Sub Code: R2331045B **R23**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURUJADA VIZINAGARAM
III B. Tech I Semester Regular Examinations November -2025
INTERNET OF THINGS
(DEPARTMENT OF ECE)

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

The Question paper consists of Part A & Part B.
Part A is compulsory, Answer all questions. Part B Answers any one question from each unit.
*****

1		PART-A	(20Marks)
	a)	Define Internet of Things.	[2]
	b)	What are smart objects? Give examples.	[2]
	c)	List any two IoT access technologies.	[2]
	d)	What is the purpose of the 6LoWPAN protocol?	[2]
	e)	Differentiate between Raspberry Pi and Arduino boards.	[2]
	f)	What are the main building blocks of an IoT system?	[2]
	g)	Define “Data in motion” and “Data at rest” in the context of IoT.	[2]
	h)	What is “Everything as a Service (XaaS)” in IoT?	[2]
	i)	Mention any two IoT applications in industrial automation.	[2]
	j)	What is Industry 4.0?	[2]
		PART-B	(50Marks)
		Question from **Unit - I**	
2	a)	Explain the evolution and enabling technologies of the Internet of Things.	[5]
	b)	Describe the core IoT functional stack and its major components.	[5]
		(OR)	
3	a)	Discuss the IoT World Forum (IoTWF) standardized architecture.	[5]
	b)	Explain the roles of sensors, actuators, and smart objects in IoT.	[5]
		Question from **Unit - II**	
4	a)	Describe the physical and MAC layer features of IEEE 802.15.4 and 802.11ah.	[5]
	b)	Explain the working and security aspects of LoRaWAN.	[5]
		(OR)	
5	a)	Compare CoAP and MQTT application layer protocols.	[5]
	b)	Write short notes on constrained nodes and constrained networks.	[5]
		Question from **Unit - III**	
6	a)	Explain the design methodology for developing an IoT system.	[5]
	b)	Discuss the role of microcontrollers and SoCs in IoT hardware.	[5]
		(OR)	
7	a)	Explain the features and applications of Raspberry Pi in IoT.	[5]
	b)	Describe the embedded computing logic used in IoT devices.	[5]

		Question from **Unit - IV**	
8	a)	Differentiate between structured and unstructured data with respect to IoT analytics.	[5]
	b)	Explain cloud service models suitable for IoT applications.	[5]
		(OR)	
9	a)	Discuss challenges in IoT data acquisition and organization.	[5]
	b)	Explain “Everything as a Service (XaaS)” in IoT/M2M environments.	[5]
		Question from **Unit - V**	
10	a)	Discuss IoT applications in smart homes and building automation.	[5]
	b)	Explain the concept of Industry 4.0 and its IoT relevance.	[5]
		(OR)	
11	a)	Illustrate IoT applications in security and infrastructure monitoring.	[5]
	b)	Write short notes on IoT use cases in healthcare and agriculture.	[5]

*****