



**SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY :: PUTTUR
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QUESTION BANK (DESCRIPTIVE)

Subject with Code: Introduction to IOT(18EC0449)

Course &Branch :B.Tech - CSE

Year &Sem :III B.Tech& II-Sem

Regulation : R18

**UNIT –I
IOT INTRODUCTION & CONCEPTS**

1	a	Define IoT?	[L1][CO1]	[2M]
	b	List out the Features of IoT?	[L4][CO4]	[2M]
	c	State the characteristics of IoT?	[L2][CO1]	[2M]
	d	List out the interfaces used in IoT?	[L4][CO4]	[2M]
	e	Draw the physical design of IoT?	[L2][CO1]	[2M]
	f	Define Wireless Sensor Networks?	[L1][CO1]	[2M]
	g	List out various protocols used in Application layer?	[L4][CO4]	[2M]
	h	Compare TCP and UDP?	[L2][CO2]	[2M]
	i	Discuss Cloud computing?	[L6][CO2]	[2M]
	j	Show the protocols used in Transport layer of IoT?	[L1][CO1]	[2M]
2	Explain briefly about the application layer protocols of IoT.		[L5][CO2]	[10M]
3	a	Describe the characteristics of IoT.	[L4][CO1]	[05M]
	b	Explain the role of things in IoT.	[L5][CO2]	[05M]
4	Describe the levels of IoT with an example each with the help of neat diagrams.		[L4][CO1]	[10M]
5	a	Mention the applications of IoT.	[L1][CO1]	[03M]
	b	Explain various link layer protocols of IoT.	[L5][CO2]	[07M]
6	a	Describe an example of an IoT system in which information and knowledge are inferred from the data.	[L4][CO2]	[05M]
	b	What are the protocols associated with network/internet layer of IoT? explain them in detail.	[L1][CO1]	[05M]
7	a	Explain the request-response communication model of IoT, with a neat sketch.	[L5][CO3]	[04M]
	b	Illustrate the generic block diagram of an IoT device and explain it briefly.	[L2][CO4]	[06M]
8	a	Explain how cloud computing is playing key role in IoT.	[L5][CO1]	[05M]
	b	Describe various functional blocks of IoT.	[L4][CO2]	[05M]
9	a	Discuss the role of communication protocols and embedded systems in IoT.	[L6][CO1]	[04M]
	b	Describe wireless sensor networks and Big Data of the enabling Technologies of IoT.	[L4][CO2]	[06M]
10	Explain in brief about the Enabling Technologies of IOT		[L5][CO1]	[10M]

UNIT –II
DOMAIN SPECIFIC IOTS

1	a	Define is a smart home?	[L1][CO2]	[2M]
	b	What are the different operating standards for home automation technology?	[L1][CO2]	[2M]
	c	What are the elements of a home automation system?	[L1][CO2]	[2M]
	d	Mention some of the commonly used water sensors?	[L1][CO2]	[2M]
	e	What is the importance of the Internet of thing?	[L1][CO2]	[2M]
	f	What is the basic difference between the Cloud Storage and Wireless Sensor Network?	[L1][CO2]	[2M]
	g	List majorly used IoT controllers by industries	[L4][CO2]	[2M]
	h	What is Thermocouple sensor?	[L1][CO2]	[2M]
	i	Mention some examples of sensors?	[L1][CO2]	[2M]
	j	Define Renewable energy system?	[L1][CO2]	[2M]
2	Explain the implementation of IoT technology in following areas: (i) Smart Parking (ii) Smart Lightening (iii) Emergency response (iv) Smart roads in smart cities	[L5][CO3]	[10M]	
3	Explain how IoT technology can used in the following application areas (i) Structural health monitoring (ii) Surveillance (iii) Emergency response (iv) Weather monitoring	[L5][CO3]	[10M]	
4	Describe how the environment can be more protected with the help of IoT technology in the following categories: (i) Air pollution monitoring (ii) Noise pollution monitoring (iii) Forest fire detection (iv) River flood detection	[L2][CO2]	[10M]	
5	Explain how the IoT technology is impacting the healthcare sector and changing our everyday lifestyle with the following examples: (i) Health & Fitness monitoring (ii) Wearable electronics	[L5][CO3]	[10M]	
6	Explain how IoT technology is impacting on (i) Route generation & scheduling (ii) Fleet tracking (iii) Shipment monitoring (iv) Remote vehicle diagnostics	[L5][CO3]	[10M]	
7	Describe how the IoT technology is transforming the Industries to reduce operational costs and increasing safety & productivity in the following areas: (i) Machine diagnostics & Prognosis (ii) Indoor air quality monitoring	[L2][CO4]	[10M]	
8	Explain the necessity of adopting IoT technology for a growing need to increase customer loyalty and deliver the best in-store experience by retail sector in the following sectors (i) Inventory management (ii) Smart payments (iii) Smart vending machines	[L5][CO2]	[10M]	
9	Explain how IoT technology used to enable the agricultural industry to increase operational efficiency, lower costs, reduce waste, and improve the quality of their yields.	[L5][CO3]	[10M]	
10	Describe the implementation of IoT technology into distributed energy systems to optimize the efficiency of energy infrastructure and reduce wastage in the Following categories: (i) Smart grids (ii) Renewable energy systems (iii) Prognostics.	[L2][CO3]	[10M]	

UNIT –III
IOT AND M2M

1	a	What is the difference between M2M and IoT?	[L1][CO3]	[2M]
	b	Mention the communication protocols used for M2M local area networks	[L1][CO3]	[2M]
	c	Define Software defined Network	[L1][CO4]	[2M]
	d	Explain Network Function Virtualization	[L2][CO4]	[2M]
	e	List out the key elements of NFV architecture	[L4][CO2]	[2M]
	f	List out the key elements of SDN architecture	[L4][CO2]	[2M]
	g	What is Bluetooth Low Energy?	[L1][CO1]	[2M]
	h	What are the challenges of IoT?	[L1][CO1]	[2M]
	i	Define replication?	[L1][CO3]	[2M]
	j	What is the aim of air flow sensors?	[L1][CO1]	[2M]
2	a	Mention the communication protocols used for M2M local area networks.	[L1][CO2]	[05M]
	b	Explain the differences between Machines in M2M and Things in IOT?	[L5][CO4]	[05M]
3	Briefly explain the M2M system architecture with the help of neat diagram.		[L3][CO4]	[10M]
4	Describe the following steps involved in IoT system design methodology: (i) Purpose & Requirements Specification (ii) Process Specification		[L2][CO4]	[10M]
5	Describe the following steps involved in IoT system design methodology: (i) Information model Specification (ii) Service Specifications		[L2][CO3]	[10M]
6	Explain the following data types of python with an example: (i) Numbers (ii) Strings (iii) Lists		[L5][CO4]	[10M]
7	a	Explain the characteristics of Python programming language.	[L5][CO3]	[05M]
	b	Explain benefits of python programming language.	[L5][CO3]	[05M]
8	a	Draw and explain the structure of M2M Gateway Network.	[L6][CO5]	[05M]
	b	Describe how SDN can be used for various levels of IoT.	[L2][CO3]	[05M]
9	a	Draw the structure of Open flow Switch and justify it?	[L6][CO5]	[05M]
	b	Describe how NFV can be used for virtualizing IoT device?	[L2][CO3]	[05M]
10	a	List out the various steps involved in IoT system design methodology.	[L4][CO2]	[05M]
	b	What is the difference between a Physical entity and virtual entity?	[L1][CO1]	[05M]

UNIT –IV
IOT PHYSICAL DEVICES & ENDPOINTS

1	a	Explain Raspberry Pi?	[L2][CO3]	[2M]
	b	How to run Raspberry pi in headless mode?	[L1][CO2]	[2M]
	c	Define Arduino?	[L1][CO4]	[2M]
	d	Define Micro Python?	[L1][CO4]	[2M]
	e	List available models in Raspberry Pi?	[L4][CO2]	[2M]
	f	Differentiate between Arduino and Raspberry pi	[L4][CO3]	[2M]
	g	Mention real-time usage of Raspberry pi	[L1][CO2]	[2M]
	h	What are the operating systems supported by Pi?	[L1][CO1]	[2M]
	i	What is slicing?	[L1][CO1]	[2M]
	j	Why Python case-sensitive?	[L1][CO2]	[2M]
2	Design an automatic refrigerator light system with LED, switch & raspberry pi and write a python program to support the working of that design.		[L6][CO3]	[10M]
3	a	What is a module in python? Explain with an example.	[L1][CO4]	[05M]
	b	Justify how Raspberry Pi is different from a desktop computer.	[L5][CO4]	[05M]
4	a	Describe various features of a Raspberry Pi device.	[L2][CO3]	[05M]
	b	List out various versions of raspberry pi device still date.	[L4][CO2]	[05M]
5	a	Mention the flavors of Linux OS supported by Raspberry pi device.	[L1][CO3]	[05M]
	b	List the various frequently used commands during operation of Linux OS.	[L1][CO2]	[05M]
6	a	Write a short note on various raspberry pi interfaces used for data transfer?	[L3][CO3]	[05M]
	b	List out various single board computers which are alternatives to raspberry Pi?	[L1][CO4]	[05M]
7	a	What is the use of GPIO pins in a IoT device?	[L1][CO4]	[05M]
	b	Illustrate how to interface a LED to raspberry pi and write a program to Blink?	[L2][CO3]	[05M]
8	a	Illustrate how to interface a Light sensor (LDR) with raspberry pi?	[L2][CO4]	[05M]
	b	Design an automatic lightening system with LDR, Light and raspberry pi and write a python program to support the working of that design?	[L6][CO4]	[05M]
9	a	Illustrate how to interface a PIR sensor with raspberry pi?	[L2][CO3]	[05M]
	b	Design an intruder detection system with PIR sensor, buzzer & raspberry pi and write a python to program support the working of that design.	[L6][CO4]	[05M]
10	a	What is the use of SPI and I2C interfaces on raspberry pi?	[L1][CO4]	[05M]
	b	Illustrate how to interface a switch to raspberry pi?	[L2][CO3]	[05M]

UNIT –V
CASE STUDIES ILLUSTRATING IOT DESIGN

1	a	What is an IoT device?	[L1][CO1]	[2M]
	b	List out various versions of raspberry pi device still date.	[L1][CO2]	[2M]
	c	What is the use of GPIO pins in a IoT device?	[L1][CO1]	[2M]
	d	What is the use of SPI and I2C interfaces on raspberry pi?	[L1][CO1]	[2M]
	e	Illustrate how to interface a switch to raspberry pi.	[L2][CO3]	[2M]
	f	Write a short note on Light Dependent Resistor.	[L3][CO2]	[2M]
	g	Write a short note on PIR sensor.	[L3][CO2]	[2M]
	h	Explain the principle operation of ultrasonic sensor.	[L5][CO3]	[2M]
	i	Define Service Specifications.	[L1][CO3]	[2M]
	j	What is the role of publishers in IOT?	[L1][CO1]	[2M]
2	a	Explain service specifications for the Intrusion Detection system	[L5][CO4]	[05M]
	b	Define Domain model specifications for the Intrusion Detection system	[L1][CO4]	[05M]
3	a	Design a smart home automation system using IoT With mode REST service	[L6][CO5]	[05M]
	b	Explain service specification for home automation system in state service	[L5][CO5]	[05M]
4	a	Define Process specifications for the Intrusion Detection system	[L1][CO4]	[05M]
	b	Define Information model specifications for the Intrusion Detection system	[L1][CO5]	[05M]
5	a	Draw the deployment structure for the home automation system and explain it?	[L6][CO5]	[05M]
	b	Define controller service of the home automation system with diagram	[L1][CO3]	[05M]
6	a	Explain the purpose of smart parking in cities?	[L5][CO3]	[05M]
	b	Define process specification & domain model for smart parking IoT system	[L1][CO5]	[05M]
7	a	Write a python program for REST service and smart parking using Django	[L3][CO2]	[05M]
	b	Define Information model and controller service for smart parking IoT system	[L1][CO4]	[05M]
8	a	Design a weather monitoring IoT system using REST based?	[L6][CO5]	[05M]
	b	Design a weather monitoring IoT system using Web Socket based?	[L6][CO5]	[05M]
9	a	Implement the air pollution monitoring system using the Web Socket approach.	[L5][CO5]	[05M]
	b	Implementation of smart irrigation system	[L5][CO5]	[05M]
10	a	Implement the analytics component for the forest fire detection system.	[L5][CO5]	[05M]
	b	Write a python code for IoT printer to Raspberry Pi	[L3][CO2]	[05M]

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