1	Write about the dedicated embedded sensor node	Understand	CO 5	CLO 13
2	Explain about the SoC	Understand	CO 5	CLO 15
3	Discuss about the sensor network programming challenges.	Understand	CO 5	CLO 14
4	Describe the node level software platforms.	Remember	CO 5	CLO 13
5	Explain state center programming.	Remember	CO 5	CLO 14
6	Explain about the node level simulators	Remember	CO 5	CLO 13
7	Explain about the augmented general purpose computers	Understand	CO 5	CLO 13
8	Describe the mica note.	Understand	CO 5	CLO 15
9	Discuss the Tiny OS in detail	Understand	CO 5	CLO 14
10	Briefly explain the nesC language	Remember	CO 5	CLO 13

Prepared By:

Mr. K Chaitanya, Assistant Professor

HOD, ECE