SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES.
(AUTONOMOUS)
MCA   DEPARTMENT

QUESTION BANK

Subject Name : Internet of Things
Subject Code : **24MCA215C**

Year & Sem :II & I

SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES.

(AUTONOMOUS)

CHITTOOR

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

QUESTION BANK

For

INTERNET OF THINGS (24MCA215C)

Regulation – 2024

Academic Year 2025-2026

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S. No	QUESTIONS	Blooms Taxonomy Level
	UNIT -I	
	UNIT- I: Introduction to internet of Things Introduction, Definition and characteristics of IoT - Physical Design of IoT-Things in IoT, IoT protocols-Logical design of IoT- IoT Functional blocks, IoT Communication Models, IoT Communication APIs- IoT Enabling Technologies- Wireless Sensor Networks, Cloud Computing, Big Data Analytics, Communication protocols, Embedded Systems-IoT Levels and Deployment Templates-Iot Level-1,IoT Level-2, IoT Level-3, IoT Level-4, IoT Level-5, IoT Level-6. Domain Specific IoTs	
	Part –A	
1.	**Question**	**Bloom's Level**
2.	Define Internet of Things (IoT).	L1
3.	Name any two characteristics of IoT.	L1
4.	What are "Things" in IoT?	L1
5.	Mention any two IoT communication protocols.	L1
6.	Define physical design in IoT.	L2
7.	Name any two enabling technologies of IoT.	L1
8.	What is the function of sensors in IoT?	L2
9	Name one IoT communication API.	L1
10	Mention one IoT deployment level.	L2
	Part - B	
1	Explain the Introduction, Definition, and Characteristics of IoT in detail.	L1
2	Describe the Physical Design of IoT, including "Things in IoT" and IoT protocols.	L1
3	Explain the Logical Design of IoT with IoT functional blocks and Communication models.	L1
4	Explain briefly about IOT Communication API	L1
5	Explain the Enabling Technologies of IoT: Wireless Sensor Networks, Cloud Computing, Big Data Analytics, Embedded Systems, and Communication Protocols.	L1
6	Discuss IoT Levels and Deployment Templates**:** IoT Level-1 to IoT Level-6 with examples.	L2
7	Explain the overall IoT architecture combining physical and logical design aspects.	L1

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8	Describe IoT functional blocks and how they interact in an IoT system.	L2
9	Explain IoT communication models with examples.	L1
10	Write a detailed note on Domain-Specific IoTs, including examples from healthcare, agriculture, smart cities, and industrial IoT.	L1 Understanding

UNIT -II
UNIT- II: IoT and M2M
Introduction-M2M-Difference between IoT and M2M-SDN and NFV for IoT-Software Defined Networking, Network Function Virtualization-IoT system Management with NETCONF-YANG.
Need for IoT Systems Management- Simple Network Management Protocol(SNMP)-Limitations of SNMP-Network Operator Requirements-NETCONF-YANG-IoT Systems Management with NETCONF-YANG- Netopeer.

Part - A		
1	Define M2M (Machine to Machine).	L1
2	State one difference between IoT and M2M.	L2
3	What does SDN stand for?	L1
4	What is NFV in IoT networking?	L1
5	Name one purpose of IoT system management.	L2
6	What is SNMP?	L1
7	Mention one limitation of SNMP.	L1
8	What does NETCONF stand for?	L1
9	Define YANG in the context of NETCONF.	L1
10	What is Netopeer?	L2
11	Define M2M (Machine to Machine).	L1

Part – B		
1	Difference between M2M and IOT.	L2
2	Describe Software Defined Networking (SDN) and Network Function Virtualization (NFV) for IoT.	L2,L3
3	Explain the need for IoT system management in detail.	L2
4	Describe the Simple Network Management Protocol (SNMP) and its limitations.	L2
5	Discuss Network Operator Requirements for IoT system management.	L2

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6	Explain IoT Systems Management using NETCONF and YANG with examples.	L2,L3
7	Describe Netopeer and its role in NETCONF-YANG based IoT management.	L2,L4
8	Compare SNMP and NETCONF-YANG for IoT systems management.	L3
9	Explain **how** SDN and NFV enhance IoT system management efficiency.	L2
10	Write a detailed note on IoT system management architecture combining SDN, NFV, NETCONF-YANG, and SNMP.	L2

UNIT- III
UNIT- III: Developing Internet Of Things **IoT platforms Design Methodology: Introduction-IoT design Methodology-Step 1:Purpose and Requirements specification, Step 2:Process specification**, step 3:Domain model Specification, step 4:Information Model Specification ,step 5:Service Specifications, step 6:IoT Level Specification, Step 7:Functional view specification, step 8:Operational view specification, step 9:Device and Component Integration, Step 10:Application Development-Case study on IoT system for weather Monitoring-Motivation for using Python- IoT systems-Logical Design using Python-Introduction- Installing Python-Python data Types & Data Structures- Numbers, Strings, Lists, Tuples, Dictionaries, Type Conversions- Python Packages of interest for IoT- JSON, XML, HTTP Lib & URL Lib ,SMTP Lib.

Part - A		
1	Define IoT platform design methodology.	L1
2	What is the first step in IoT design methodology?	L1
3	Name any two steps in IoT design methodology.	L1
4	What is the purpose of Domain Model Specification in IoT design?	L2
5	Mention one key Python data type used in IoT programming.	L1
6	Name one Python package useful for IoT applications.	L1
7	What is JSON used for in IoT Python applications?	L2
8	Define Service Specification in IoT design.	L2
9	What is the role of Functional View Specification in IoT design?	L2
10	Name one operational view specification activity in IoT.	L2
Part – B		
1	Explain the Introduction and Steps of IoT Platform Design Methodology in detail.	L2,L4
2	Describe each step in IoT design methodology with examples.	L2,L3

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3	Explain a case study on IoT system for weather monitoring.	L2,L3
4	Discuss the motivation for using Python in IoT systems.	L2
5	Explain logical design of IoT using Python, including key concepts.	L2,L4
6	Describe Python data types and data structures (Numbers, Strings, Lists, Tuples, Dictionaries) with examples for IoT.	L2,L3
7	Explain type conversions in Python relevant to IoT applications.	L42
8	Discuss Python packages of interest for IoT**:** JSON, XML, HTTP Lib & URL Lib, SMTP Lib.	L2,L3
9	Explain Step 9: Device and Component Integration **and** Step 10: Application Development in IoT design methodology.	L2
10	Prepare a detailed note on how Python programming supports IoT platform development**,** including logical design and data handling.	L2

UNIT - IV: Integratedbilling Solutions In The Internet Of Things: Cost of RFID and the Internet of Things, Benefits of RFID and the Internet of things, Cost Benefit sharing, A technical framework for Integrating Billing Capabilities into the EPC global Network-Business Models for the Internet of Things-Business Models and Business Model Innovation-Value creation in the Internet of Things- Exemplary Business Model Scenarios for the Internet of Things.		
Part- A		
1	Define the cost factors involved in RFID implementation.	L1
2	List two major cost components in deploying IoT solutions.	L2
3	State two benefits of using RFID in supply chain management	L1
4	Mention two advantages of integrating IoT in healthcare.	L2
5	Define cost–benefit sharing in IoT adoption.	L1
6	Give one example of benefit-sharing among IoT stakeholders.	L2
7	What is EPCglobal Network?	L1
8	State the purpose of integrating billing capabilities into EPCglobal.	L2
9	List any two IoT business models.	L1
10	Give one example of a subscription-based IoT service.	L2
11	Define value creation in IoT context.	L1
12	Mention one business model scenario for IoT in smart homes	L2
Part – B		
1	Explain the different cost elements of RFID and IoT implementation.	L4

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2	Evaluate the challenges faced by organizations due to high costs of RFID/IoT adoption.	L5
3	Discuss the benefits of RFID and IoT in improving organizational efficiency with examples.	L3
4	Illustrate the technical framework for integrating billing capabilities in EPCglobal Network.	L3
5	Analyze how IoT drives business model innovation in traditional industries.	L4
6	Discuss different dimensions of value creation in IoT with examples.	L3
7	Analyze various exemplary IoT business scenarios like smart cities, healthcare, and industry.	L4
8	Create an innovative IoT-based business model for smart city services	L6

UNIT – V:WEB OF THINGS
From the internet of things to the web of things-Designing RESTful smart things-Modeling Functionality as Linked Resources-Future of Web of things-Real time web of things, Finding and Describing Smart Things, Sharing Smart Things-Discussing the future Web of things-Conclusion-Semantic Web-Semantic web services, Semantic web services processes and Lifecycle-Ontology-Ontology Engineering Methodologies, Application of Ontology Engineering in the Internet of Things, Ontology and the Organizational Perspective, Ontology and the I-T system Perspective, Ontology and the Data Perspective.

Part- A		
1	Define the Web of Things.	L1
2	Differentiate between IoT and WoT.	L2
3	What does REST stand for in WoT design?	L1
4	State one benefit of RESTful design for smart things	L2
5	Define linked resources in WoT.	L1
6	State one method used for describing smart things.	L2
7	Define sharing in the context of WoT.	L1
8	Mention one potential benefit of sharing smart things.	L2
9	Define Semantic Web.	L1
10	State one phase in the Semantic Web Service lifecycle.	L2
11	Define ontology engineering.	L1
12	Mention application of ontology engineering in IoT.	L1
Part – B		
1	Explain the transition from IoT to WoT with suitable examples	L4

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2	Discuss how RESTful principles are applied in designing smart things.	L3
3	Analyze the advantages and challenges of RESTful APIs in IoT/WoT	L4
4	Discuss the future prospects of WoT in smart cities and industries.	L4
5	Evaluate how real-time WoT can transform decision-making in businesses.	L5
6	Explain ontology and its importance in structuring IoT data.	L3
7	Discuss ontology engineering methodologies with suitable examples	L3
8	Discuss the role of ontology engineering in IoT interoperability and data sharing.	L3