O.P.Code: 23CS1003	R23	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Regular Examinations December-2025
DESIGNING THE INTERNET OF THINGS
CSE (Internet of Things and Cyber security Including Block Chain Technology)

Time: 3 Hours **Max. Marks: 70**

PART-A
(Answer all the Questions **10 x 2 = 20** Marks)

1	a	What are the key components of a connected device?	CO1	L1	2M
	b	What is meant by "data organization" in IoT?	CO2	L2	2M
	c	Define Wireless Sensor Network (WSN).	CO3	L1	2M
	d	What is the role of data analytics in IoT?	CO5	L2	2M
	e	List two protocols used for communication in IoT devices.	CO1	L1	2M
	f	What are the advantages of using C for embedded systems?	CO3	L2	2M
	g	What are the key components of an RTOS?	CO1	L2	2M
	h	List any two features of Nucleus SE.	CO4	L1	2M
	i	What is the role of software tools in IoT development?	CO1	L1	2M
	j	What is NETCONF used for in IoT networks?	CO2	L2	2M

PART-B
(Answer all Five Units **5 x 10 = 50** Marks)

UNIT-I

2	a	Explain briefly about that Modified OSI model for IOT/M2M systems.	CO2	L2	5M
	b	Explain briefly about ITU-T Reference Model.	CO3	L2	5M
		OR			
3	a	Write down the differences between SQL and NOSQL.	CO2	L4	5M
	b	Write down the differences between Flat file and Relational Databases.	CO1	L2	5M

UNIT-II

4	a	Explain any two types of IoT prototyping.	CO5	L3	5M
	b	Differentiate between sensors and Actuators.	CO2	L4	5M
		OR			
5	a	Describe the function of an IoT middleware with an example.	CO5	L2	5M
	b	List and explain any two cloud platforms used for IoT.	CO5	L1	5M

UNIT-III

6	a	Describe the differences between using C and Python for programming IoT.	CO2	L4	5M
	b	Explain the characteristics of Python programming language.	CO3	L2	5M
		OR			
7	a	Describe the working principle of an IoT-based temperature controller system.	CO4	L6	5M
	b	Explain how soil moisture level is monitored and how it triggers water pump activation in a smart irrigation system.	CO4	L4	5M

UNIT-IV

8	a	Explain the basic program structure of an Embedded RTOS.	CO1	L2	5M
	b	Define real-time, multi-tasking and explain how scheduling works in RTOS.	CO2	L2	5M
		OR			
9	a	How do RTOS manage tasks in IoT?	CO4	L4	5M
	b	Explain the use and working of application timers in Nucleus SE.	CO6	L3	5M

UNIT-V

10	a	List and explain the basic building blocks of an IoT device.	CO1	L2	5M
	b	Give any five examples of IoT devices and briefly describe their functions.	CO1	L1	5M
		OR			
11	a	Explain the role of pcDuino as an IoT device.	CO2	L2	5M
	b	What are the benefits of using IoT device management tools?	CO4	L2	5M

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