	PVP 20

III B.Tech - I Semester – Regular / Supplementary Examinations
NOVEMBER 2023

INTERNET OF THINGS
(ELECTRONICS & COMMUNICATION ENGINEERING)

Duration: 3 hours   Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries
14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level   CO – Course Outcome

			BL	CO	Max. Marks
		UNIT-I			
1	a)	What technological advancements paved the way for the emergence of the Internet of Things (IoT)?	L2	CO1	7 M
	b)	Compare and contrast the architectural features of OneM2M IoT Architecture and IoTWF Architecture.	L2	CO1	7 M
		OR			
2	a)	Describe simplified IoT architecture by highlighting the key components such as sensors, communication protocols, cloud services, and data analytics.	L2	CO1	7 M
	b)	Discuss the benefits of utilizing IoT sensors and data analytics for energy optimization in modern buildings.	L2	CO1	7 M

		UNIT-II			
3	a)	Produce various types of sensors in action within the context of the Internet of Things (IoT).	L3	CO2	7 M
	b)	Illustrate the key communication criteria in IoT through practical examples or scenarios.	L3	CO2	7 M
		OR			
4	a)	Show the contribution of smart objects in data collection, interaction capabilities and processing of IoT devices.	L3	CO2	7 M
	b)	Compare and contrast the features and capabilities of IEEE 802.15.4, IEEE 1901.2a, and IEEE 802.11ah as IoT access technologies.	L2	CO2	7 M
		UNIT-III			
5	a)	Compare and contrast microcontrollers and System-on-Chips (SoCs), highlighting their architectural differences and application domains in embedded systems.	L3	CO1	7 M
	b)	Discuss the benefits and challenges associated with utilizing open-source hardware and software in embedded system development.	L2	CO3	7 M

		OR			
6	a)	Illustrate Integrated Development Environment (IDE) and also Explain the process of uploading the code in an Arduino board.	L3	CO3	7 M
	b)	Employ the setup () and loop () routines to create a basic program for an Arduino providing a comprehensive explanation of the purpose and functioning of each routine.	L2	CO3	7 M
		UNIT-IV			
7	a)	Illustrate the different layers of the TCP/IP protocol suite using a well-organized diagram.	L3	CO4	7 M
	b)	Examine the utilization of both the HTTP and HTTPS protocols within the application layer.	L1	CO4	7 M
		OR			
8	a)	Explain how the foundational principles of the internet contribute to the seamless communication framework of the Internet of Things (IoT) ecosystem.	L2	CO4	7 M
	b)	Demonstrate on the motivations behind the adoption of IPv6 and how it addresses the limitations of IPv4, particularly in accommodating the vast number of IoT devices.	L3	CO4	7 M

UNIT-V

9	a)	Choose two distinct messaging protocols and provide a comprehensive analysis of each protocol's characteristics.	L3	CO5	7 M
	b)	Demonstrate Mashing up APls, Legalities, Scraping.	L3	CO5	7 M
OR					
10	a)	Explain the fundamental concept of an API and its significance in connecting and interacting with online components in the context of IoT.	L2	CO5	7 M
	b)	Discuss the benefits of using online analytics tools to gain insights from IoT-generated data and inform decision-making processes.	L2	CO5	7 M