UNIT – I
INTRODUCTION TO INTERNET OF THINGS (IoT)
PART – A (SHORT ANSWER QUESTIONS)

Level	PART – A (SHORT ANSWER QUESTIONS)					
Level	S. No	Questions	Blooms		Course	
1 What is IoT? Write short notes on IoT. Remember CO1 ACS510. 2 List any four characteristics of IoT. Remember CO1 ACS510. 3 State the importance of IoT. Remember CO1 ACS510. 4 What is the Thing in IoT? Understand CO1 ACS510. 5 State about the importance of Thing in IoT. Remember CO1 ACS510. 6 Write the any three functions of IoT? Understand CO1 ACS510. 7 What are design factors IoT? Understand CO1 ACS510. 8 What are the interfaces of WSN? Remember CO1 ACS510. 8 What are the interfaces of WSN? Remember CO1 ACS510. 10 State any four domain specific IoT applications. Remember CO1 ACS510. 11 State about the importance of Thing in IoT. Understand CO1 ACS510. 12 Write the functions of IoT. Understand CO1 ACS510. 13 What are design factors IoT? Remember CO1 ACS510. 14 What are design factors IoT? Remember CO1 ACS510. 15 Explain the IoT communication. Remember CO1 ACS510. 16 Explain the IoT communication. Remember CO1 ACS510. 17 Discuss the characteristic of IoT. Explain in detail. Remember CO1 ACS510. 10 Discuss the characteristic of IoT. Explain in detail. Remember CO1 ACS510. 10 State about the importance of Thing in IoT. Understand CO1 ACS510. 10 State about the importance of Thing in IoT. Understand CO1 ACS510. 10 Understand CO1 ACS510. 11 Discuss the characteristic of IoT. Explain in detail. Remember CO1 ACS510. 12 Discuss the characteristic of IoT. Explain in detail. Remember CO1 ACS510. 1 Discuss about any three IoT enabling technologies. Remember CO1 ACS510. 2 What are applications of IoT? Explain in detail. Remember CO1 ACS510. 3 Demonstrate the physical design of IoT with Things of IoT and protocols of IoT. 4 Write the logical design of IoT with communication Understand CO1 ACS510. 5 Explain the IoT communication APIs and its Understand CO1 ACS510. 6 Discuss about any three IoT enabling technologies. Remember CO1 ACS510. 10 Define the various domain specific of IoT Understand CO1 ACS510. 10 Define the various domain specific of IoT Understand CO1			Taxonomy	OutComes	Learning	
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16 Discuss about Trending IoT technologies. Understand CO1 ACS510.2		diagrams.				
	16	Discuss about Trending IoT technologies.	Understand	CO1	ACS510.2	
17 Illustrate the IoT level 1 with diagram. Understand CO1 ACS510.2		• •			ACS510.2	
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detailed.						

19	Differentiate logical design and physical design of IoT.	Remember	CO1	ACS510.2
20	Explain domain specific of IoT with home automation example.	Understand	CO1	ACS510.2
	PART – C (CRITICAL THINKING	COUESTIONS	<u> </u>	
1	Describe with an example of IoT service that uses	Understand	CO1	ACS510.2
1	publish-subscribe and web socket based	Chacistana	COI	7103510.2
	communication.			
2	Determine the IoT levels for designing home	Remember	CO1	ACS510.3
_	automation IoT system including smart lighting and	Remember	201	1105510.5
	intrusion detection.			
3	Determine the various communication models that	Understand	CO1	ACS510.3
	can be used for weather monitoring system. Which is	Charletana	001	1105010.5
	a more appropriate model for this system. Describe			
	the pros andcons.			
4	In Forest fire detection which level of IoT is used?	Understand	CO1	ACS510.3
-	Explain with a neat diagram and its working		001	110001010
	principle.			
5	Determine the IoT levels for designing structural	Remember	CO1	ACS510.2
	health monitoring. Explain with a neat diagram.		001	1100010.2
6	What is the role of coordinator in wireless sensor	Understand	CO1	ACS510.3
	network			
7	What are architectural constraints of REST?	Understand	CO1	ACS510.2
8	What is the role of controller service in IoT systems?	Understand	CO1	ACS510.3
9	Describe an example of IoT service with an example	Understand	CO1	ACS510.2
	of web-based communication model			
10	What is the function of communication functional	Remember	CO1	ACS510.2
	block in an IoT systems?			
	UNIT-II			
	IoT AND M2M			
	PART – A (SHORT ANSWER Q	UESTIONS)		
1	Write a short note on M2M?	Understand	CO2	ACS510.4
2	Give the purpose of communication protocols used	Remember	CO2	ACS510.4
	in M2M?			
3	State Software Defined Networking?	Remember	CO2	ACS510.4
4	Discuss the purpose of Conventional Networks?	Remember	CO2	ACS510.4
5	List the advantages of SDN?	Understand	CO2	ACS510.4
6	What is Network Function Virtualization?	Understand	CO2	ACS510.5
7	State the differences and similarities between IoT	Remember	CO2	ACS510.5
-	and M2M?	7	G 0 2	
8	How do data collection and analysis approaches	Remember	CO2	ACS510.5
	differ in M2M andIoT?	** .		
9	Differentiate between configuration and state data?	Understand	CO2	ACS510.4
10	What is the function of a data model manager?	Understand	CO2	ACS510.4
11	Explain is M2M gate way?	Understand	CO2	ACS510.4
12	State are communication protocols in IoT	Understand	CO2	ACS510.4
13	State are communication protocols in M2M	Understand	CO2	ACS510.4
14	Write a short note on SDN?	Understand	CO2	ACS510.4
15	Write a short note on M2M?	Understand	CO2	ACS510.4

	PART – B (LONG ANSWER Q			_
1	Differentiate between IoT and M2M.	Remember	CO2	ACS510.4
2	Explain the limitations of conventional network architectures.	Understand	CO2	ACS510.5
3	Discuss about the key elements of SDN	Understand	CO2	ACS510.4
4	Describe how SDN can be used for various levels of IoT.	Remember	CO2	ACS510.5
5	What is the function of a centralized network controller in SDN.	Understand	CO2	ACS510.6
6	Define network function virtualization and explain with neat diagram.	Remember	CO2	ACS510.6
7	Discuss about network function virtualization with example.	Understand	CO2	ACS510.6
8	Describe the IoT system management in detailed.	Remember	CO2	ACS510.5
9	What is the role of IoT NETCONF-YANG management?	Remember	CO2	ACS510.6
10	Discuss about the IoT NETCONF-YANG with components.	Remember	CO2	ACS510.6
11	Differentiate between IoT and M2M.	Remember	CO2	ACS510.4
12	Explain the limitations of conventional network architectures.	Understand	CO2	ACS510.5
13	Discuss SDN architecture in detail	Understand	CO2	ACS510.4
14	Describe how SDN can be used for various levels of IoT.	Remember	CO2	ACS510.5
15	Describe how SDN is used for different IoT levels	Remember	CO2	ACS510.6
16	Describe how NFV is used for virtualization of IoT	Remember	CO2	ACS510.4
17	Difference between SDN and NFV	Understand	CO2	ACS510.5
18	What is the function of centralized network controller in SDN	Understand	CO2	ACS510.4
19	Which communication protocols are used in M2M local area network?	Remember	CO2	ACS510.5
20	Describe YANG hierarchical structure with data types	Remember	CO2	ACS510.6
	PART – C (CRITICAL THINKING)	
1	What is the function of centralized network controller in SDN? Differentiate between SDN and NVF?	Understand	CO2	ACS510.4
2	What are the differences between Machines in M2M and things in IoT and communication protocols in M2M and IoT?	Understand	CO2	ACS510.4
3	Why is network wide configuration important for IoT systemswith multiple nodes? Explain with an illustration.	Understand	CO2	ACS510.5
4	What is NETCONF server explain its significance in IoTsystemManagement withNETCONF-YANG?	Understand	CO2	ACS510.4
5	Describe the roles of YANG and Trans API modules in device management, with a neat sketch.	Understand	CO2	ACS510.5

	UNIT-III			
	IOT ARCHITECTURE AND	PYTHON		
	PART – A (SHORT ANSWER (
1	Define node.	Understand	CO2	ACS510.7
2	What is gateway?	Remember	CO2	ACS510.7
3	State node structure used in IoT.	Understand	CO2	ACS510.7
4	What is state of art?	Remember	CO2	ACS510.8
5	List out various IoT devices used in reference model?	Understand	CO2	ACS510.8
6	Define package?	Remember	CO2	ACS510.7
7	Differentiate procedure oriented programming and object oriented programming?	Understand	CO2	ACS510.9
8	What is the use of keyword argument in Python?	Understand	CO2	ACS510.7
9	Illustrate the IoT data types and data structures with example?	Remember	CO2	ACS510.7
10	Explain working with lists in Python?	Understand	CO2	ACS510.8
11	Explain control flow in computer networks	Remember	CO2	ACS510.7
12	Illustrate importing of packages from Arduino software	Understand	CO2	ACS510.8
13	List out packages required for humidity sensor	Remember	CO2	ACS510.7
	PART – B (LONG ANSWER Q	UESTIONS)		
1	Explain the architecture reference model IoT.	Remember	CO2	ACS510.7
2	Demonstrate the IoT architecture with diagram and explain.	Understand	CO2	ACS510.8
3	Describe the working of modules in Python.	Understand	CO2	ACS510.9
4	Illustrate the IoT data types and data structures with example.	Remember	CO2	ACS510.7
5	Explain about i) control flow ii) packages iii) file handling of IoT.	Remember	CO2	ACS510.7
6	What type of Architecture reference model is used for IoT and explain.	Understand	CO2	ACS510.8
7	Discuss about IoT reference model with diagram.	Remember	CO2	ACS510.8
8	What is State of the art introduction of IoT architecture?	Understand	CO2	ACS510.9
9	Explain about various stages of IoT with neat diagram.	Remember	CO2	ACS510.8
10	What is the importance of IoT architecture and explain?	Understand	CO2	ACS510.8
	PART – C (CRITICAL THINKING			
1	An Architectural Reference Model (ARM) can be visualised as the <i>matrix</i> that eventually derives into a large set of concrete IoT architectures. Justify your answer with neat diagram.	Understand	CO2	ACS510.8
2	In any metamorphic representation IoT ARM can represented in the form of a tree. Represent it and explain its parts realte to IoT.	Understand	CO2	ACS510.7
3	The foundation of the IoT Reference Model is the IoT Domain Model, which introduces the main concepts of the Internet of Things like Devices, IoT	Understand	CO2	ACS510.8

	Services and Virtual	1		
	Entities (VE). Justify your answer with a neat sketch			
	and explain.			
4	What is the difference between a Python module and	Understand	CO2	ACS510.9
-	a package? Illustrate with an example.	Onderstand	CO2	ACS310.7
5	How is function overriding implemented in Python?	Understand	CO2	ACS510.8
	Explain with an example.	Chacistana	CO2	7100510.0
6	Difference between physical and virtual entry	Understand	CO2	ACS510.9
7	What is the purpose of information model?	Understand	CO2	ACS510.9
8	Discuss in detail about IoT reference model with	Understand	CO2	ACS510.9
	diagram.	Chacistana	202	1100010.5
9	Discuss State of the art introduction of IoT	Understand	CO2	ACS510.9
	architecture?		002	11000100
	UNIT – IV			l
	IoT PHYSICAL DEVICES AND	END POINTS	}	
	PART – A (SHORT ANSWER Q			
1	What are the basic building blocks of an IoT device?	Remember	CO3	ACS510.10
2	List out the Raspberry Pi interfaces?	Remember	CO3	ACS510.10
3	Write about Raspberry Pi?	Remember	CO3	ACS510.10
4	Write the purpose of Serial Raspberry Pi interface?	Remember	CO3	ACS510.11
5	Write the purpose of SPI Raspberry Pi interface?	Remember	CO3	ACS510.11
6	Write the purpose of I2C Raspberry Pi interface?	Remember	CO3	ACS510.12
7	What are the various components/peripherals labeled	Understand	CO3	ACS510.12
	with the Raspberry Pi board?			
8	How is Raspberry Pi different from a Desktop	Understand	CO3	ACS510.12
	computer?			
9	What is the use of GPIO pins?	Remember	CO3	ACS510.12
10	What is Cubieboard?	Remember	CO3	ACS510.12
11	Write short note on pcDuino?	Remember	CO3	ACS510.11
12	Discuss abotBeagleBone Black.	Remember	CO3	ACS510.12
13	Write about Arduino	Understand	CO3	ACS510.12
14	Write the purpose od Arduino digital pins	Remember	CO3	ACS510.12
15	Write about the purpose of analog pin	Remember	CO3	ACS510.12
	PART – B (LONG ANSWER Q	UESTIONS)		_
1	Discuss various building blocks of IoT with help of	Understand	CO4	ACS510.12
	neat sketch.			
2	What is Raspberry Pi? Explain Raspberry Pi board	Remember	CO4	ACS510.10
	with			
	various components?			
3	Discuss Raspberry Pi GPIO with PINs.	Remember	CO4	ACS510.12
4	Demonstrate Raspberry Pi with interfacing LED.	Understand	CO4	ACS510.11
5	Explain about Raspberry Pi interfaces.	Understand	CO4	ACS510.11
6	Write a Python program for blinking LED with	Remember	CO4	ACS510.10
	Raspberry Pi?	TT 1	GO 1	1.00510.10
7	What is the impact of Internet of Things having on	Understand	CO4	ACS510.10
	Healthcare sector?	TT 1 · ·	004	A CCC 10 11
8	What are the different sectors where the Internet of	Understand	CO4	ACS510.11
	Things can actually add value to the current			
	processes?			

9	Explain why energy consumption will be an issue when the Internet of Things is implemented?	Understand	CO4	ACS510.12
10	What are the main challenges of the Internet of	Remember	CO4	ACS510.11
10	Things implementation?	Kemember	C04	AC\$510.11
11	Discuss various building blocks of IoT with help of	Understand	CO4	ACS510.10
	neat sketch.			
12	Discuss the steps to download Arduino software	Remember	CO4	ACS510.12
13	Illustrate an LED with Arduino	Understand	CO4	ACS510.11
	PART – C (CRITICAL THINKING		•	
1	How Rasberry Pi different from a desktop computer?	Understand	CO4	ACS510.10
	Justify your answer with an illustration.			
2	Write a Python program for controlling an LED with	Understand	CO4	ACS510.11
	a swith.	** 1		4 00510 10
3	Write a Python program for sending an email on switch press.	Understand	CO4	ACS510.12
4	Write a Python program for switching LED/Light	Understand	CO4	ACS510.12
	based on reading LDR reading.	Chacistana	COT	7105510.12
5	Which are alternatives to Rasberry Pi? Explain with	Understand	CO4	ACS510.10
	neat diagrams.	Charletana	001	1105510.10
	UNIT-V	1		L
	IoT PHYSICAL SERVERS AND CLO	OUD OFFERIN	NGS	
	PART – A (SHORT ANSWER Q	UESTIONS)		
1	What is Arduino?	Remember	CO4	ACS510.14
2	Write short note on web application messaging	Understand	CO4	ACS510.14
	protocol?			
3	Discuss the importance of XML in IoT?	Understand	CO4	ACS510.13
4	Define Virtual workspaces?	Remember	CO4	ACS510.15
5	List out the cloud storage models?	Understand	CO4	ACS510.13
6	What is Xively cloud service?	Understand	CO4	ACS510.15
7	What is Boto?	Remember	CO4	ACS510.15
8	What is Autobahn for IoT?	Understand	CO4	ACS510.15
9	What are the features of Autobahn?	Understand	CO4	ACS510.15
10	Write a short note on about Scikit-learn package?	Remember	CO4	ACS510.14
	PART – B (LONG ANSWER Q)			
1	Define WAMP protocol and explain WAMP	Remember	CO4	ACS510.14
	concept.			
2	With an example discuss about IoT application with	Understand	CO4	ACS510.14
	Amazon Auto Scaling by using Python code.		~~.	
3	Explain about IoT cloud with home automation.	Understand	CO4	ACS510.13
4	Discuss about the analysis of IoT with smart environment.	Remember	CO4	ACS510.15
		I Indoneton d	CO4	A CC510 12
5	Explain about Xively Cloud for IoT.	Understand	CO4	ACS510.13
6	What are the risks and challenges that we should be aware of when it comes to the Internet of	Understand	CO4	ACS510.15
7	Everything? Explain the concept of Home Automation using IoT	Remember	CO4	ACS510.15
8	Explain the concept of Home Automation using IoT. What are the impacts that can be observed in	Understand	CO4	ACS510.15 ACS510.15
^	•	Understand	CO4	ACS310.13
	implementing internet of Things on Agriculture sector?			
	sector:			

9	What Impacts will the Internet Of Things haveon	Understand	CO4	ACS510.15
	infrastructure and smart cities sector?			
10	Compare the contrast the difference between	Remember	CO4	ACS510.14
	Wireless Sensor Network (WSN) and Internet Of			
	Things (IoT)?			
	PART – C (CRITICAL THINKING	G QUESTION	S)	
1	What does a MapReduce job comprise of? Explain	Understand	CO4	ACS510.13
	with an example.			
2	What are the uses of message queues? What are the	Understand	CO4	ACS510.15
	message formats supported by Amazon SQS?			
	Explain.			
3	What is Amazon DynamoDB? Describe an	Understand	CO4	ACS510.14
	application that can benefit from Amazon			
	DynamoDB.			
4	Extend the functionality of the home intrusion	Understand	CO4	ACS510.15
	detection IoT system by interfacing a webcam.			
	Implement a function in the controller to capture an			
	image from the webcam and send it as			
	an attachment in the email alert when an intrusion is			
	detected.			
5	Implement the air pollution monitoring system using	Understand	CO4	ACS510.13
	the webSocket approach.			

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